STUDY REPORT
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CENTRALLY FUNDED SECOND DESTINATION TRANSPORTATION (CFSDT) STUDY

JANUARY 1986

PREPARED BY
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CAA

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The CFSDT Study consists of a review and analysis of the current transportation accounting systems for second destination transportation, recommendation for modifications to the current financial management system including the development of new management tools to enhance SDT management.

The current accounting system is based on the bills received from the TOAs. Since these bills arrive late, an accurate picture of the execution of the

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CFSDT budget is not available until after the end of the fiscal year. In prior years this has resulted in a shortage or surplus of money obligated at year end. Ancillary to this central problem is the issue of ensuring that the Army is paying the correct amount for SDT and payments are exclusively for Army sponsored shipments.

An evaluation of four alternatives to the current system was made. A model forecasting obligations based on expenditures was developed for implementation in the near term, and a methodology for implementing a transaction-by-transaction accrual accounting system was presented for consideration as a long-term solution.

These two management tools allow ODCSLOG program managers to monitor the SDT budget during the execution year by estimating the obligations necessary to cover all fiscal year SDT costs.

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DEPARTMENT OF THE ARMY
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REPLY TO ATTENTION OF:

CSCA-FSL

07 APR 1986

SUBJECT: Centrally Funded Second Destination Transportation (CFSDT) Study

Deputy Chief of Staff for Logistics
Department of the Army
ATTN: DALO-RMB
Washington, D.C. 20310

1. Reference letter, DALO-RMB, 16 April 1985, SAB.

2. Subject letter directed the U.S. Army Concepts Analysis Agency (CAA) to conduct a study to evaluate the current transportation accounting systems with respect to second destination transportation (SDT) and make recommendations for system modifications.

3. This final report documents our analysis of the SDT accounting system and outlines additional management tools to assist in the SDT financial management process. Comments provided by DALO-RMB on the draft final report have been reviewed and incorporated in the final report.

4. This Agency expresses appreciation to all commands and agencies which have contributed to this study. Questions and/or enquiries should be directed to the Assistant Director, Force Systems Directorate, U.S. Army Concepts Analysis Agency, 8120 Woodmont Avenue, Bethesda, MD 20814-2797, AUTOVON 295-1607.

E. B. VANDIVER III
Director

CENTRALLY FUNDED SECOND DESTINATION TRANSPORTATION (CFSDT) STUDY	STUDY SUMMARY CAA-SR-86-2

THE REASON FOR PERFORMING THE STUDY was to review and analyze the current transportation accounting systems for second destination transportation (SDT) and identify modifications to the current financial management process or develop new management tools that could enhance the ability to manage SDT.

THE PRINCIPAL FINDINGS of the work reported herein are as follows:

(1) There is little correlation between total dollars budgeted for overocean cargo and total tons of overocean cargo shipped. Budget estimates are based on fixed rates, but the actual charge may vary significantly from the fixed rate.

(2) The transportation operating agencies (TOA) may make changes to the initial routing or mode of transportation, causing variances in the cost of individual shipments. Also, the type of commodity affects charges.

(3) Overocean SDT funds are not identified specifically in the Operation and Maintenance, Army (P7) appropriation, thus tracking of overocean SDT funds is difficult since other funds are included in P7.

(4) Official billings lag shipments by about 4 months.

(5) Nonshipment charges amounting to approximately 2 percent of the SDT budget are not budgeted.

(6) A complete audit trail is not possible due to missing historical records and inconsistent financial accounting records.

(7) The Navy and Air Force SDT financial management systems have reduced the error rate in obligating SDT funds to a reported rate of less than 1 percent.

THE MAIN ASSUMPTIONS of this work are:

(1) Cargo rates derived for the current system will be applicable to the alternative system.

(2) Current SDT accounting systems for overocean SDT will be maintained.

(3) Department of Defense (DOD) Regulation 4500.32R, Military Standard Transportation and Movement Procedures (MILSTAMP), will remain in effect during the timeframe of the study.

THE PRINCIPAL LIMITATIONS of this work which may affect the findings are:

(1) Only overocean SDT cargo transactions were reviewed.

(2) Only data which reflect the current procedures in estimating obligations for overocean cargo shipments were used.

THE SCOPE OF THE STUDY included a review of Army and other service current transportation accounting systems and considered modifications and improvements to the Army system.

THE STUDY OBJECTIVES were:

(1) Determine problems associated with the current procedure for estimating obligations based on historical data, forecasted shipments, and bills received.

(2) Examine alternative solutions to the problem, evaluate these solutions, and provide recommended changes to the current Army SDT management information and reporting systems.

THE BASIC APPROACHES used in this study were to:

(1) Review the current Army SDT accounting system including the forecasting function, budget function, order initiation, preparation of shipment, shipment from depot, receipt at port, ship loading, billing, and reimbursement accounting.

(2) Review the other services' SDT accounting systems for possible application to the Army.

(3) Identify system improvements or alternatives.

(4) Develop a model which could be implemented in the near term to aid program managers at the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) to make more accurate forecasts of overocean SDT billings and disbursements throughout the fiscal year.

(5) Provide a methodology for an automated system to account for the obligation and liquidation of overocean SDT costs on a transaction-by-transaction basis.

THE STUDY SPONSOR was the Deputy Chief of Staff for Logistics, who established the objectives and monitored study activities.

THE STUDY EFFORT was directed by Kenneth R. Simmons, Force Systems Directorate.

COMMENTS AND QUESTIONS may be sent to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-FS, 8120 Woodmont Avenue, Bethesda, Maryland, 20814-2797.

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CENTRALLY FUNDED SECOND DESTINATION TRANSPORTATION (CFSDT)

CHAPTER 1

EXECUTIVE SUMMARY

1-1. PROBLEM. The current transportation accounting systems do not provide actual obligation (lift) data in a sufficiently timely manner to provide a basis for decisions to control and adjust resources.

1-2. BACKGROUND. The current transportation accounting system requires that the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) provide movement forecasts of Army-sponsored cargo to the Military Sealift Command (MSC), Military Traffic Management Command (MTMC), and the Military Airlift Command (MAC) in accordance with Joint Chiefs of Staff (JCS) Publication 15. Obligation estimates for cargo moves are provided by ODCSLOG for accounting purposes to the US Army Finance and Accounting Center (USAFAC). USAFAC then establishes obligations of funds based on these bulk forecasted moves. As cargo moves are made, MSC, MTMC, and MAC provide billing data on a monthly basis to USAFAC, which pays the bills and performs fund accounting and reporting. However, each transaction which is paid cannot be tracked to the specific cargo move to which the obligation pertains and this may lead to potential overobligations or to significant deobligations after the year of execution, in which case the funds would be lost to the Army.

1-3. PURPOSE. The Centrally Funded Second Destination Transportation (CFSDT) Study reviewed and evaluated the current transportation accounting systems for second destination transportation (SDT) and identified modifications to the current financial management process which could enhance the ability to monitor SDT.

1-4. OBJECTIVES. The objectives of this study, as defined in the directive, are as follows:

a. Determine problems associated with the current procedure of estimating obligations based on historical data, forecasted shipments, and bills received.

b. Examine alternative solutions to the problem, evaluate these solutions, and provide recommended changes to the current management information and reporting systems.

1-5. SCOPE AND LIMITATIONS. The study reviews current transportation accounting systems and considers system modifications that will permit obligation and liquidation of overocean SDT costs on a transaction-by-transaction basis. Only overocean SDT transactions will be received and only data which reflects the current procedures in estimating obligations for bulk shipment will be used.

1-6. ASSUMPTIONS. The assumptions of this study, as defined in the directive, are as follows:

a. Cargo rates derived for the current system will be applicable to the alternative systems.

b. Current SDT accounting systems for overocean SDT will be maintained.

c. Department of Defense (DOD) Regulation 4500.32R, Military Standard Transportation and Movement Procedures (MILSTAMP), will remain in effect during the timeframe of the study.

1-7. STUDY METHODOLOGY. The study was organized into three phases--the approach, alternative system development, and documentation of the study results. Figure 1-1 illustrates the methodology developed for the study.

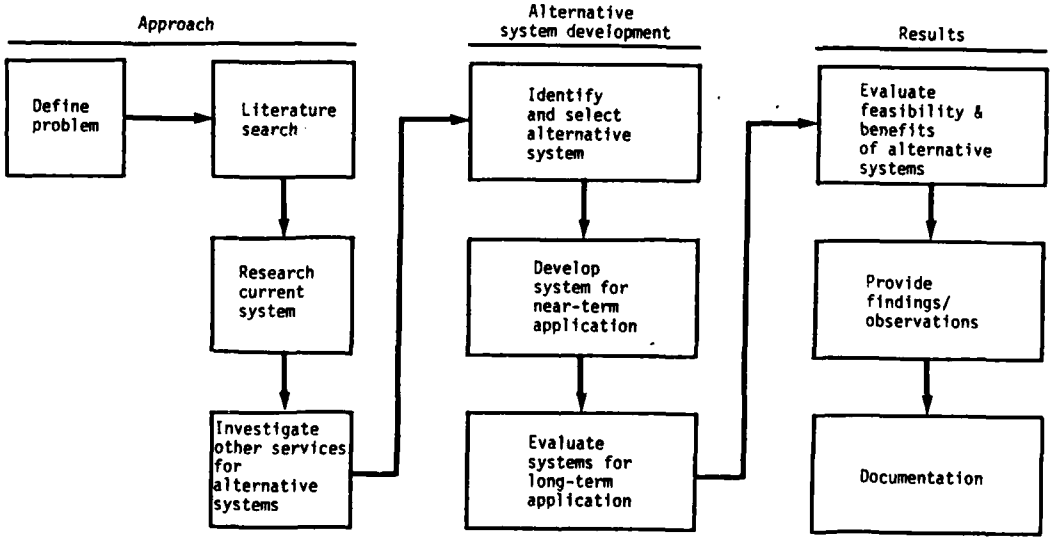


Figure 1-1. **Study Methodology**

1-8. SUMMARY OF FINDINGS AND OBSERVATIONS

a. Essential Elements of Analysis (EEA). The EEAs which were developed at the onset of the study and stated in the CFSDT study directive (Appendix B) are addressed below.

(1) What was the impact in prior years of over or under obligation of funds for SDT? It has been difficult for ODCSLOG to consistently track budget requests, annual funding, and disbursals. The percent difference between budget requests and disbursals ranged from -13.9 percent (under) to +40.8 percent (over) for the years FY 80 to FY 84. The percent difference between annual funding and disbursals ranged from -5.5 percent (under) to +8.6 percent (over) for this same time period. OCOA has either had to provide additional funding or to deobligate surplus funds for SDT because ODCSLOG program managers cannot provide OCOA with accurate funding requirements at the end of the fiscal year. The uncertainty in determining the SDT budget variance has required the shifting of OMA funds after the end of the fiscal year.

(2) How timely and useful are current and historical data on over-ocean moves for management of resources and budget estimation? Current data are not provided to the program monitor in a timely manner due to the late posting of bills and monthly accumulation of data. Incomplete data are used to forecast workloads, prepare budgets, and track disbursals. Data would be useful for management of resources and budget estimation if received in a timely fashion. Additional historical data would improve forecasting capabilities. Current historical data covers too short a span and is incomplete. More complete data on SDT billings and disbursements over several years would improve SDT financial management during execution of the budget and should provide more accurate shortfall or surplus estimates prior to the end of the fiscal year.

(3) Can the Mechanization of Selected Transportation Movement Reports (MECHTRAM) system be modified to provide use of a more extensive data base and to provide timely and accurate cost and performance data for use by forecasters and budget analysts? The current MECHTRAM system could be improved by adding an accrual accounting capability. This could be accomplished either by modifying the current MECHTRAM system or by incorporating the Air Force Logistics Command (AFLC) system into MECHTRAM. Thus, modifying MECHTRAM could improve SDT accounting and reporting, budget forecasting, and tracking as well as provide a means for automating the SDT portion of the budget execution process. However, these improvements of MECHTRAM by either of these methods could not be incorporated in the near timeframe and the improved system would still not permit tracking of SDT funds on a transaction-by-transaction basis, which is a major goal for the selected long-term solution. Also, either of these two methods for modifying MECHTRAM would require significant one-time costs. As an alternative for the short-term solution, the MECHTRAM system could incorporate the CAA extract program, which provide input for the Monthly Billing Estimates Model. However, since incorporating the extract program into the MECHTRAM system would not produce any measurable savings in computer time, it is proposed to be run separately.

(4) What are the benefits associated with improved reporting and accounting systems? The CAA extract program and the monthly billing estimates model application will permit the program monitor to more accurately forecast obligations and disbursements, thus improving budget execution. Specifically, improved reporting and accounting systems will result in the following benefits.

(a) Ability to manage and forecast SDT expenditures throughout the fiscal year.

(b) Ability to provide OCOA with a more accurate estimate of the shortfall or surplus of SDT funds prior to the end of the fiscal year, resulting in more lead time for any required transfers of OMA funds.

(c) Ability to forecast and budget for nonshipment charges.

(d) Result in a historical data base that can be used to fine tune forecasts over time.

(e) Improve the SDT fund audit trail.

(5) What methodologies exist in the other services which might have application to the Army problem? The current Air Force system has improved editing capabilities and permits improved tracking of expenditures during budget execution. A future Air Force system, to be developed under contract, will provide enhanced transportation financial management and documentation and will establish a direct interface with MAC, MSC, and MTMC. The Navy system incorporates a forecasting methodology which enables the program monitor to obligate funds with a reported error rate of less than 1 percent. This system is directly applicable to the Army problem. The Marine system is not applicable to the Army since it is very limited in scope due to the small number of SDT transactions handled by the Marines.

b. Summary of Findings and Observations

(1) Prior year data shows a shortage or surplus of money obligated at year end in comparison to the CFSDT budget.

(2) Due to the lack of historical data and the substantial programing effort required, a transaction-by-transaction system could not be developed in the limited time frame of this study.

(3) SDT obligations and disbursements can be accurately estimated from billing data tapes and historical disbursement data.

(4) Nonshipment charges can be estimated and included in the budget forecast by utilizing the CAA developed factor routine.

(5) LCA is the logical choice to implement a transaction-by-transaction system because most data required for this system is currently collected there and LCA has the required computer capabilities. Development of software would be required.

(6) Budget estimates are based on fixed rates, but changes in commodity, mode of shipment, or channel cause significant variations in actual costs.

(7) Since TOAs determine routing or mode of shipping of overocean cargo, the cost to ship cargo varies from the ODCSLOG budget estimate using fixed rates.

(8) The Navy and Air Force generally have been able to forecast SDT budget requirements more accurately than the Army.

(9) Official billings (SF 1080s) lag shipments by about 4 months.

(10) There is little correlation between total dollars spent and total tons moved.

(11) Nonshipment charges are not budgeted. Direct billings are used rather than the regular monthly bills to cover nonshipment charges.

(12) A poor audit trail exists due to missing and inconsistent historical financial accounting records.

(13) SDT Funds are not fenced. Monthly changes to funding level are experienced.

1-9. CONTENTS OF THE REPORT. The chapters that follow, supported by the appendices, present the results of the CFSDT Study. Chapter 2 discusses the study methodology. Chapter 3 describes the current Army SDT accounting process and highlights major problem areas associated with this process. Chapter 4 describes the methods used by the other services to monitor SDT funds. Chapter 5 evaluates alternatives to the current system and documents the prescribed alternative model for use by ODCSLOG to forecast SDT expenditures on a month-to-month basis throughout the fiscal year and outlines a transaction-by-transaction system to track the obligation and liquidation of SDT funds. Chapter 6, the final chapter, summarizes the study, addresses the EEA, and provides observations based on the results.

CHAPTER 2

STUDY METHODOLOGY

2-1. INTRODUCTION. This chapter presents the methodology employed and the general tasks performed during the conduct of the CFSDT Study. Included is the methodology to identify and review the current process, the identification of alternatives, the evaluation techniques employed, quality assurance procedures, and documentation of final results.

2-2. STUDY METHODOLOGY. The methodology developed for this study is shown in Figure 2-1. Generally, the study was organized into three phases. These include the approach, alternative system development, and documentation of the study results.

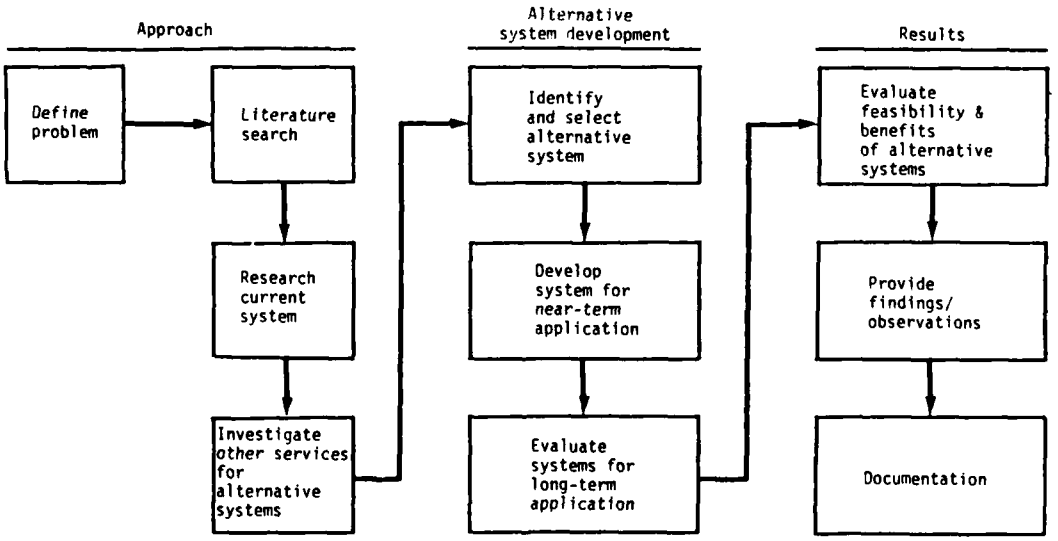


Figure 2-1. Study Methodology

a. Approach Phase. The approach phase (see Figure 2-1) contains problem definition, literature search, current system research, and review of other services, leading to definition of alternatives.

(1) Define Problem. The problem, as defined by ODCSLOG, is contained in the study directive shown in Appendix B. Problems exist such that the current Army transportation systems do not provide actual obligation (lift) data in sufficient time to provide a basis for decisions to control and adjust resources. The problem was further defined as a result of consultations with personnel involved with second destination transportation in the Army and other services.

(2) Perform Literature Search. A computerized literature search was conducted for completed studies related to the CFSDT system. The search included information obtained from the Defense Technical Information Center (DTIC) and the Defense Logistics Studies Information Exchange (DLSIE). Department of Defense (DOD), Joint Chiefs of Staff (JCS), and Department of the Army (DA) regulations appropriate to the study were reviewed. A comprehensive study bibliography list is contained in Appendix C.

(3) Research Current Accounting System. The current SDT accounting system was identified through visits to the sites shown in Table 2-1. The current system evaluation included a review of the forecasting function, budget function, order initiation, preparation of shipment, shipment from depot, receipt at port, ship loading, billing, and reimbursement accounting. The time-phasing from initiation of a cargo shipment order from a depot through actual lift and time of billing through reimbursement was examined. Prior year overobligations and deobligations were examined for the current system for the purpose of developing improvements in forecasting obligations during budget execution. The computer-based model, MECHTRAM, was examined to determine how it was used in the current system and if any improvements could be made to the model that would enhance the current financial management of SDT.

Table 2-1. Data Collection Site Visits

Office of Secretary of Defense (Comptroller)
HQ Defense Logistics Agency
HQ Military Traffic Management Command
HQ Military Traffic Management Command (Eastern Area)
HQ Military Sealift Command
Office of the Deputy Chief of Staff for Logistics
HQ Army Materiel Command
Office of Comptroller of the Army
US Army Finance and Accounting Center
US Air Force Logistics Command
US Navy Supply System Command

(4) Investigate Alternative Systems in Other Services. Alternative systems were investigated by reviewing the SDT accounting systems of the other services. The methods used by the other services for forecasting, budgeting, billing, and disbursing SDT funds were examined and compared to the Army. Any system that provided for a more efficient execution of the SDT budget for that service was examined for potential incorporation into the Army SDT budget execution process.

b. Alternative System Development Phase. This phase included definition of data requirements and identification and selection of alternatives.

(1) Identification and Selection of Alternative Systems

(a) Determine Data Requirements. Input/verification data and system structure documentation were reviewed to determine alternative system data requirements. Data required and data sources are listed as follows:

Data source	Data required
ODCSLOG	Budget data, MECHTRAM system description, and MECHTRAM reports
OCOA	Obligation and funding data
USAFAC	Funding Authorization Document (FAD) and actual SF1080 bills
MAC, MTMC, and MSC	Automated system structure and billing data tapes
Logistic Control Activity (LCA)	Supply/transportation system structure description, e.g., Logistics Intelligence File (LIF)
Air Force Logistic Command (AFLC)	Transportation system's structure

(b) Select Alternatives. Alternative systems were selected that offered the benefits of systems already operated by the other services and corrected deficiencies that were identified in the current financial management process. Specifically, alternative systems were selected to improve the accuracy of SDT accounting and budgeting with respect to the management of billings, SDT obligations, and disbursements.

(2) Develop System for Near-term Application. A system that could be utilized for application in the near term was developed. This system was designed to provide immediate assistance in executing the Army SDT budget. The near-term alternative system objective was to provide ODCSLOG with a mechanism to estimate the amount of CFSDT funds obligated for the fiscal year prior to the end of the fiscal year. Prerequisites for near-term implementation included limited additional resources required, usage of existing data, and availability of suitable software packages.

(3) Evaluate System for Long-term Application. The long-term system was developed to provide a methodology for future implementation of a transaction-by-transaction system that has the capability to track each cargo shipment, and each bill placed against that shipment from the time it is received from the TOA until it reaches its final destination.

c. Results and Documentation Phase. This phase provided an evaluation of the alternative systems and identified their benefits. Documentation of the final results was included.

(1) Evaluate Feasibility and Benefits of Alternative Systems. Benefits and feasibility were qualitatively evaluated. Benefits of alternative systems were identified as corrections or improvements to problem areas in the current system. The feasibility of alternative systems were subjectively considered with respect to system complexity, level of effort involved in system design, data collection requirements, and additional resources required for system operation and maintenance.

(2) Provide Findings/Observations and Documentation. The study, to include findings and results was documented and provided to the study sponsor in January 1986.

2-3. QUALITY ASSURANCE PROCEDURES. Throughout this study, quality assurance techniques such as verifying financial data from multiple sources have been incorporated by both the study team and study contributors. The study results were examined to determine if they were reasonable, considering major study assumptions. The study report was reviewed by the study team, study editor, Division Chief, and Assistant Director. Additionally, a US Army Concepts Analysis Agency (CAA) Product Review Board (PRB), consisting of three CAA analysts not involved in the study and a CAA Analytical Review Board (ARB), comprising all Directorate Chiefs, the Chief of Staff, the Deputy Director, and the Director of CAA reviewed the study for completeness.

CHAPTER 3

THE CURRENT PROCESS

3-1. INTRODUCTION. The purpose of this chapter and the associated appendices is to describe and analyze the current process used to manage second destination transportation. Included is an overview, the organizations involved in management, operation of the system, the budget and budget execution process, and a detailed discussion on the billing process. The analysis includes a discussion of the problem areas identified during the review process.

3-2. OVERVIEW. Second destination transportation is defined by the Army in Army Regulation (AR) 310-25 as "the subsequent movement of property from the point of storage at which originally received from point of origin." SDT consists of both inland movement from point-to-point by line haul or rail, overocean movement, port handling of export and import cargo, Continental United States (CONUS) and overseas port handling, and intratheater movement. SDT funds cover the cost of shipping cargo from CONUS to field activities worldwide with the overocean segment performed by MSC, MAC, and commercial carriers. It is these overocean activities, which comprise 80 percent of the total SDT expenditures, that are the focus of this study. Included in SDT is the transportation of the necessary supplies, equipment, and personal use items to support the Army. Also included are Army initiatives such as buildup of supplies, retrograde of equipment, and supplies to CONUS for rebuild and return to the supply system.

3-3. DA TRANSPORTATION MANAGEMENT AND SERVICE ORGANIZATIONS. The Assistant Secretary of the Army (Installations, Logistics, and Financial Management) (ASA) (IL&FM) is responsible for the transportation and distribution functions. The following organizations are key to the management of SDT for the Department of the Army.

a. ODCSLOG. The Director of Transportation, Energy, and Troop Support (DALO-TSP), ODCSLOG, is responsible for the control and coordination of Army transportation services. He ensures integration of transportation concepts, doctrine, and related employment of equipment into the total doctrine for operations of the Army in the field. He also influences the initiation of new concepts and provides active support for the improvement of mobility worldwide. The Director for Resources and Management (DALO-RMB), ODCSLOG is responsible for formulating the SDT budget.

b. Army Materiel Command (AMC). The AMC Director of Supply, Maintenance, and Transportation is responsible for plans, programs, doctrine, and the coordination of certain traffic management and freight movement activities within AMC.

c. Logistic Control Activity (LCA). LCA reports directly to AMC. LCA's services in the movement/transportation area include those actions necessary to monitor and selectively coordinate, expedite, and report on the movement of Army-sponsored cargo from the wholesale system to

destination. LCA personnel analyze transportation performance which could impact the distribution of supplies through the logistic pipeline. In addition, the LCA is authorized to communicate directly with ODCSLOG, overseas commands, CONUS commands, and other commands concerning those matters which affect the movement of Army cargo. Appendix J provides detailed information on the work performed at LCA.

d. Office of the Comptroller of the Army (OCOA). OCOA manages the entire Operation and Maintenance, Army (OMA) appropriation approved by Congress which includes CFSDT. CFSDT funds are apportioned on a quarterly basis by the executive branch through the Office of Management and Budget (OMB). DOD releases the funds, and they are then allocated by the Director of Operation and Maintenance, Army (DOMA), OCOA, to the major commands.

e. US Army Finance and Accounting Center (USAFAC). USAFAC receives allotments for CFSDT from the Director of OMA (COA), and obligates funds to pay for SDT services. USAFAC provides the financial accounting for CFSDT funds.

f. Transportation Operating Agencies (TOA). The three TOAs--the Military Traffic Management Command, the Military Sealift Command, and the Military Airlift Command--have the following responsibilities:

(1) Function as the single manager of a particular transportation mode or function, e.g., air.

(2) Act as the interface with the commercial transportation community.

(3) Manage the government-owned, chartered, and leased aircraft, ships, and equipment within their charter.

(4) Negotiate contracts and rate agreements.

(5) Obtain necessary transport services for DOD and other governmental agencies.

(6) Make payment to the carriers and obtain reimbursement from shipper services. All TOAs are industrially funded to operate effectively in the commercial arena.

g. MTMC, MSC, and MAC. The following paragraphs briefly describe the responsibilities of each TOA:

(1) MTMC. MTMC, a major Army command, provides movement management once the military shipper decides when, where, and what is to be moved. MTMC provides ocean terminal services to DOD, and manages freight and passenger transportation in CONUS, as well as the worldwide personal property moving and storage program. MTMC also evaluates defense transportation activities and recommends system improvements to the Secretary of Defense (SECDEF) and to the military services. The following field activities are commanded by HQ, MTMC:

(a) Eastern Command

(b) Western Command

(c) Transportation Engineering Agency

(d) MTMC Transportation Terminal Command Europe

(2) **MSC.** MSC, organized as a worldwide command, is the exclusive operating agency for ocean transportation. The MSC mission includes the following:

(a) Provide an immediate sealift capability in emergencies.

(b) Plan for expansion in emergencies.

(c) Provide peacetime ocean transportation for DOD and other authorized agencies.

(d) Provide ships for oceanographic exploration, range instrumentation, missile tracking, etc.

(3) **MAC.** MAC provides common user airlift service for all components of DOD. MAC is charged with maintaining, in a constant state of readiness, the military airlift system necessary to perform all airlift tasks, to include emergency conditions, as assigned by the JCS in approved war plans and appropriate JCS and Air Force guidance documents.

h. Installation Transportation Officers/Depot Transportation Officers (ITO/DTO). Installation transportation officers/depot transportation officers are members of the military activity to which they are assigned and are the commander's staff advisors on all transportation matters. They participate in the transportation aspect of installation/depot master planning, traffic control, supply management, procurement, and other activities in which transportation is a factor. They are the installation/depot traffic managers, and their mission is to provide transportation services in support of the installation/depot mission in consonance with the desires and policies of the commander. In performing this mission, the ITO/DTO must ensure compliance with the traffic laws, tariffs, and regulations of the regulatory bodies (applicable to military installations at all levels of command) governing the shipment of personnel and materiel via commercial carriers. Since most military shipments begin or end at a military installation, the ITOs/DTOs are probably the most essential link in the Army transportation system. Their functions, responsibilities, and authorities are addressed in AR 55-355.

3-4. SDT OPERATIONS. There are two basic types of services provided for cargo movement--shipment clearance (approval for shipment) and physical transportation. Clearance authorities provide shipment clearance services and are charged with approving all cargo coming under their jurisdiction. Commercial and government carriers provide transportation services and physically move cargo.

a. Cargo Movement Process. The cargo movement process is depicted in Figure 3-1. Shippers prepare the cargo for movement in accordance with applicable DOD regulations. They also prepare the advance shipment information (e.g., Advance Transportation Control and Movement Documents (ATCMD)) for export shipments in accordance with MILSTAMP, which is the governing DOD transportation regulation.

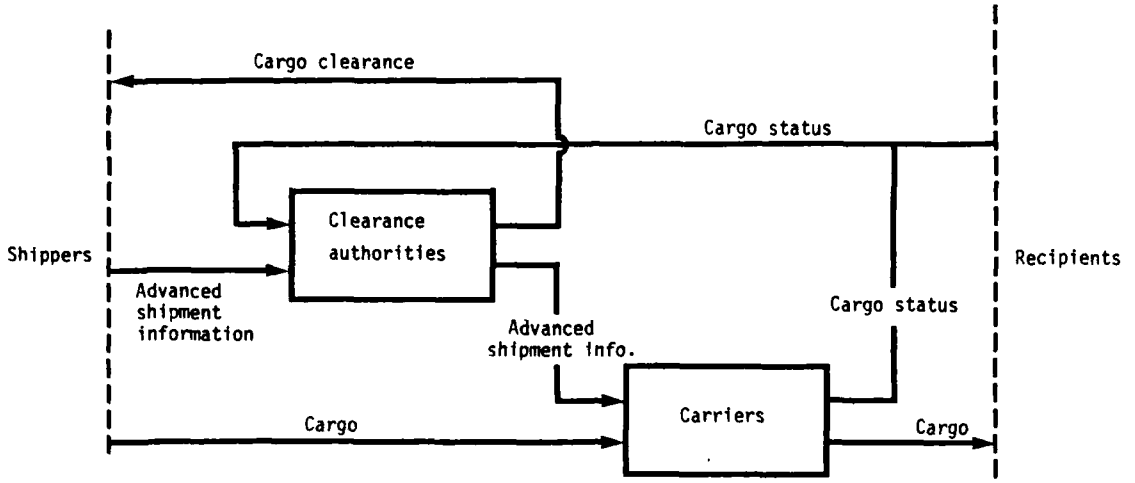


Figure 3-1. Defense Transportation System Cargo Movement

(1) Clearance Authorities. The clearance authorities clear cargo for movement after validating the accuracy of the associated advance shipment information, verifying that the cargo characteristics (as defined in the advance information) meet the clearance criteria defined in MILSTAMP, and verifying available carrier capacity. After the cargo is cleared for movement, the clearance authorities send the advance shipment information to the carrier ports and clearances to the shippers. In addition to the normal cargo movement functions discussed above, the clearance authorities are also responsible for diverting cargo in response to changing requirements, providing a central repository for cargo status information, and tracing cargo.

(2) Cargo Shipment. The carriers plan their operations based on the advance shipment information. Unless a shipment is challenged, the shippers send their cargo to the appropriate carrier facility. The carriers transport the cargo to the appropriate destinations and provide cargo status, receipt, and lift information to the responsible clearance authority. The receiving agency is responsible for checking cargo out of the Defense Transportation System (DTS) at the destination and providing cargo status information to the responsible clearance authority.

b. Cargo Movement Data. Two major types of data are required to manage and control cargo movements: Transportation Control and Movement Document (TCMD) data and cargo status data. TCMDs are the master controlling documents for most DTS shipments and provide data necessary to manage shipments throughout the transportation cycle.

(1) Transportation Control and Movement Data. The transportation operating agencies each have an automated cargo documentation system. These systems track shipments received from each shipper (i.e., depots). Shipments are identified by a TCMD, an example of which is shown in Figure 3-2. The following information is contained in the TCMD.

(a) Transportation Account Code (TAC). The TAC identifies the Army account responsible for funding the shipment by agency and project.

(b) Transportation Control Number (TCN). The TCN identifies each unique shipment by shipper, Julian date, and sequence number.

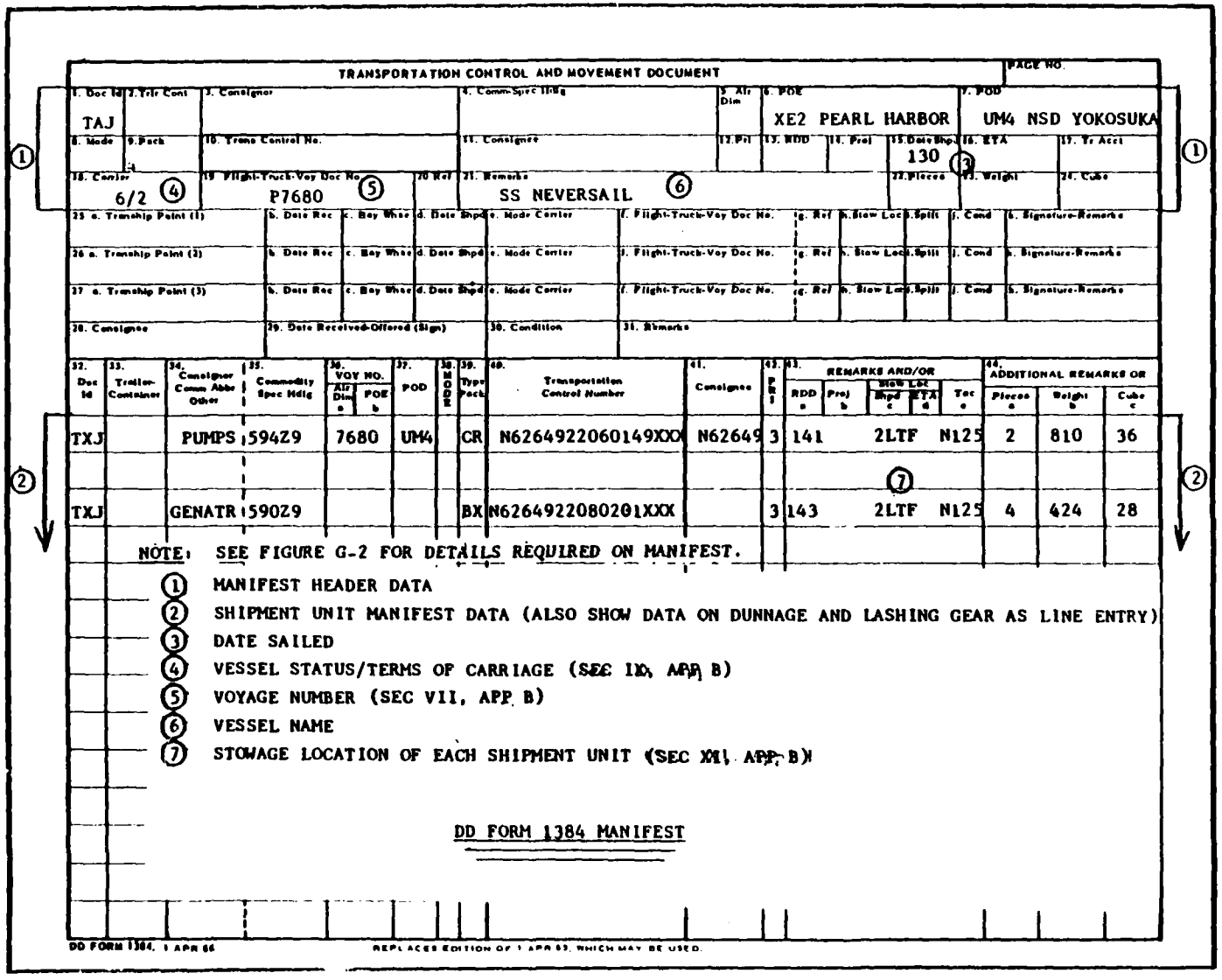
(c) Commodity Code. The commodity code identifies the type of cargo for purposes of movement and handling.

(d) Origin/Point of Embarkation. The origin is the point in the transportation chain where the cargo is handled by the TOA, and the resulting cost is billed to centrally funded, second destination transportation.

(e) Destination/Point of Debarkation. The destination, along with the point of embarkation, defines the route or channel.

(f) Weight (in pounds) and Cube (cubic feet). The weight of the cargo and the cubic feet of space required by the cargo are the basis for shipping charges.

(2) Cargo Status Data. Cargo status data provide information on the status of shipments. At each transfer point, receipt and lift data are provided to the appropriate authority for updating the status of the shipment.



TRANSPORTATION CONTROL AND MOVEMENT DOCUMENT — PAGE NO.

1. Doc Id	2. Trlr Cont	3. Consignor	4. Comm Spec Hdlg	5. Air Dim	6. POE	7. POD
TAJ					XE2 PEARL HARBOR	UM4 NSD YOKOSUKA

8. Mode	9. Pack	10. Trans Control No.	11. Consignee	12. Pri	13. RDD	14. Proj	15. Date Shp	16. ETA	17. Tr Acct
							130 ③		

18. Carrier	19. Flight-Truck-Voy Doc No.	20. Ref	21. Remarks	22. Pieces	23. Weight	24. Cube
6/2 ④	P7680 ⑤		SS NEVERSAIL ⑥			

25 a. Transhp Point (1)	b. Date Rec	c. Bay Whse	d. Date Shpd	e. Mode Carrier	f. Flight-Truck-Voy Doc No.	g. Ref	h. Stow Loc	i. Split	j. Cond	k. Signature-Remarks
26 a. Transhp Point (2)	b. Date Rec	c. Bay Whse	d. Date Shpd	e. Mode Carrier	f. Flight-Truck-Voy Doc No.	g. Ref	h. Stow Loc	i. Split	j. Cond	k. Signature-Remarks
27 a. Transhp Point (3)	b. Date Rec	c. Bay Whse	d. Date Shpd	e. Mode Carrier	f. Flight-Truck-Voy Doc No.	g. Ref	h. Stow Loc	i. Split	j. Cond	k. Signature-Remarks
28. Consignee	29. Date Received-Offered (Sign)			30. Condition	31. Remarks					

32. Doc Id	33. Trailer-Container	34. Consignor Comm Abbr Other	35. Commodity Spec Hdlg	36. VOY NO. Air Dim a	36. VOY NO. POE b	37. POD	38. MODE	39. Type Pack	40. Transportation Control Number	41. Consignee	43. PRI	43. REMARKS AND/OR RDD a	Proj b	Stow Loc Shpd c	Stow Loc ETA d	Tac e	44. ADDITIONAL REMARKS OR Pieces a	Weight b	Cube c
TXJ		PUMPS	594Z9	7680		UM4		CR	N6264922060149XXX	N62649	3	141		2LTF		N125	2	810	36
														⑦					
TXJ		GENATR	590Z9					BX	N6264922080201XXX		3	143		2LTF		N125	4	424	28

NOTE: SEE FIGURE G-2 FOR DETAILS REQUIRED ON MANIFEST.

① MANIFEST HEADER DATA
② SHIPMENT UNIT MANIFEST DATA (ALSO SHOW DATA ON DUNNAGE AND LASHING GEAR AS LINE ENTRY)
③ DATE SAILED
④ VESSEL STATUS/TERMS OF CARRIAGE (SEC IX, APP B)
⑤ VOYAGE NUMBER (SEC VII, APP B)
⑥ VESSEL NAME
⑦ STOWAGE LOCATION OF EACH SHIPMENT UNIT (SEC XI, APP B)

DD FORM 1384 MANIFEST

DD FORM 1384, 1 APR 66 — REPLACES EDITION OF 1 APR 63, WHICH MAY BE USED.

Figure 3-2. Sample TCMD

3-5. THE SDT BUDGET PROCESS

a. Forecasting. The initiation of the budget process begins with workload forecasting. The Army's transportation workload forecasting system is governed by JCS Publication 15, AR 55-23, AR 55-30, and various MSC, MAC, and MTMC directives. Appendix D contains a detailed discussion on the requirements stated in JCS Publication 15, AR 55-23, and AR 55-30. Forecasts are made on a short- and long-range basis. Long-range forecasts are submitted by those agencies which have SDT requirements. Short-range forecasts are prepared by all activities which submit long-range forecasts and also by Headquarters, Forces Command. MSC uses the long-range forecasts to prepare their fleet plan and, when required, augmentation plans using commercial or National Defense Reserve Fleet resources. The long-range forecasts are also used by MSC to determine the shipping rates to be charged to the services for cargo shipped and by the services for budget preparation. Short-range forecasts are used by MSC and MTMC to schedule ship and port workloads. Each military service is also responsible for the collection and submission of movement requirements for government agencies outside DOD for which a service has sponsorship responsibility and for which these requirements must have been approved as eligible to be handled by the DOD transportation system.

b. Budget Formulation. The formulation of the SDT budget is the responsibility of the Directorate for Resources and Management (DALO-RMB), ODCSLOG. The budget process is initiated with the receipt of an annual cargo forecast from the Directorate for Transportation, Energy, and Troop Support (DALO-TSP), ODCSLOG, in March. An estimate for bulk coal and Defense Logistics Agency shipments for the Army, primarily subsistence, are added to this forecast. Previous year data on tonnage shipped and dollar expenditures are examined. The Prior Year Report from USAFAC is used to validate the budget estimates. This report rolls up the total tons shipped, by major command, for the prior fiscal year. The Prior Year Report accounts for these transactions by Army Management Structure (AMS) code. These AMS codes can then be translated to fit the appropriate budget categories (Table 3-1). The MECHTRAM system is used to display the forecast. The current use of prior year tonnage data as a base for developing the current budget has resulted in budget estimates that are higher or lower than actual expenditures. Appendix G highlights the significance of the SDT forecast and its impact on budget activities.

c. Forecasting Budget Requirements. Using the appropriate summary from the MECHTRAM system, the actual year-to-date tons shipped and the year-to-date dollars required to ship that tonnage are determined. Year-to-date dollars are divided by year-to-date tons to determine the average dollar cost per ton shipped during the current year. This average cost per ton is referred to as the composite rate for the current year. The composite rate is inflated based on the inflation indices received from Office of the Secretary of Defense (OSD) for the budget year. The inflated composite rate is multiplied by the forecasted tonnage to determine the total dollars required. This type of calculation is made for each of the budget lines shown in Table 3-1. The composite rate figure derived from the current program reflects the costs to ship certain commodities over designated

routes by a predetermined mode of shipment. The composite rate is sensitive to changes in commodity, routing, or mode of shipment within the total tonnage figure. Due to this sensitivity and the difficulty in predicting tonnages for the budget year, prior budget requests have frequently been over or under actual expenditures by -13.9 percent to 40.79 percent presented later in Table 3-4. After all calculations have been made and the budget lines compiled, the CFSDT budget is submitted as a part of the OMA portion of the DA budget.

Table 3-1. Budget Schedule

Second destination by mode of shipment	AMS code
Military Airlift Command	
Regular channel (ST) cargo	728010.12110
Mail (ST)	728010.12210
Special assignment airlift mission (SAAM) (MSN)	728010.12110
Logistics airlift service (LOGAIR) (ST)	728010.12130
Military Sealift Command	
Regular routes (MT)	728010.13100
Military Traffic Management Command	
Port handling (MT)	728010.21000
Special missions (MSN)	728010.23000
Commercial	
Air cargo (ST)	728010.12120
Surface (ST)	728010.11000
Mail (ST)	728010.12220
Second Destination Transportation by Selected Commodity	
Cargo (ST) (MT) (MSN)	
Commissaries (ST) (MT)	
Base exchanges (MT)	
Subsistence (ST) (MT)	
Overseas mail (ST)	

ST = short tons; MT = measurement tons; MSN = mission.

d. Rate Formulation. The TOAs formulate their industrial fund budgets concurrent with ODCSLOG budget formulation for appropriated funds. The ODCSLOG workload forecast is submitted to each TOA so that workloads can be programed for the budget year. The TOAs build their operating programs and calculate the rates they will charge to cover their costs based on the workloads submitted by ODCSLOG and the other services. These charges are published as the fixed rates which the services will ultimately pay for shipping. It is essential that the transportation workload forecast be as accurate as possible since the rates charged reimburse the industrial fund for costs incurred. The objective of the industrial fund is to operate at a break-even level for a given fiscal year. Factors such as fuel cost adjustment, contract renewals, or hardware price changes affect the financial balance of the industrial funds during the operating year. These factors, if they can be forecast in time, must be included in the industrial fund budget. The TOAs prepare their industrial fund budgets which are consolidated by ODCSLOG and then submitted to OSD for approval. After approval, the industrial fund budget may result in adjustments to the services' appropriated budgets, since reimbursement to the industrial funds originates from these appropriations.

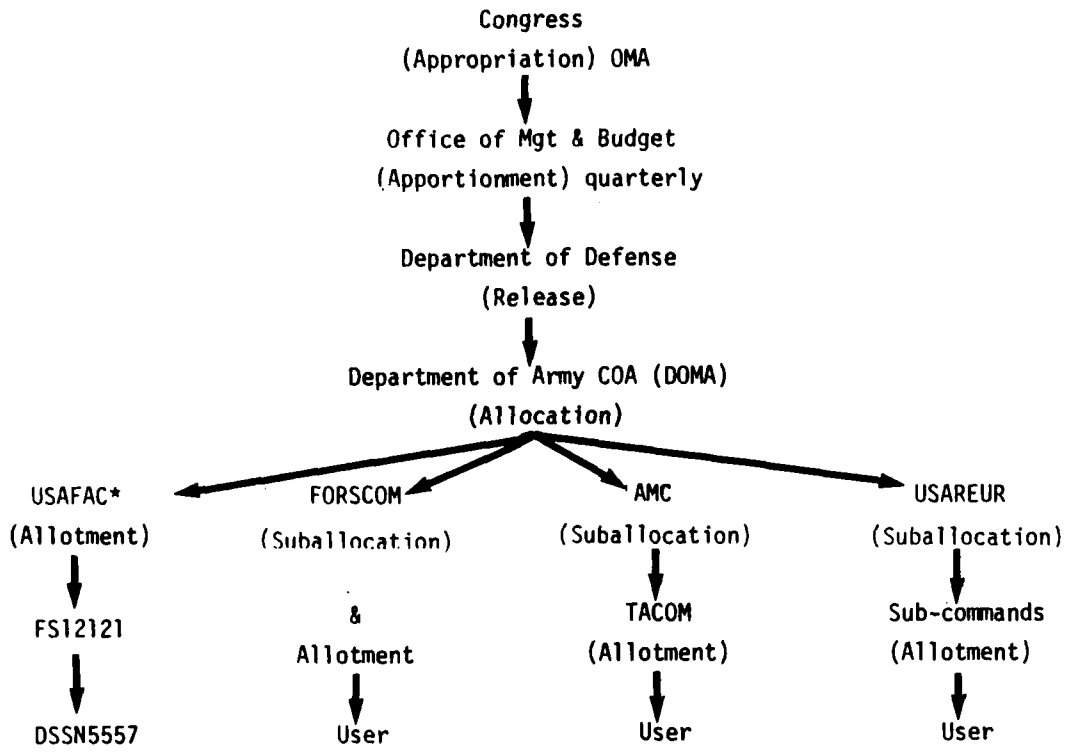
e. OSD Actions on the Budget. The Office of the Director for Operations, Assistant Secretary of Defense, Comptroller, reviews and approves each of the industrial fund budgets. This review consists of an evaluation of costs to operate the industrial fund under the workloads forecast by the services. Costs are adjusted by any prior year differential, i.e., profit or loss in the industrial fund capital and any wage, fuel, or other cost variance anticipated during the operating year. The TOAs are notified of adjustments to their industrial fund budgets by Program Budget Decision (PBD). A concurrent review and analysis of the services' appropriated budgets is conducted to ensure that the services' appropriated funds match the projected costs of the industrial funds. The Army is notified by PBD of the variations so that the appropriated budget can be adjusted. At this point, communication and coordination between the TOAs, OSD, and DA are critical. Shipping program changes instituted by the Army which would effect the TOA's movement program are immediately passed on to OSD and the TOAs. Cost changes are passed from the TOAs back to OSD and the Army so that the appropriated budget can be refined. If the required communications are not maintained, the budgets may not reflect necessary funds for execution of the budgets. Historically this has been apparent, with large variations in the fixed rates from year to year as the industrial funds absorbed losses or gains to their working capital due to over- or under-shipping. The fixed rates, when combined with the tonnages forecast for the budget year, provide a basis for the Army's SDT financial requirements.

f. Execution of the Financial Program. The budget process ends with the passage of the OMA appropriation by Congress. The new program execution begins on 1 October. Execution is primarily the responsibility of the Office of the Comptroller of the Army; however, OCOA manages the entire OMA fund, of which CFSDT is just one part. USAFAC is responsible for financial accounting, and ODCSLOG is responsible for program management.

3-6. SDT FINANCIAL MANAGEMENT. CFSDT is a centrally funded allotment. A general description of the management of centrally funded allotments is provided in Appendix E. SDT is funded through the OMA appropriation. It is identified in the AMS codes as P728010 and is part of the P7S Army Central Supply Program. The DOMA, Comptroller of the Army, manages the SDT funds as a part of the OMA appropriation at DA level. The funds are allotted, from the DA level, to the major commands such as the Army Materiel Command, Forces Command, and US Army Europe to pay for their SDT line-haul requirements. The charges for overocean transportation provided by MAC and MSC and the charges for port handling and movement control provided by MTMC are billed to the Army and paid from the CFSDT funds. Each agency provides financial management for a particular function such as forecasting, cargo documentation, billing, disbursing, budgeting, and accounting.

a. SDT Finance and Accounting. Financial accounting for CFSDT is performed at USAFAC, which provides financial reports to ODCSLOG and OCOA. Operating Agency (OA) 32 at USAFAC functions as the major command finance and accounting center for DA and receives from the DOMA the centrally funded portion of the SDT funds. These funds are used to reimburse the TOAs for Army and Army-sponsored cargo shipments. OA 32 passes fund allocations to USAFAC Fiscal Station (FS) 12121, the installation finance and accounting office managing the CFSDT funds. Funds are disbursed by the disbursing station system number (DSSN) 5557, a section in FS 12121. A command requesting funds to meet its programed requirements, receives funds through its major Army command (MACOM), and manages the funds during the fiscal year. However, in CFSDT, the funds user and the funds manager (DSSN 5557) are not synonymous.

(1) Distribution of Funds. Figure 3-3 shows the process for distribution of funds. The user of the funds finalizes the process. CFSDT funds are distributed to the supporting fiscal station for management. The user of CFSDT funds is, by policy, Headquarters, Department of the Army (HQDA). The shippers who, by the act of shipping cargo and preparing TCMDs, obligate these funds, are not accountable or responsible for CFSDT funds management. Obligations are based on estimates of tons to be shipped during a given period rather than the shipper's actual order for transportation services. An obligation plan is developed at the beginning of the fiscal year based on the amount requested in the budget. The plan is submitted to DA and relates the obligations needed to pay for SDT within specific time periods. During the course of the execution year, variations from this plan have historically occurred because of changes to the Annual Funding Program (AFP) or in short-range forecasts from ODCSLOG. Transfers of funds into and out of the AFP are caused by forces external to the SDT management process, such as budget cuts, Congressional continuing resolutions, Industrial Fund passthrough, or priority changes.



* OP agency 32

Figure 3-3. Fund Distribution

(2) Short-range Forecast. The short-range forecast has an impact on the obligation plan and is internal to the SDT process. Each month LCA prepares the short-range forecast for the succeeding 3-month period. This forecast is submitted to ODCSLOG for analysis. ODCSLOG makes any necessary adjustments to the forecasts and estimates the cost of shipments before the forecast is sent to USAFAC. OA 32 prepares a Military Interdepartmental Purchase Request (MIPR) based on the cost estimated by ODSLOG.

(3) Obligation of Funds. Contained in the MIPR is the estimated cost of shipments which is the total dollar amount available to reimburse the MAC/MSC industrial funds during the stated period, usually 1 month. The budget officer of the industrial fund prepares an acceptance of the MIPR document and returns it to OA 32. This action constitutes the obligation of the funds provided by allotment from the Director of OMA, OCOA. The Intra-Army Order for Reimbursable Services is used in the same manner for obligating funds and ordering services from MTMC. Other obligations are made on the receipt of a direct billing from the TOAs. These direct billings are for those miscellaneous services performed that cannot be directly related to a given shipment. Historically, 5 to 7 percent of the total bills have been miscellaneous direct payments.

b. The Billing Process. Figure 3-4 summarizes the billing process. The three TOAs use similar systems to generate their bills. Each TOA cargo documentation system is the primary data base to which the fixed rates are applied and charges determined. The TOAs receive a TCMD from the shipper which documents one shipment. The TCMD contains a TAC, which identifies the financial account responsible for paying for that shipment. A TAC is unique to the shipping service and to a particular account within that service. The TOAs receive thousands of shipments during the billing month with each shipment identified by TAC. The TCMD and associated TAC data are accumulated during the shipping month in shipping data files. Shipment charges are submitted to the services at the end of the month. As shown in Figure 3-4, the bill (SF 1080) from the TOA industrial fund finance and accounting office is sent to the Military Service Finance and Accounting (F&A) Office for cross-disbursement and ultimately to the service finance office (i.e., USAFAC) for recording. Also, the F&A office of the TOAs prepares a detailed billing tape to substantiate the charges stated on the SF 1080. A 120-character record for each shipment is recorded on the tape, as specified in MILSTAMP, Volume II, Chapter 10. The SF 1080 and the detailed billing tapes contain the shipment charges for a billing month plus charges for any shipments not previously billed. Nonshipment charges, or premium charges, do not appear on the monthly SF 1080 or detailed billing tape. They are billed by SF 1080 directly to USAFAC for payment by check.

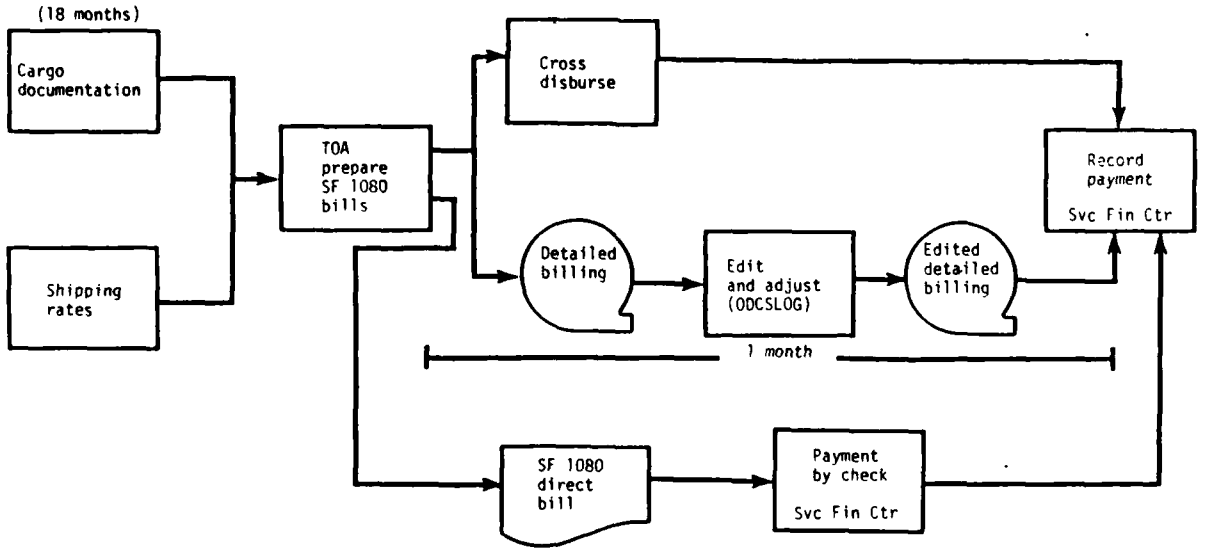


Figure 3-4. The Billing Process

(1) MTMC Billing System. The MTMC bills are developed from the Terminals on Line System (TOLS), a cargo documentation system. This system documents the transshipment of cargo through MTMC ocean terminals. Charges do not accrue against the CFSDT account until a shipment is received at the port of embarkation. Upon receipt of the cargo at the port, shipment movement decisions are made. The shipment may be consolidated with other like cargo, containerized, split into smaller shipment units, and/or transferred to another terminal. These actions incur costs and are picked up in the system as charges against the MTMC industrial fund. Storage costs may also be incurred. Additional charges are the "lift" or loading of the cargo on a ship and transportation across the ocean. As a result of the foregoing actions, multiple billings spanning more than one billing period may be sent to the Army. Shipment charges and actions are input on a daily basis to Eastern Area MTMC where they are consolidated and transmitted to MTMC headquarters weekly. MTMC consolidates the weekly billings, edits them, and prepares the monthly bill for DA.

(2) MSC Billing System

(a) Input to the MSC documentation system begins with the preparation of an ocean cargo manifest. When MTMC lifts cargo for export from CONUS, it prepares the manifest listing all cargo in that lift. Shipments that originate outside of CONUS are manifested by the originating shipper and sent to a MACOM. The MACOMs prepare the manifests, in MILSTAMP record format, and transmit them over the automatic defense information network (AUTODIN) to the MTMC headquarters computer facility used by MSC. Not all military manifesting activities have the ability to prepare automated manifests, and in those cases, hard copy manifests are mailed to the MACOMs where they are then converted for transmission. This process is time-consuming and prone to errors.

(b) The first document received by MSC regarding cargo shipment is the booking control record. This record is a summary of the manifest, containing only ship information. The manifest is received at a later date and matched against the booking control records. Both manifests and booking control records are received daily. The matching process occurs weekly and constitutes a 1-week aggregation of charges. Five days prior to the end of the month the final matching is completed, and the monthly bill is finalized. The SF 1080 and the detailed billing tape are prepared for submission to ODCSLOG. MSC gathers billing/manifest data from both the military ports and commercial carriers and submit billings to ODCSLOG based on MSC shipping rates and the rates specified in the commercial container agreement or shipping agreement.

(3) MAC Billing System

(a) Cargo cannot be lifted by air until authorization is received to provide such a lift. The shipper provides the authorization in accordance with regulations specified in MILSTAMP, Vol I. A TCMD is prepared, and the appropriate TAC is placed on the TCMD. The MAC terminal at which the shipment first enters the MAC channel traffic system (aerial port of embarkation (APOE)) will manifest the shipment. Specific separate

manifests are prepared for traffic destined to each aerial port of debarkation (APOD) along the route of the aircraft. The manifests are prepared, distributed, and used as required for traffic operations and reporting purposes. Copies of the manifest are furnished to revenue traffic data processing centers (RTDPC) or central data collection points (CDCP) in manual or mechanized form, depending on the APOE capability.

(b) Traffic terminals that are supported by the Aerial Port Cargo Documentation and Management Systems (ADAM II/III/PACS) have their "final" manifests extracted from the centralized computer data base at HQ MAC. The "final" manifests are processed daily at eight RTDPCs. Processing at this level is directed toward manifest receipt, control, and purification of traffic data coding. Once this processing is completed, the daily inputs of manifest files from the RTDPCs are submitted to MAC via AUTODIN where a daily input tape file is created. The individual line item records are edited and audited by computer program, as well as manually, to produce a transaction file tape containing the valid line item records required to create the customer billings. Shipping rates are applied to the line item's records, and billing amounts are calculated. The final products are the SF 1080 monthly billing and the accompanying detail shipment data tape containing the line item records.

(4) Bill Processing

(a) Each month, three billing tapes are submitted to ODCSLOG from MSC, MTMC, and MAC with duplicate copies furnished to USAFAC and LCA. The MECHTRAM system is used to edit the data to verify charges and sort the data by TAC. Output in the form of monthly cost and performance data reports are submitted to the ODCSLOG Director for Resources and Management (DRM). The MECHTRAM system is discussed in detail in Appendix F.

(b) The SF 1080s and the edited billing tapes which contain the shipment charges for a billing month plus charges for any shipments not previously billed are sent to USAFAC. Charges which do not appear on the monthly SF 1080 or detailed billing tape are nonshipment charges, or premium charges. These charges are directly billed to USAFAC by SF 1080 for payment by check.

(c) Monthly SF 1080 bills are also sent through the cross-disbursement system as shown in Figure 3-4. These cross-disbursed bills take an average of 4 months after the month of movement to be processed through the cross-disbursement system and sent to USAFAC. Advance information copies of the monthly SF 1080 bills are prepared by the TOAs and sent to USAFAC for tracking purposes. These copies are posted to a variance account that displays the amount shown on the advance information copies submitted by the TOAs to USAFAC. As the actual bills are received, the variance account is balanced out. Any funds remaining in the CFSDT annual funding account may be obligated on a miscellaneous obligation document to retain funds over the end of the fiscal year for payment of late billings.

3-7. ANALYSIS OF THE CURRENT PROCESS

a. The current process of managing CFSDT was analyzed with respect to problems which were identified during the review process. These are discussed in the following paragraphs. During development of the alternatives discussed in Chapter 5, these problem areas were taken into consideration.

b. Delayed TOA Billings. Delayed TOA billings were identified as a major problem since expenditures cannot be tracked with the SDT budget within a given fiscal year. Delayed billings occur in two different ways.

(1) Cross-disbursing System Delay. Accounting for SDT expenditures based on billings from the TOAs is difficult since, historically, the fiscal station may not receive the actual cross-disbursed bill until approximately 4 months after the month of service.

(2) Billing for Partial Month's Service. The second delay is encountered when the bill is received and only a portion of a month's services are included on that bill. This delay occurs because the TOAs did not receive all of the cargo documentation from their outlying centers or incorrect data was received and could not be included on that month's bill. These delays make it difficult to adjust the funding program by monitoring performance data. It takes up to 18 months after a given fiscal year before most of the bills are received for that fiscal year. Because SF 1080s arrive late, variance accounts must be maintained by USAFAC, creating additional work. The fact that all the shipments for a given month are not included in that month's bill creates additional problems. The bills must be paid from obligated funds. If the Finance Officer does not know the total value of shipments against a given obligation, there is no precise way in which funds can be deobligated or additional funds can be requested to cover shipment charges which are in excess of those ordered on a MIPR or DA 2544. In addition, if the line item records on the billing tape are in error when they are used to substantiate the Army's bill to sponsored agencies, these agencies refuse to pay the erroneous lines. These bills are eventually resolved, but this can take up to 3 years. This leaves the Army with a shortfall on its current reimbursables.

c. Forecasting the Budget with Composite Rates. Currently, the SDT budget is forecast as discussed in paragraph 3-5c, by applying a composite rate for each TOA to the forecast tonnage to be shipped in the budget year. The composite rate is an average unit cost, in dollars, of shipping one short ton by air or one measurement ton by sea. The composite rates are very sensitive to changes in commodity, routing, or mode within the total forecast tonnage figure. Table 3-2 shows the variation in composite rates by TOA. This has consequently resulted in budget requests that have been over or under actual expenditures. Table 3-3 shows a comparison between budget requests and expenditures. Composite rates are based on historical cost per ton shipped. This can be inaccurate, since costs per cargo shipments are always incomplete when the composite rates are computed due to

delayed billings. More significantly, variations in forecasted cargo shipped are not directly proportional to changes in cargo costs. For example, in FY 82, a 25 percent shortfall from forecasted cargo carried resulted in only a 4 percent reduction in estimated cargo cost. This is due to the fact that shipping and handling contracts require the shipper to pay fixed costs irrespective of the number of tons shipped, plus pay penalties for not providing the quantity of cargo forecasted and bid upon. These costs are then amortized over forecasted cargo for the following year, resulting in a composite rate that is overstated or understated to account for the previous year's inaccuracy. Table 3-2 illustrates the variations in the composite rate compared to the changes that have occurred historically in tonnage shipped and dollars expended that has occurred historically. When actual cargo shipment tonnage is less than forecast tonnage, billing begins to lag expected expenditures. As a result, the TOAs may not have enough cash reserves to pay all of their bills since the payment lag continues for services until future shipment levels approach planned shipment levels, or the end of the fiscal year is reached. A more detailed discussion on the problems in developing the current SDT budget forecast is provided in Appendix G.

Table 3-2. Variations in FY 84 Composite Rates

Calendar year preparation date	Budget year submission	Tons (000)	Change in tons (in percent)	Dollars (000)	Change in dollars (in percent)	Composite rate in dollars	Change in composite rate (in percent)
			MTMC Port Handling				
Fall 82	1984	3,204	NA	$ 64,144	NA	$ 20.00	NA
Fall 83	1985	2,890	-10.0	65,720	+2.4	22.74	+13.7
Fall 84	1986	2,966	+2.6	58,977	-10.0	19.88	-12.6
			MAC Cargo				
Fall 82	1984	75.2	NA	$156,257	NA	$2,077.88	NA
Fall 83	1985	56.5	-24.8	145,891	-6.6	2,582.14	+24.3
Fall 84	1986	69.8	+23.5	156,048	+6.9	2,235.64	-13.4
			MSC Cargo				
Fall 82	1984	3,725	NA	$471,657	NA	$ 126.61	NA
Fall 83	1985	3,105	-16.6	460,069	-2.4	148.17	+17.0
Fall 84	1986	3,494	+12.5	426,460	-7.3	122.05	-17.6

NA - not applicable.

d. Nonshipment Charges. Nonshipment charges are charges such as detention, demurrage, storage at port, and loss of shipments that cannot be charged to a specific shipment. These charges are normally directly billed to USAFAC or included in the regular billing process through transfers by other finance and accounting offices for payment by USAFAC. The nonshipment charges are eventually charged to the element of expense and point accounts listed in Table 3-3. These nonshipment charges are not forecasted or contained in the budget even though they are paid out of CFSDT funds. Since nonshipment charges have historically amounted to approximately 2 percent of the CFSDT budget, the absence of budgeting for nonshipment charges contributes to the inaccuracy of budget requests. Table 3-4 shows the variation between actual disbursements and both the annual funding program (AFP) and the SDT overocean budget request. Some of this variation can be attributed to the exclusion of nonshipment charges in the budget.

Table 3-3. Other Charges

Description	Element of expense	Point account
MSC Cargo	2200	.13100
MAC Passenger	2199	.12300
Custom GBL	2200	.11000
MAC Cargo	2200	.12110
MAC SAAMS	2200	.12111
MAC Commercial Air	2200	.12112
MAC Commercial Air	2200	.12120
LOGAIR	2200	.12130
QUICKTRANS	2200	.12140
Customs	2572	.11000
MTMC Cargo	2572	.21000
MTMC Special Mission	2572	.23000

Table 3-4. Disbursements vs Budget Request and Annual Funding Program (AFP)

FY	Disbursements	SDT Overocean budget request	Percent difference
84	$739,275	$703,560	+5.0
83	620,407	664,049	-6.5
82	567,790	659,626	-13.9
81	[a]	496,877	NA[b]
80	429,763	305,346	+40.79

FY	Disbursements	AFP	Percent difference
84	$739,275	$680,481	+8.6
83	620,407	630,172	-1.5
82	567,790	601,054	-5.5
81	[a]	513,872	NA
80	429,763	412,598	+4.1

[a]Data not available.
[b]NA - not applicable.

e. Management Control Fragmented. Management of SDT is fragmented, and there is only partial central management of SDT funds. A variety of agencies and commands are involved in management, and each requires different accounting information. Each agency has separate offices responsible for transportation movement, budgeting, finance, and accounting with different goals and objectives. The following examples illustrate the impact of fragmented management control.

(1) ODCSLOG prepares the budget estimate, but the TOAs determine routing or mode of shipping of overocean cargo. Since the main concern of the TOAs is the efficient movement of cargo, TOAs frequently consolidate or containerize cargo or change the mode of transport. These actions contribute to the variance between the actual cost of shipping cargo and the ODCSLOG budget estimate.

(2) TCMDs, which, in effect, obligate funds, are prepared at the shipping activity. While ODCSLOG is ultimately responsible for the obligation of SDT funds, ODCSLOG does not have day-to-day control of TCMDs.

f. Transportation Account Codes (TAC). The TACs exist as a device to allow costs to be tracked to a particular command or program. They are published in MILSTAMP, Volume II, and originate from the particular branch of service that is responsible for the command or program being tracked. The TAC can be associated with a given fund citation and is used by USAFAC to ensure that a shipment moving through the Defense Transportation System is charged to the correct appropriation. There are currently over 1,200 TACs. Many TACs are obsolete since they were created for special projects or operations that are no longer in process. There is no evidence of a scheduled review of the TACs to determine if they are still relevant. An overlap among some TACs exists such that the transportation officer may use different TACs for the same type of shipment. This redundancy, combined with the proliferation of TACs, impedes consistency of usage. Currently, approximately 400 TACs are active.

g. Poor Audit Trail. A poor audit trail exists due to missing and incomplete financial accounting records. For example, billing data tapes were missing for MAC covering October 1983 and for MSC covering May 1984. SDT disbursement data are missing for FY 81.

h. SDT Funds Difficult to Track. Overocean SDT funds are not identified specifically in the OMA (P7) appropriation. This makes the tracking of overocean SDT funds difficult, since the specific AMS codes for the TOAs and various nonshipment charges are not identified. For example, unemployment compensation is paid from P7 funds where applicable.

i. MIPR Does Not Effectively Control Obligations. The MIPR is a purchase order for services to the industrial fund which establishes obligation limits but does not provide control on flow of shipments. TOAs can defer bills to the next billing period when approaching the obligation limit set by the MIPR. Obligations can then be increased for the time period covered by the next MIPR to accommodate the additional bills.

3-8. CURRENT PROCESS SUMMARY. ODCSLOG initiates the SDT budget process by providing annual cargo forecasts consolidated and displayed by the MECHTRAM system. This system was examined in detail and a summary of the role of the MECHTRAM system with respect to the current financial management of SDT is discussed in Appendix F. MECHTRAM is useful in providing data in several formats as listed in the appendix for analysis and budget formulation. Composite rates are computed and applied to the cargo forecasts to develop the CFSDT budget which is submitted as part of the OMA budget by DA to OSD. Financial accounting is performed at USAFAC, which provides financial reports to ODCSLOG and OCOA. USAFAC receives allotments from the Director of OMA (COA) and obligates funds to pay for SDT services. The current system of managing SDT activities suffers from a number of problems, as discussed in the previous paragraph. Major problem areas

identified in the current system include delayed TOA billings, inaccurate budget forecasts due to variations in composite rates, absence of forecasting and budgeting of nonshipment charges, fragmented SDT management control, obsolete TACs, poor audit trail, absence of overocean SDT identification in the OMA appropriation, and lack of SDT obligation control. However, the current system contains sufficient flexibility such that budgetary violations are not generated and the cargo is moved expeditiously, which is the main concern of the commander in the field.

CHAPTER 4

OTHER SERVICE SYSTEMS

4-1. INTRODUCTION. This chapter presents the study team review and analysis on other services' financial management systems for SDT funds. These systems were reviewed as a possible alternative to the Army SDT system. The Air Force Logistics Command (AFLC), the Navy Supply Systems Command (NAVSUPSYSCOM), and the Marines' SDT systems are discussed in the following paragraphs.

4-2. AIR FORCE LOGISTICS COMMAND SDT FINANCIAL MANAGEMENT SYSTEM

a. General. AFLC is responsible for the budgeting and the financial management of Air Force second destination transportation funds. AFLC performs the managerial accounting functions for 90 percent of the SDT funds and 80 percent of the first destination transportation funds. AFLC budgets for the overocean transportation provided by the TOAs and for the CONUS line haul from the depots to the ports as well as retrograde from the ports to the depots. Funds for airbase to airbase movements and for local transportation are not managed or budgeted by AFLC. In addition to the financial functions, AFLC has responsibility for preparing the forecasts which are reported to the TOAs. The Air Force, unlike the Army, established a central management account to control transportation funds, as described in DOD Directive 7200-1. Appendix E provides a description of central management accounts. Personnel at the Air Force Logistics Command believe that by forecasting, budgeting, executing, and receiving feedback in one central location, a more efficient management structure has been achieved, and more visibility of transportation requirements, using fewer resources, has been provided.

b. Current System. The Air Force Logistics Command currently is using a system which is functionally similar to that used by the Army. It is an automated system using the TOA monthly billing tapes as input. Tapes are in MILSTAMP, Volume II, format. There are two AFLC systems. The first system is the Surface Transportation Tonnage and Cost System as described in AFLC Manual 171-125. The second is the Military Airlift Command Tonnage and Cost System. Figure 4-1 shows the flow diagram for these two systems and their generated output. Detailed output is shown in Appendix H.

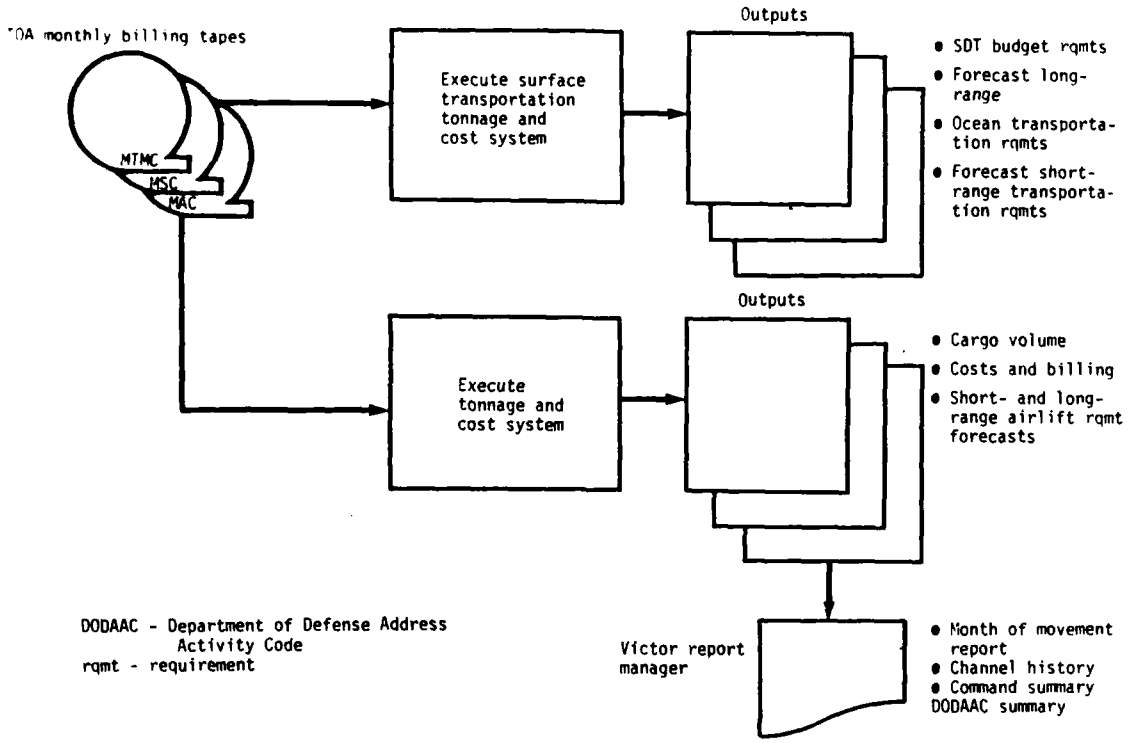


Figure 4-1. Current AFLC System

(1) The Surface Transportation Tonnage and Cost System collects and compiles historical data on all Air Force and Air Force-sponsored shipments. It processes data for shipments which use MSC and MTMC CONUS port handling services and commercial carriers. The system outputs shown in Appendix H are used to develop Air Force second destination transportation budget requirements for the Operation and Maintenance, Army (OMA), Air National Guard, Security Assistance Program, and Military Personnel appropriations. They are also used to forecast the Air Force long and short-range ocean transportation cargo requirements, which are used by MSC and MTMC in developing their industrial fund budgets. The Air Force also uses the output to approve bills for payment to other services' industrial funds and Government bills of lading (GBL) for services received by the Air Force.

(2) The Military Airlift Command Tonnage and Cost System collects and compiles historical data on all airlift shipments. This system is designed to establish and maintain master files containing a 2-year history of all airlift data. The master files, updated monthly, contain statistical data for cargo volume and costs. These cumulative statistics are used to forecast the budget and to project airlift requirements. The system output provides reports on standard billing and the short and long-range forecasts of airlift requirements. A complete listing of outputs from these two systems is also shown in Appendix H. Upon receipt of the output from the Management Information System, the analysts use the Victor Report Manager, a spreadsheet program for their desk-top computers, to further summarize, aggregate, and analyze the data. Some other features of these systems are the Month of Movement Report, the Channel History, Command Summary, and Department of Defense activity address code (DODAAC) Summary described in the following paragraphs.

(a) The Month of Movement Report aggregates tonnages and costs and applies them to the given month of shipment. This report is in a matrix format and illustrates, for a given billing month, the quantity of cargo and the dollar costs which are billed in that month and each subsequent month. A billing lag is created, since the charges incurred in a given month may be billed at any time during the next 18 months. This report provides the analyst with a method for accruing and estimating tonnages and costs for a given month. The analyst can now examine the bill for the current month and estimate from the historical data the estimated total charges that will eventually be billed against that month's shipments. This report organizes the data by geographical area, TAC, and month. Movement data is reported in measurement tons, costs in thousands of dollars, and the average cost per ton in dollars.

(b) The MAC Channel History depicts historical traffic on any given MAC routing. The advantage of route data to the financial manager is the ability to associate tonnages with a specific rate. If a route is used to support a certain mix of units and reorganizations or inactivations change that mix, a change in tonnage or commodities could occur for which the dollar cost can be determined. Since the per-ton rates on the various routes are significantly different, a unit move from one supporting route to a different route could significantly change the cost of transportation, even though the tonnage remains the same. The data base for the MAC channel history is built on an accrual basis (obligation). The data, extracted from the billing tapes and based on the service date, is accrued back to the actual month of movement. The historical data then reflects charges and tonnages when movement occurred, not when billed.

(c) The Command Summary, DODAAC Summary, and Project Code Summary Reports provide the analyst with data from the billing tapes which have been sorted and aggregated by the criteria cited in the title of the report (i.e., Command Summary). The Command Summary provides input for the three forecast areas and provides feedback to validate the forecasts. The DODAAC Summary sorts on a consignor/consignee basis to provide visibility of the specific overseas command. This report summarizes the tonnages and costs

for shipments from CONUS to a specific DODAAC (consignee) in the overseas theater and, conversely, the tonnages and costs from a DODAAC (consignor) in an overseas theater to CONUS. This combination of export or import traffic provides the analyst with a picture of the total traffic generated by each overseas DODAAC. This summary aids in the generation of cost forecasts reflecting changes in programs, units, and requirements at an overseas location. The Project Code Summary allows the analyst to view the transportation costs of projects. The projects are identified by the three-digit project code in the MILSTAMP documentation. Project codes are used by the Air Force to identify weapons systems or exercises which require special reporting for budgetary purposes.

4-3. AIR FORCE ENHANCED TRANSPORTATION AUTOMATED DATA SYSTEM (ETADS)

a. Introduction. The Air Force is currently procuring the Enhanced Transportation Automated Data System (ETADS) to support AFLC activities associated with the Defense Transportation System. A detailed description of ETADS is provided in Appendix H. ETADS is expected to be an improved system and will become an on-line, integrated turnkey replacement for the current set of on-line, manual, and batch application programs at AFLC Headquarters, Wright-Patterson Air Force Base (AFB). It should provide improved support for users in managing and controlling AFLC CONUS transportation systems, in monitoring the movement of Air Force cargo overseas, and in managing Air Force transportation funds. The purpose of this paragraph is to summarize the capabilities of ETADS in the area of transportation financial management.

b. Summary of Improvements. Some of the improvements that ETADS is expected to provide in the area of transportation financial management are discussed in the following paragraphs.

(1) ETADS is expected to enable AFLC to comply with DOD Directive 7200.1, which requires timely accounting and recording of transportation costs to preclude overobligation or overexpenditure (relative to obligations) of Air Force SDT funds. It is expected that ETADS capabilities will allow AFLC to significantly reduce the margin of error in the first destination transportation (FDT) and SDT budget forecast, which currently averages $7 million/fiscal year. ETADS will create obligations by transaction for MAC, MSC, MTMC, Navy Cargo Airlift System (QUICKTRANS), and GBL services within 30 days after the associated lift from the embarkation point. Currently, funds are obligated by the Air Force Finance Center from historical data before the bills are paid. In certain cases, the implementation of the obligation functions will require the implementation of new interfaces.

(2) ETADS is expected to provide improved capabilities for financial analysis. The general ETADS data base capabilities (including on-line data dictionary, support for interactive, user-defined queries, relational-query processing, and report generator) should provide a user-friendly and flexible tool for analyzing financial data that would be stored in the data base.

(3) ETADS is expected to improve the Logistics Airlift Service (LOGAIR) billing process by reducing errors and eliminating much of the manual data entry that is currently performed. ETADS should aid in validating cargo-following and flight-following data prior to processing. This should reduce the number of errors that currently result in historical data being returned for reprocessing after financial processing has begun. ETADS should also aid in maintaining an integrated data base that may eliminate the need for additional manual data entry steps at the start of new processes.

(4) ETADS is also expected to provide for reconciliation of MAC, MSC, MTMC, and GBL bills against actual movement data, as reflected in the obligations.

4-4. NAVY SUPPLY SYSTEMS COMMAND (NAVSUPSYSCOM) FINANCIAL MANAGEMENT SYSTEM. The Navy SDT fund has been centrally managed by the Transportation Budget Division of NAVSUPSYSCOM since FY 1973. NAVSUPSYSCOM also manages FDT funds. Prior to FY 1973, the approximately 150 Navy commands managed their SDT funds separately. This decentralization caused difficulties in coordinating the Navy SDT budget, and as a result, the Navy adopted a centrally funded, service-wide SDT account. The Navy SDT budget amounts to approximately $500 million per year. The Navy considers as SDT the first point of use or storage of cargo, whether CONUS or overseas, while DA considers all movements from first storage and outside CONUS to be SDT. Navy SDT is on a smaller scale than the Army, since overocean shipments by the Navy typically are to support the fleet.

a. SDT Fund Management. The Navy Management Fund, maintained at the Navy Finance Center in Norfolk, Virginia, pays all Navy SDT bills and then submits the bills received from the user for reimbursement. MIPRs are not used since the TOAs use direct fund cites.

b. Forecasting SDT Funds

(1) To track SDT expenditures, the Navy utilizes a forecasting model generated by a commercially available spreadsheet package programed for use on an IBM personal computer. The purpose of the model is to forecast SDT expenditures on a monthly basis throughout the fiscal year. Like the Army, the Navy has found that historical tonnage data are not good indicators for dollar projections. Consequently, SDT expenditures are now forecast on the basis of the historical percentages of total accumulated bills received for the month of shipment for each mode of shipment. Thus, the forecast accuracy increases for each month into the fiscal year.

(2) An example of the spreadsheet application is shown in Table 4-1.

Table 4-1. Navy Calculated Percentages for Estimated SDT Bills (cells reflect percentages/100)

Mode	1	2	3	4	5	6	7	8	9	10	11	12	13
MAC cargo	0.791	0.938	0.967	0.984	0.993	0.996	0.999	1.000	1.000	1.000	1.000	1.000	1.000
MAC WIMS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MAC mail	0.957	0.991	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
SAAMS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MSC cargo	0.323	0.882	0.923	0.936	0.951	0.963	0.967	0.969	0.973	0.976	0.981	0.985	0.986
MSC WIMS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MSC commissary	0.323	0.882	0.923	0.936	0.951	0.963	0.967	0.969	0.973	0.976	0.981	0.985	0.986
MSC WIMS comm	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MSC exchange	0.349	0.910	0.959	0.963	0.965	0.967	0.973	0.975	0.977	0.981	0.985	0.987	0.991
MSC mail	0.357	0.959	0.971	0.989	0.998	0.999	0.999	0.999	0.999	0.999	0.999	1.000	1.000
MSC per diem	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Commercial mail	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Inland GBL	0.382	0.718	0.849	0.918	0.938	0.951	0.963	0.972	0.978	0.982	0.987	0.991	0.994
Inland PVS	0.078	0.295	0.378	0.448	0.497	0.548	0.621	0.724	0.811	0.866	0.914	0.949	0.961
QUICKTRANS	0.954	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MTMC cargo	0.711	0.842	0.934	0.949	0.963	0.969	0.974	0.975	0.976	0.977	0.985	0.989	0.994
MTMC WIMS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MTMC commissary	0.711	0.842	0.934	0.949	0.963	0.969	0.974	0.975	0.976	0.977	0.985	0.989	0.994
MTMC WIMS comm	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

The heading for each row reflects the mode of shipment. This example illustrates the calculation for the percent of bills received for each channel for a prior year. In the first billing month (October), historically 79.1 percent of bills received for October MAC cargo shipments have been received. The current actual dollar amount of bills received in October is divided by .791 to provide an annual estimate for MAC cargo SDT expenditures for the current fiscal year. In November, the cumulative dollar amount of bills received in November is divided by the cumulative prior year fraction of bills received (historically .938) for MAC cargo, and a new estimate is generated. This process is repeated each month throughout the fiscal year which improves the accuracy of the estimate. By September, the expected accuracy of the forecast is within 1 percent. This has been the reported accuracy confirmed by personnel in NAVSUPSYSCOM for past years. Thus, the Navy SDT resource manager can request a precise amount of additional funds from the Comptroller of the Navy or deobligate any surplus SDT funds based on this valuable decision tool. The key to the successful application of this model lies with the continuous adjustments made by the analyst for unforeseen shipments or lack of shipments. Percentages input into the computer are adjusted as new information becomes available. Relying on historical billing percentages alone is not sufficient to produce the high degree of forecasting experienced by NAVSUPSYSCOM.

4-5. SDT FINANCIAL MANAGEMENT IN THE MARINE CORPS. The Marine Corps has not had to confront the problems experienced by the other services in monitoring SDT funds because of their limited scale of SDT activities. The Marines, because of their limited SDT workload, are able to manually monitor each transaction and do not have a need for a mechanized forecasting or monitoring system.

4-6. SUMMARY ANALYSIS OF OTHER SERVICES' SDT ACCOUNTING SYSTEMS

a. Air Force (AF) System

(1) The current Air Force accounting system is functionally similar to that of the Army and is extensively documented. The Air Force system required several years to develop and five people to operate and maintain (in addition to those personnel in SDT management). Enhancements and functional variations have been developed over several years to provide a more efficient system and to provide for more comprehensive analysis of transportation accounts. The current Air Force SDT accounting system is in the process of being modified to permit tracking of SDT funds on a transaction-by-transaction basis. The technique of using central management provides for the receipt, storage, and analysis of transportation financial and shipment data at one central location. This data can then be configured to support the long-range forecasting and budgeting functions as well as the short-range forecasting and obligation functions. Special reporting requirements for project managers, commands, or agencies can be generated from the same data base. AFLC personnel have found that this system helped achieve an accuracy of within 1 percent for budgeting and execution of funding programs. This compares to variations ranging between -5.5 percent to +8.6 percent for the Army from FY 80 to FY 84. Refer to Table 3-3.

(2) The AF system is complex and would not be feasible for short-term application. Based on the experience of the Air Force, it is estimated that 5 additional people would be required for implementation. There is, however, some potential for use as a long-term solution.

b. Navy System

(1) Unlike the AFLC system, the Navy system concept of forecasting current year SDT obligations based on prior year billings is suitable for near-term application. Refinements made from experience with the forecasting process have resulted in an accuracy within 1 percent for SDT budgeting and execution over the last several years. The Navy system requires only one analyst on a part-time basis to operate and maintain.

(2) This system shows promise for the near-term solution because it requires fewer resources and less time than the AF system. This system is not applicable as a long-term solution.

c. Marine Corps System. Due to the low volume of orders transacted, the Marines have a simplified, manual system which is not appropriate for Army application because of the Army's large volume of SDT shipments. No further consideration was given to this system.

4-7. SUMMARY OF OTHER SERVICES' SDT ACCOUNTING SYSTEMS

a. The Air Force system is centrally managed, incorporating management of both first and second destination transportation. The Army manages first destination and second transportation seperately. The Air Force system performs functions similar to that of the Army system but is more detailed and data intensive. Therefore, data used to support budget development and forecasts is readily available and produces results with a reported accuracy of 1 percent compared to the Army's 5 to 9 percent variations. However, this system is currently undergoing modification and is not applicable to the Army's short-term solution but is a candidate for the long-term solution.

b. The Navy system, like the Air Force system, is centrally managed and incorporates techniques which result in a reported accuracy of 1 percent in the forecasting of current year SDT obligations. The Navy system is relatively simple, requiring only one analyst to operate and maintain. This system is applicable to the Army's short-term solution but is not suitable for the long term since it does not track expenditures on a transaction-by-transaction basis.

c. The Navy system, or a variation of this system, is a candidate to support the Army's need for a short-term solution. The Air Force system, or a variation of this system, is a candidate to support a long-term solution for the Army.

CHAPTER 5

ALTERNATIVE SYSTEMS

5-1. INTRODUCTION. This chapter provides a discussion of the four alternatives that were identified to improve the current SDT financial management process. An evaluation of these alternatives, with a detailed discussion of the alternatives selected for the respective near- and long-term solutions, is presented.

5-2. METHODOLOGY

a. Four possible alternatives were developed to provide solutions to the problems encountered in the review of the current system (see Chapter 3). No one alternative could be identified that would solve all of the problems. Therefore the approach taken, as identified in the Chapter 2 methodology, was to strive for a near-term solution which could be implemented with a minimum of additional resources and be operational within 1 year and a more comprehensive long-term solution that may require additional resources and considerably more implementation time, possibly more than 2 years.

b. The current system has two distinct advantages. These are;

(1) There has been no recorded financial violations. This could be attributed in part to the financial flexibility in SDT funding and possibly pure luck.

(2) Cargo has always moved expeditiously. This can be attributed to use of the Industrial Fund to pay for services and to regulations governing the TOAs, which require that no delays be imposed on cargo movement.

c. Minimum requirements for the alternatives compared to the current system may be summarized as follows;

(1) Short Term

(a) Limited requirement for additional resources.

(b) A system that can be implemented quickly.

(c) Does not contribute to financial violations.

(d) Cargo continues to move expeditiously.

(2) Long Term

(a) May require limited additional resources.

(b) Does not contribute to financial violations and reduce the risk for incurring such violations.

(c) Provides a system that continues to permit cargo to be moved expeditiously.

(d) Provides a transaction-by-transaction basis which would provide stricter accounting control and easier identification of billing errors.

(e) Provides for accrual accounting rather than the current cash accounting system.

5-3. ALTERNATIVES

a. Alternative 1

(1) The first alternative that was developed would maintain the current system with minor modifications to provide a tool which could be used to develop more accurate obligation estimates at the end of the fiscal year. This alternative could be implemented in the near term and would eliminate the risk of financial violations. Cargo would continue to move in an expeditious manner. Minimal, if any, increases in manpower requirements would be required.

(2) Actions that would be required to implement Alternative 1 are listed below. Some actions, such as weekly billings, are optional.

(a) Obtain weekly direct billing reports (transfers by others and nonshipment charges) from USAFAC.

(b) Have TOAs submit weekly rather than monthly billings in the last quarter of the fiscal year. This would reduce the time delay currently being experienced for billings. (MAC would not be able to provide weekly billings until their new system is operational in 2 years.)

(3) Identify and record nonshipment charges in the MECHTRAM system. These charges are not currently included in the budget estimates.

(4) Improve TCMD accuracy and completeness. This has been a continual problem over the years. An emphasis on TCMD training for the various commands in this area is needed.

(5) Implementation of improved long-range overocean surface cargo forecasts. This recommendation refers to the implementation of the Transportation Workload Forecasting Study - Implementation (TWFS-I) completed by CAA in August 1985 and provides guidance for forecasting overocean cargo utilizing the Winters Method and Box-Jenkins Model.

(6) Develop long-range overocean air forecasts. These forecasts are not currently made.

(7) Develop computer routines to extract billing data and assist in forecasting obligations based on Navy and/or Air Force systems.

(8) Retain billing tape files for at least 5 years.

b. Alternative 2

(1) The second alternative would involve modifying the accounting process in the current system through the implementation of an accrual cost accounting system. This could be accomplished by modifying the current MECHTRAM system or incorporating the current Air Force Logistics Command (AFLC) system into MECHTRAM. Implementation of a separate SDT central management system would also be required. This approach would improve SDT accounting and reporting, budget forecasting, and tracking and automate the budget execution process. While Alternative 2 would not resolve the delay in the posting of bills, it would account for the delay. Incorporating the AFLC system routines would provide more accurate accounting and improved report structures by command, area, route, and special program. The AFLC system routines would help decrease the budgeting, obligation, and disbursement errors. In addition, manual reports and calculations currently generated would be automated.

(2) This alternative would require additional resources and could not be implemented in the near timeframe.

c. Alternative 3

(1) The third alternative provides for a long-term improvement of the management of SDT funds by tracking shipments on a transaction-by-transaction basis. A transaction, in this case, is defined as a shipment serviced by the TOAs for a fee. The adoption of Alternative 3 would require three significant actions listed below. This alternative would eliminate the delay in posting bills to the accounting system and improve the budget execution process.

(a) The establishment of data links from the cargo documentation system (receipt and lift files) to the Army accounting system.

(b) The development of a computer system to handle cargo and financial accounting on a transaction-by-transaction basis.

(c) The designation of an agency for the central management of the new system.

(2) This alternative meets the requirements for the long-term solution listed in paragraph 5-2c.

d. Alternative 4

(1) The fourth alternative is to completely decentralize the funding of SDT. Under this option, funds would be suballotted to MACOMs and TOAs would bill the MACOM Supporting Finance and Accounting Office by TAC. Alternative 4 would encourage fiscal responsibility since the shipper would become responsible for obligating funds for each shipment and be required to pay both the line haul and overocean costs. The implementation of this alternative may reduce the workload at USAFAC. However, shippers would have to

become knowledgeable about the various shipping rates under this proposal. There would be less flexibility for unplanned movements of cargo, and there may be a requirement for numerous fund transfers at fiscal year end to meet transportation requirements. Finally, materiel needs may not be met due to lack of shipping funds.

(2) This alternative, while interesting, does not meet all of the requirements set forth in paragraph 5-2c.

5-4. ALTERNATIVE EVALUATIONS. The four alternatives were further analyzed with respect to data availibility, resources required, feasibility, and availability of suitable software packages.

a. Alternative 2 could not be implemented in the near term because of the time required to modify MECHTRAM or implement the AFLC system, and was not considered the best long-term solution because of the following deficiencies:

(1) ODCSLOG would still not receive timely management information.

(2) The posting of bills would continue to be delayed.

(3) Management control would still be deficient.

(4) Increased input, data/management, and output requirements would significantly increase manpower and computer time requirements.

(5) Modifying MECHTRAM would require significant one-time costs.

(6) Incorporating the AFLC system may prove difficult since AFLC is currently expending a major effort and additional resources to improve the accuracy of the system.

(7) Funds would not be tracked on a transaction-by-transaction basis.

(8) Based on the experience of the AFLC in implementing their automated accounting system, three additional permanent employees would be required to operate and maintain the system.

b. Alternative 4 could not be implemented in the near-term timeframe because of the impact it would have on the Finance and Accounting Office at MACOMs and TOAs. This alternative was rejected as a long-term solution because of the following deficiencies.

(1) Prior to FY 1973, the Navy operated with a decentralized mode in which 150 commands maintained their own SDT funds. Coordinating the budget proved difficult. Congressional pressure finally forced the Navy to establish a centralized Navy SDT fund in FY 1973. Personnel at NAVSUPSYSCOM indicated that it was impossible to accurately forecast SDT budget requirements at the command level in a decentralized mode.

(2) Any workload savings at USAFAC realized from the implementation of Alternative 4 would be more than offset by the increase in workload for the MACOMs.

(3) TOA workload would increase with respect to identifying shipping rates, handling billing transactions, and handling the accounts receivable cycle for a number of commands.

(4) A loss of flexibility in handling the fluctuating SDT requirements due to unplanned shipments would occur in the worldwide movements program.

(5) It would be difficult to maintain the current system flexibility since funds would have to be constantly shifted between MACOMS to meet financial requests.

(6) Does not provide a transaction-by-transaction system.

(7) Materiel needs in the field may not be met due to the possibility of a lack of SDT funds.

c. Alternatives 1 and 3 based on input from the other services (Chapter 4) showed promise for potential improvement to the current system and were selected as near- and long-term solutions, respectively, to the problems outlined in Chapter 3. These alternatives are discussed in more detail in paragraphs 5-5 and 5-6.

5-5. SHORT-TERM SOLUTION (ALTERNATIVE 1). A cash management forecasting model was developed as a short-term solution to the current difficulties in monitoring SDT funds experienced by program managers at DALO-RMB. The model was designed on an IBM IPC-AT microcomputer and utilizes the LOTUS 1-2-3 software package to create output in the form of spreadsheets. Appendix I provides user instruction for operating the model. The model can be adapted to work on most other spreadsheet software packages. The spreadsheets produce monthly estimates of billing costs by fiscal year for each TOA, adjusts the fiscal year estimate to account for nonshipment charges, and estimates monthly disbursements to each TOA, the Defense Logistics Agency (DLA), and any other direct billings. Two spreadsheet applications are discussed below. These are the monthly billing estimates spreadsheets and the disbursement estimates spreadsheets. Disbursements were selected as a basis for developing estimates because they are actual recorded expenditures.

a. Monthly Billing Estimates Spreadsheet

(1) Inputs. The Monthly Billing Estimates Model provides the transportation analyst with a method of examining data provided by the three TOAs on the monthly billing tapes obtained from MECHTRAM. A computer program aggregates monthly billing costs by month of service rendered. The program audits this cost matrix by accumulating the total number of records that correspond to the cost sums by billing and service month. Records containing TACs, billing dates, or service dates that are out of the appropriate range are rejected. Billing tapes from October 1983 to March 1985 were used as inputs to the model. Bills received in May 1984 were not available and

were assumed to be the average monthly dollar amount of bills received in 1984. Annex 1 to Appendix I documents the main program and runstreams used to capture the TOA billing data from MECHTRAM used as input to the Monthly Billing Estimates Model.

(2) Outputs. The spreadsheet outputs produced by the model give the program manager estimates of billing costs for each month of the fiscal year, by TOA, based on the historical percentage of total bills received for that month. The following paragraphs describe how the outputs are derived.

(a) The top half of Table 5-1 shows the input extracted from the MECHTRAM billing tapes for MSC. The columns display the month of service and the rows indicate the month bills were received. For example, bills for $11,260,113 for shipments in October 1983 were received in October 1983 (billing month 1). An additional $14,443,868 (nonaccumulating) in bills were received in billing month 2 (November 1983) for cargo shipped in October. A total of 18 subsequent billings for each month of service are needed to accumlate 99.99 percent of the total charges for that month.

(b) The lower half of Table 5-1 provides the cumulative (percentage/100) of total bills received. The prior year percentages at the far right column of Table 5-1 are used to compute the billing estimates. The prior year percentages can be compared to the year to date estimates to analyze the billing trend. For example, 32.3 percent of the bills were received in the 1st billing period during the prior year compared to 43.1 percent of the bills received during the current or forecast year. In this example the prior year percentages shown in Table 5-1 are actual Navy prior year percentages since Army data was unavailable.

(c) The billing estimates shown in Table 5-2 were computed by dividing the actual dollar amount of bills received by the prior year percentage of total bills received for that billing month. For example, in October 1983 $11,260,113 (see Table 5-1) in bills were received for shipments made during that month. In the prior year (October 1982) bills for 32.3 percent of the total cargo shipped in October were received in October. Dividing $11,260,113 by .323 the estimated total dollar amount of cargo shipped in October 1983 is $34,861,030 (first entry in Table 5-2). As the fiscal year progresses, additional bills are received and the cumulative prior year percentage increases, improving the accuracy. Thus, the margin for error in the forecast declines as the fiscal year progresses since the amount being forecasted declines. Prior year percentages can be easily adjusted by the transportation analyst throughout the fiscal year if new, unexpected information on SDT transactions becomes available that might affect the accuracy of the forecast.

Table 5-1. MSC FY 84 Monthly Billing Estimates Spreadsheet

Dollars

22 Oct 85

FUNC	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTALS
1	11760113	11507597	9367770	11296204	10179010	16416716	15853595	13068274	11164349	15595008	13674567	9009872	148360810
2	144430G8	17249214	12926178	8451705	9780467	10172402	13662287	19615820	11552825	11415427	14962136	16103817	163336171
3	1528656	468905	2836317	916397	2294003	594012	379180	525059	2503013	170254	1384442	3666680	16726022
4	1043474	50592	34470	99206	1100024	177441	388572	196061	700615	1711838	961743	94922	6566430
5	321077	193640	181646	294036	566259	395895	-59632	106993	204545	-835385	15825	615957	2440106
6	96877	147271	493145	285205	496218	176209	365847	1142	280374	3086	188331	-662330	1871375
7	1030014	178953	75005	14229	-312105	50002	12998	681745	35032	144796	589667	11599	2466090
8	170840	17960	-2352	11276	185206	67029	163898	3540	-15139	244979	-26951	0	820292
9	61087	0	62115	-1108	100210	37563	0	84	24201	249716	0	0	533068
10	273	82645	3567	28553	-61652	1698	47405	-346277	-22789	0	0	0	-266577
11	80859	-25519	18101	6590	2379	2143	44288	86964	0	0	0	0	218805
12	56122	14992	331483	8658	-4419	24791	-9015	0	0	0	0	0	427952
13	132679	1552	0	4084	10106	194219	0	0	0	0	0	0	342640
14	0	0	1597	198	23451	0	0	0	0	0	0	0	25186
15	42218	0	10939	17859	0	0	0	0	0	0	0	0	71016
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	1205	0	0	0	0	0	0	0	0	0	0	0	1205
TOT	90266732	24852112	25690996	21433202	24987597	36310920	30794823	33998799	26507092	29139764	31749260	28839917	343911094

Percent/100

PERC	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	YR-T-DATE	PRIOR YEAR
1	0.872029	0.466259	0.362800	0.527048	0.417998	0.452115	0.514819	0.385054	0.421184	0.539120	0.430705	0.312409	0.4314147	0.389
2	0.849248	0.959143	0.866021	0.921371	0.818441	0.952581	0.958468	0.960030	0.857024	0.924867	0.901964	0.870796	0.9063519	0.882
3	0.899556	0.977811	0.952912	0.964127	0.910049	0.968940	0.970782	0.978500	0.954470	0.930710	0.945569	0.997935	0.9540296	0.929
4	0.934092	0.979847	0.954253	0.968759	0.950769	0.973827	0.981451	0.984277	0.980902	0.989456	0.975861	1.001205	0.9739812	0.936
5	0.944650	0.985224	0.961324	0.982478	0.981902	0.984730	0.979515	0.987412	0.988618	0.977948	0.976944	1.022563	0.9810763	0.951
6	0.947851	0.991150	0.980519	0.995785	1.002330	0.989503	0.991395	0.987446	0.999196	0.978054	0.982276	0.999597	0.9865170	0.963
7	0.981884	0.996039	0.983442	0.996448	0.989532	0.990982	0.991708	1.007593	1.000517	0.983029	1.000848	1	0.9936774	0.967
8	0.987529	0.997062	0.983350	0.996975	0.997186	0.992828	0.997120	1.007638	0.999946	0.991490	1	1	0.9960626	0.969
9	0.989547	0.997062	0.985760	0.996923	1.001235	0.993862	0.997120	1.007640	1.000059	1	1	1	0.9976150	0.973
10	0.989556	1.000387	0.985907	0.998255	0.998707	0.993909	0.998659	0.997437	1	1	1	1	0.9980398	0.976
11	0.992827	0.999360	0.986611	0.998563	0.998805	0.993968	1.000097	1	1	1	1	1	0.9974760	0.981
12	0.994181	0.999937	0.999514	0.998966	0.998624	0.994651	1	1	1	1	1	1	0.9987204	0.985
13	0.998565	1	0.999514	0.999157	0.999038	1	1	1	1	1	1	1	0.9997167	0.986
14	0.998565	1	0.999574	0.999186	1	1	1	1	1	1	1	1	0.9997900	0.987
15	0.999960	1	1	1	1	1	1	1	1	1	1	1	0.9999764	0.989
16	0.999960	1	1	1	1	1	1	1	1	1	1	1	0.9999964	0.991
17	0.999960	1	1	1	1	1	1	1	1	1	1	1	0.9999764	0.992
18	1	1	1	1	1	1	1	1	1	1	1	1	1	0.993

Table 5-2. MSC FY 84 Monthly Billing Estimates Spreadsheet (forecasted dollars)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ANNUAL
ESTIMATE													
OCT	34861030												418333371
NOV	29142835	35874727											390105378
DEC	29497901	27025794	28863065										341547365
JAN	30203110	26327937	25225558	34972767									350108121
FEB	30064656	26016322	26529575	22389953	31514891								327620550
MAR	29790617	25746496	26192019	22388229	22630132	50825746							355146403
APR	30792625	25578597	25969901	22183356	24045052	39216687	49082837						371677926
MAY	30845499	25606144	26150381	22142647	24980645	38118234	33464718	40459052					362662705
JUN	30701475	25571828	26127024	22162889	25102064	37778387	32989016	37056795	34564547				342153107
JUL	30687140	25466702	26071469	22085927	25083552	37598807	32290207	35979574	25756433	48095984			371289359
AUG	30616216	25473101	26020128	22051979	24955797	37313265	31718193	35689324	27410820	89437869	42936120		429213430
SEP	30548862	25317255	25951778	21960184	25095420	37211455	31702854	35238276	27778634	30749074	80658523	27894340	400106661
OCT	30657443	25228994	25897958	21921939	25095243	37203824	31584536	34800356	27555569	31237035	34037579	77751359	407870640
NOV	30621307	25204981	26069563	21816924	24954938	37089485	31688488	35361414	27503344	30445712	33567592	31181931	355505164
DEC	30602150	25179444	26043123	21737117	24830172	36977220	31558216	35292082	27425804	29595299	32595386	30049028	352680048
JAN	30540390	25128525	26018294	21719213	24724852	36790937	31509784	35147083	27353581	29622615	32384780	31010145	351950706
FEB	30509603	25077812	25976740	21697409	24710026	36666701	31394330	34684257	27266009	29814291	32860611	29935948	350593754
MAR	30480092	25052532	25924314	21671589	24708750	36826490	31863779	34596125	27158844	30071995	32832740	29824112	350411367
APR	30480092	25027303	25898181	21627892	24658703	36789179	31832072	34455633	27020419	29856915	32630277	29762556	349430667
MAY	30480092	25027303	25872100	21606050	24609018	36714782	31200428	34420688	26910692	29704142	32529979	29640202	348715481
JUN	30480092	25027303	25872100	21584292	24584210	36640686	31137333	34385814	26883399	29583516	32364179	29549095	348092024
JUL	30480092	25027303	25872100	21584292	24559453	36603750	31074493	34316278	26856162	29553513	32232751	29390488	347580678
AUG	30480092	25027303	25872100	21584292	24559453	36566088	31049168	34247022	26801852	29529570	32200060	29279103	347184907
SEP	30480092	25027303	25872100	21584292	24559453	36566088	31011906	34212498	26747761	29463866	32167436	29249408	346943009
OCT	30480092	25027303	25872100	21584292	24559453	36566088	31558216	34178045	26720798	29404403	32102386	29219774	347273754
NOV	30480092	25027303	25872100	21584292	24559453	36566088	31558216	34178045	26693889	29374762	32097598	29160684	347093326
DEC	30480092	25027303	25872100	21584292	24559453	36566088	31558216	34178045	26693889	29374762	32005902	29101833	347002179
JAN	30480092	25027303	25872100	21584292	24559453	36566088	31558216	34178045	26693889	29374762	32005302	29072496	346972842
FEB	30480092	25027303	25872100	21584292	24559453	36566088	31011906	34178045	26693889	29374762	32005302	29043219	346397754

(d) The forecast for the entire fiscal year is shown in the far right column of Table 5-2. This is calculated by taking the average of the billing estimates for each billing month and multiplying by 12. For example, in December (see Figure 5-2, third row) it was estimated that the total bills for cargo shipped; in October was $29,497,981; in November $27,025,794; and in December $28,863,065. The average monthly bills ($28,462,280) multiplied by 12 provides the estimate of $341,547,365* (right-hand column) for the fiscal year. By entering the charges for each service month and accumulating this information over the course of 29 months, the analyst can determine the lag percentage in a fiscal year's bills and can compare this lag with the prior year lag.

b. Disbursement Estimates Spreadsheet. The monthly disbursement estimates provide the analyst with an estimate of nonshipment charges and estimates of the rate of disbursements for SDT funds based on the historical monthly percentage of SDT disbursements for the three TOAs, DLA, and other direct billings.

(1) Spreadsheet Description. The spreadsheet is divided into four sections which are shown in Table 5-3 through 5-6.

(a) The first section, CFSDT disbursements (Table 5-3), provides the format for the transportation analyst to record data. The columns depict the monthly and the cumulative disbursements for each of the TOAs, DLA, and other miscellaneous disbursements. The total disbursements column is extracted each month from the STANFINS 218 Report.

(b) The second section of the spreadsheet (Table 5-4, CFSDT disbursement rates), shows the calculations and displays the disbursements as a percentage of the cumulative payout and also as a percentage of the final total. This section of the spreadsheet builds upon the data entered in section 1 and will not be completed until 36 months worth of data exists in section 1.

(c) The third section of the spreadsheet, Table 5-5, disbursement rates for FY XX, displays the disbursement rates for the most recent fiscal year that complete data is available, which is FY 83 in the example shown in Table 5-5.

(d) The table of rates computed in section 3 is used to compute the fourth section, Table 5-6, current (FY 85) disbursements.

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*Rounding error

Table 5-3. CFSDT Disbursements, FY 85
(dollars in thousands)

CFSDT DISBURSEMENTS FY85 — 05-Dec-85
DOLLARS IN THOUSANDS (000)

	MSC$ CUMULATIVE	MSC$ MONTHLY	MAC$ CUMULATIVE	MAC$ MONTHLY	MTMC$ CUMULATIVE	MTMC MONTHLY	DLA$ CUMULATIVE	DLA$ MONTHLY	OTHER$ CUMULATIVE	OTHER$ MONTHLY	TOTAL$ CUMULATIVE	TOTAL$ MONTHLY
1 OCT	0	0	0	0	0	0	0	0	13	13	12	12
2 NOV	0	0	0	0	0	0	0	0	13	0	12	0
3 DEC	0	0	0	0	0	0	0	0	13	0	7320	7308
4 JAN	0	0	21861	21861	6641	6641	0	0	20000	19987	34619	27299
5 FEB	8600	8600	22594	733	6641	0	6345	6345	22000	2000	65979	31360
6 MAR	27011	18411	45628	22434	3199	-3442	13200	6855	12600	-9400	102244	36265
7 APR	66816	39805	56837	11809	16614	13415	17500	4300	11361	-1239	174118	71874
8 MAY	77942	11126	72838	16001	24866	8252	20782	3282	14644	3283	219262	45144
9 JUN	99742	21800	87311	14473	32909	8043	26187	5405	14990	346	260841	41579
10 JUL	117071	17329	98824	11513	39939	7030	29902	3715	15054	64	306149	45308
11 AUG	131417	14346	102607	3783	45156	5217	34517	4615	17055	2001	335495	29346
12 SEP	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
13 OCT	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
14 NOV	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
15 DEC	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
16 JAN	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
17 FEB	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
18 MAR	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
19 APR	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
20 MAY	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
21 JUN	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
22 JUL	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
23 AUG	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
24 SEP	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
25 OCT	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
26 NOV	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
27 DEC	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
28 JAN	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
29 FEB	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
30 MAR	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
31 APR	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
32 MAY	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
33 JUN	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
34 JUL	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
35 AUG	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
36 SEP	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0
TOTALS		131417		102607		45156		34517		17055		335495
ESTIMATE	197929 (MSC)		148362 (MAC)		66380 (MTMC)		64936 (DLA)		9306 (OTHER)		486912 (TOTAL)	
TOA SUM	412671											

Table 5-4. CFSDT Disbursement Rates (percent), FY 85

CFSDT DISBURSEMENT RATES (%) FY85 — 05-Dec-85

	MSC % CUMULATIVE	MSC % OF TOTAL	MAC % CUMULATIVE	MAC % OF TOTAL	MTMC % CUMULATIVE	MTMC % OF TOTAL	DLA % CUMULATIVE	DLA % OF TOTAL	OTHER % CUMULATIVE	OTHER % OF TOTAL	% OF TOTAL
1 OCT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0833	.0000	.0000
2 NOV	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0833	.0000	.0000
3 DEC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	.0000	0.0218
4 JAN	0.0000	0.0000	0.6315	0.0652	0.1918	0.0198	0.0000	0.0000	0.5777	0.0596	0.1032
5 FEB	0.1303	0.0256	0.3424	0.0673	0.1007	0.0198	0.0962	0.0189	0.3334	0.0656	0.1967
6 MAR	0.2642	0.0805	0.4404	0.1342	0.0313	0.0095	0.1291	0.0393	0.1232	0.0376	0.3048
7 APR	0.3837	0.1992	0.3264	0.1694	0.0954	0.0495	0.1005	0.0522	0.0652	0.0339	0.5190
8 MAY	0.3555	0.2323	0.3322	0.2171	0.1134	0.0741	0.0948	0.0619	0.0668	0.0436	0.6535
9 JUN	0.3824	0.2973	0.3347	0.2602	0.1262	0.0981	0.1004	0.0781	0.0575	0.0447	0.7775
10 JUL	0.3824	0.3490	0.3228	0.2946	0.1305	0.1190	0.0977	0.0891	0.0492	0.0449	0.9125
11 AUG	0.3917	0.3917	0.3058	0.3058	0.1346	0.1346	0.1029	0.1029	0.0508	0.0508	1.0000
12 SEP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13 OCT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14 NOV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15 DEC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16 JAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17 FEB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18 MAR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19 APR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20 MAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21 JUN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22 JUL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23 AUG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24 SEP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25 OCT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26 NOV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27 DEC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28 JAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29 FEB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30 MAR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
31 APR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
32 MAY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
33 JUN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
34 JUL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
35 AUG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
36 SEP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 5-5. Distribution Rates Through Payout Period (Sept 83 to Oct 85)

DISTRIBUTION RATES FOR FY83A 05-Dec-85

	PRIOR YEAR MSC % OF TOTAL	PRIOR YEAR MAC % OF TOTAL	PRIOR YEAR MTMC % OF TOTAL	PRIOR YEAR DLA % OF TOTAL	PRIOR YEAR OTHER % OF TOTAL	PRIOR YEAR % OF TOTAL
1 OCT	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2 NOV	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001
3 DEC	0.0000	0.0000	0.0109	0.0000	0.0010	0.0118
4 JAN	0.0238	0.0000	0.0110	0.0000	0.0026	0.0375
5 FEB	0.0302	0.0290	0.0111	0.0087	0.0038	0.0829
6 MAR	0.0304	0.0290	0.0256	0.0256	0.0069	0.1227
7 APR	0.0941	0.0606	0.0277	0.0383	0.0286	0.2493
8 MAY	0.1047	0.0833	0.0401	0.0538	0.0125	0.2943
9 JUN	0.1340	0.1156	0.0291	0.0473	0.0016	0.3277
10 JUL	0.1492	0.1287	0.0324	0.0527	0.0018	0.3648
11 AUG	0.2017	0.1741	0.0438	0.0713	0.0024	0.4933
12 SEP	0.2768	0.2388	0.0602	0.0978	0.0034	0.6769
13 OCT	0.2773	0.2393	0.0603	0.0980	0.0034	0.6781
14 NOV	0.3039	0.2685	0.0691	0.0977	0.0121	0.7513
15 DEC	0.3558	0.3084	0.0713	0.1210	0.0184	0.8777
16 JAN	0.4211	0.3038	0.0765	0.1206	0.0190	0.9465
17 FEB	0.4239	0.3156	0.0770	0.1269	0.0191	0.9626
18 MAR	0.4246	0.3146	0.0772	0.1274	0.0192	0.9631
19 APR	0.4428	0.3178	0.0763	0.1315	0.0190	0.9874
20 MAY	0.4447	0.3196	0.0768	0.1318	0.0185	0.9913
21 JUN	0.4440	0.3193	0.0767	0.1316	0.0199	0.9915
22 JUL	0.4472	0.3211	0.0770	0.1320	0.0186	0.9957
23 AUG	0.4454	0.3288	0.0761	0.1305	0.0184	0.9993
24 SEP	0.4454	0.3291	0.0761	0.1305	0.0184	0.9995
25 OCT	0.4460	0.3293	0.0761	0.1305	0.0184	1.0004
26 NOV	0.4265	0.3404	0.0786	0.1349	0.0203	1.0007
27 DEC	0.4117	0.3446	0.0817	0.1416	0.0212	1.0008
28 JAN	0.4254	0.3389	0.0829	0.1336	0.0202	1.0010
29 FEB	0.4254	0.3389	0.0829	0.1336	0.0207	1.0014
30 MAR	0.4245	0.3385	0.0828	0.1335	0.0197	0.9993
31 APR	0.4251	0.3387	0.0829	0.1336	0.0194	0.9996
32 MAY	0.4249	0.3386	0.0829	0.1336	0.0194	0.9996
33 JUN	0.4250	0.3378	0.0839	0.1332	0.0195	0.9995
34 JUL	0.4253	0.3380	0.0839	0.1333	0.0195	1.0000
35 AUG	0.4253	0.3380	0.0839	0.1333	0.0195	1.0000
36 SEP	0.4253	0.3380	0.0839	0.1333	0.0191	1.0000

Table 5-6. FY Calculated CFSDT Disbursements

FY85 05-Dec-85

CALCULATED CFSDT DISBURSEMENTS

	MSC$ CUMULATIVE CALCULATED	MAC$ CUMULATIVE CALCULATED	MTMC$ CUMULATIVE CALCULATED	DLA$ CUMULATIVE CALCULATED	OTHER$ CUMULATIVE CALCULATED	TOTAL$ CUMULATIVE CALCULATED
1 OCT	0	0	0	0	0	0
2 NOV	0	0	0	0	52	52
3 DEC	0	0	4479	0	394	4873
4 JAN	9831	0	4539	0	1092	15462
5 FEB	12478	11961	4563	3570	1556	34212
6 MAR	12561	11966	10579	10579	2837	50624
7 APR	38827	25015	11439	15823	11792	102897
8 MAY	43211	34379	16534	22187	5156	121466
9 JUN	55292	47715	12017	19535	671	135231
10 JUL	61550	53115	13378	21746	747	150537
11 AUG	83239	71832	18091	29409	1011	203582
12 SEP	114210	98558	24823	40351	1389	279329
13 OCT	114416	98736	24868	40424	1389	279834
14 NOV	125431	110798	28517	40305	4981	310032
15 DEC	146831	127278	29430	49942	7596	362217
16 JAN	173782	125389	31574	49776	7822	390590
17 FEB	174935	130253	31787	52365	7893	397234
18 MAR	175216	129808	31878	52591	7935	397428
19 APR	182729	131132	31495	54282	7835	407474
20 MAY	183499	131891	31684	54372	7650	409097
21 JUN	183213	131778	31668	54310	8208	409178
22 JUL	184536	132522	31769	54480	7686	410878
23 AUG	183822	135690	31411	53860	7601	412384
24 SEP	183800	135816	31409	53852	7600	412477
25 OCT	184052	135910	31411	53854	7602	412830
26 NOV	176015	140458	32450	55653	8376	412953
27 DEC	169899	142210	33711	58431	8745	412996
28 JAN	175535	139836	34218	55149	8355	413094
29 FEB	175532	139834	34217	55147	8524	413254
30 MAR	175199	139670	34177	55082	8115	412371
31 APR	175429	139752	34197	55115	8022	412515
32 MAY	175355	139749	34196	55113	8022	412506
33 JUN	175391	139418	34607	54982	8047	412445
34 JUL	175490	139496	34626	55014	8051	412672
35 AUG	175490	139496	34626	55013	8051	412671
36 SEP	175490	139496	34626	55013	7884	412671

(2) Nonshipment Charges. This paragraph provides an example of how nonshipment charges can be estimated. Table 5-3 displays the sum of the estimates produced by the Monthly Billing Estimate Model for the three TOAs which is $412,671,000 (bottom left of Table 5-3). Monthly rates of disbursements for FY 85 in thousands of dollars are displayed in Table 5-4. Table 5-5 shows the percent (divided by 100) of the total amount disbursed in prior years to each TOA, DLA, and for other SDT charges. The three TOAs account for 84.7 percent (sum of bottom row (.4253 + .338 + .0839) x 100) of the total amount disbursed. The program divides the summation of the billing estimates for the TOAs ($412,671,000) by the estimated percent of total charges (84.7). This yields a subtotal of $487,214,876. The subtotal is multiplied by the percent estimated paid to DLA and other nonshipment charges which are .1333 and .0191 (bottom of columns 4 and 5), respectively, shown in Table 5-5. This results in the $64,936,000 (bottom of Column 7) for DLA charges and $9,306,000 (bottom of Column 8) for other nonshipment charges shown in Table 5-3. A cumulative estimate for the three TOAs, DLA, and nonshipment charges can now be made and is shown as $486,912,000 (bottom right) in Table 5-3.

(3) Rates of Disbursements. It is useful for the analyst to know the rate at which CFSDT funds are actually being disbursed. This information is not currently available to the SDT program manager on a timely basis. After the total amount of SDT expenditures are estimated, historical rates of disbursement can be applied to the total estimate to forecast the distribution of disbursements. Table 5-5 displays disbursement rates for FY 83 through the payout period from September 1983 to October 1985. Applying these rates to the $486,912,000 (Table 5-3 bottom right) estimated for total FY 85 CFSDT the disbursement estimates from October 1985 to September 1987 can be calculated as shown in Table 5-6.

c. Summary of Short-term Solution. The billing estimates spreadsheet provides the DALO-RMB program managers a method to estimate SDT fund requirements before the end of the fiscal year. The estimate indicates the amount of additional dollars that should be obligated or surplus dollars that may be made available for other uses or declared excess. The model is flexible and can be adjusted by the analyst to account for shipments not budgeted by modifying the predicting percentages. The usefulness and accuracy of this type of model has already been verified by NAVSUPSYSCOM. The disbursement spreadsheet provides the program manager with a forecast of the distribution for SDT disbursements on a monthly basis to pay the estimated billings. The spreadsheet applications provide a valuable tool for the financial manager to compensate for delayed posting of disbursement data.

5-6. LONG-TERM SOLUTION (ALTERNATIVE 3). This alternative is appropriate for implementation in the long term. It provides a methodology to account for transportation costs on a transaction-by-transaction basis. It is an empirical system, accounting for each shipment and each charge placed against that shipment from the time it is received by the TOA until it is released for line haul to its destination. The system is large and complex, with about 100,000 transactions or billing records per month.

a. System Background. The transaction-by-transaction system of accounting will derive its basic data from the TOA cargo documentation system. Each of the TOAs--MAC, MTMC, and MSC--rely on automated systems to account for, control the movement of, and to calculate billings for Army cargo shipments. The data source for these automated systems is in the Transportation Control and Movement Document (TCMD) (see Figure 3-2 in Chapter 3). The Logistic Control Activity (LCA) is the air clearance authority for Army-sponsored cargo. If the cargo is not eligible for shipment by air, MTMC clears the cargo for shipment and directs the shipper to line haul the cargo to a selected ocean terminal. MTMC receives the cargo, manifests it, and loads the cargo on MSC-controlled or contracted ships for movement to the destination point of debarkation (POD). The cargo documentation system provides input for the TOA accounting and billing system. Both MAC and MTMC use systems based on the collection of data at the point of embarkation (POE); transmission of the data to central collection points; and a final transmission to the finance and accounting office of the respective Industrial Fund. MSC relies on manifest data produced by MTMC for CONUS export shipments and extracts the data from manifests transmitted by AUTODIN from OCONUS ports. The OCONUS manifests are handled directly through the Navy's major or area commands.

b. System Concept. The transaction-based system is an accounting system that could be used by DA to establish obligations, track the liquidation of the obligations, provide information to deobligate or request additional funds, and manage the dollars in the CFSDT annual funding program. Given sufficient time, the system has the potential to build up sufficient historical data to provide for budget estimation and feedback to the cargo forecast system. The system would be able to receive inputs from the cargo documentation systems, build an accounts payable file, and match the bills received from the TOAs against this file. As a match is made, the bill for that shipment is paid, or the obligation is liquidated, and that record of payment is stored as historical data.

(1) System Inputs. Each shipment is identified by a Transportation Control Number (TCN) and a transportation account code (TAC). The TCN and TAC appear on the TCMD and follow the shipment from origin to destination. The TAC is the financial account code identifying the organization responsible for payment for the shipment. The following are additional required input.

(a) Commodity code

(b) Weight

(c) Cube

(d) Point of Embarkation (POE)

(e) Point of Debarkation (POD)

(f) Consignor or shipper

(g) Consignee or receiver

(2) Shipment File. The data listed above is contained in the file and cargo documentation would be used to build a shipment file. Figure 5-1 shows how the shipment data base would be constructed. TCMD data from the cargo documents files, submitted by the TOAs, are extracted and edited to create shipment records. This file would be built on a continuous basis. Other sources of input data to the shipment file are the TOA billing tapes which are received after the end of each billing month, direct billings not included in the monthly billing tapes, and transfers by other finance and accounting offices for payment by USAFAC. Also included in the shipment file are estimated costs for each shipment as calculated from the TOA rates file. This process is discussed in the following paragraphs.

(3) On-line Files. The following files would be required within the system for the purpose of editing/auditing the input data. These three files would require maintenance to ensure currency of the information and accuracy of the edit/audit. The source of the data is shown in parenthesis.

(a) TAC code file (AMC)

(b) DODAAC file (DLA)

(c) Transportation rates files (three, one for each TOA)

(4) System Process

(a) Shipment data is received and recorded in the shipment file for each TOA. Data would be stored by TAC and then TCN within the TAC for each shipment. The commodity code, weight, cube, POE, and POD for each shipment would be used to reference the appropriate TOA rate table and a cost would be calculated for the shipment. This cost would be recorded on that particular shipment record and used as a basis for establishing an obligation. The shipment file now is similar to an accounts payable file.

(b) A master movement file is maintained by LCA. This file contains approximately 6 months of shipping data, but not the estimated cost. This file could be expanded to include cost data and additional historical data. A discussion of this file and LCA activities is found in Appendix J.

(c) The detail billing tapes, which are presorted by TAC, would then be matched by TCN against the shipment or revised master movement file. An overview of the process is provided in Figure 5-2. The process of matching a shipment TCN from the accounts payable file with a record from the billing tape may require multiple editing to account for partial shipments, split shipments, or consolidated shipments and may extend over several billing periods. Other contingencies, such as delayed billings or duplicate billings, would require the following automated logic.

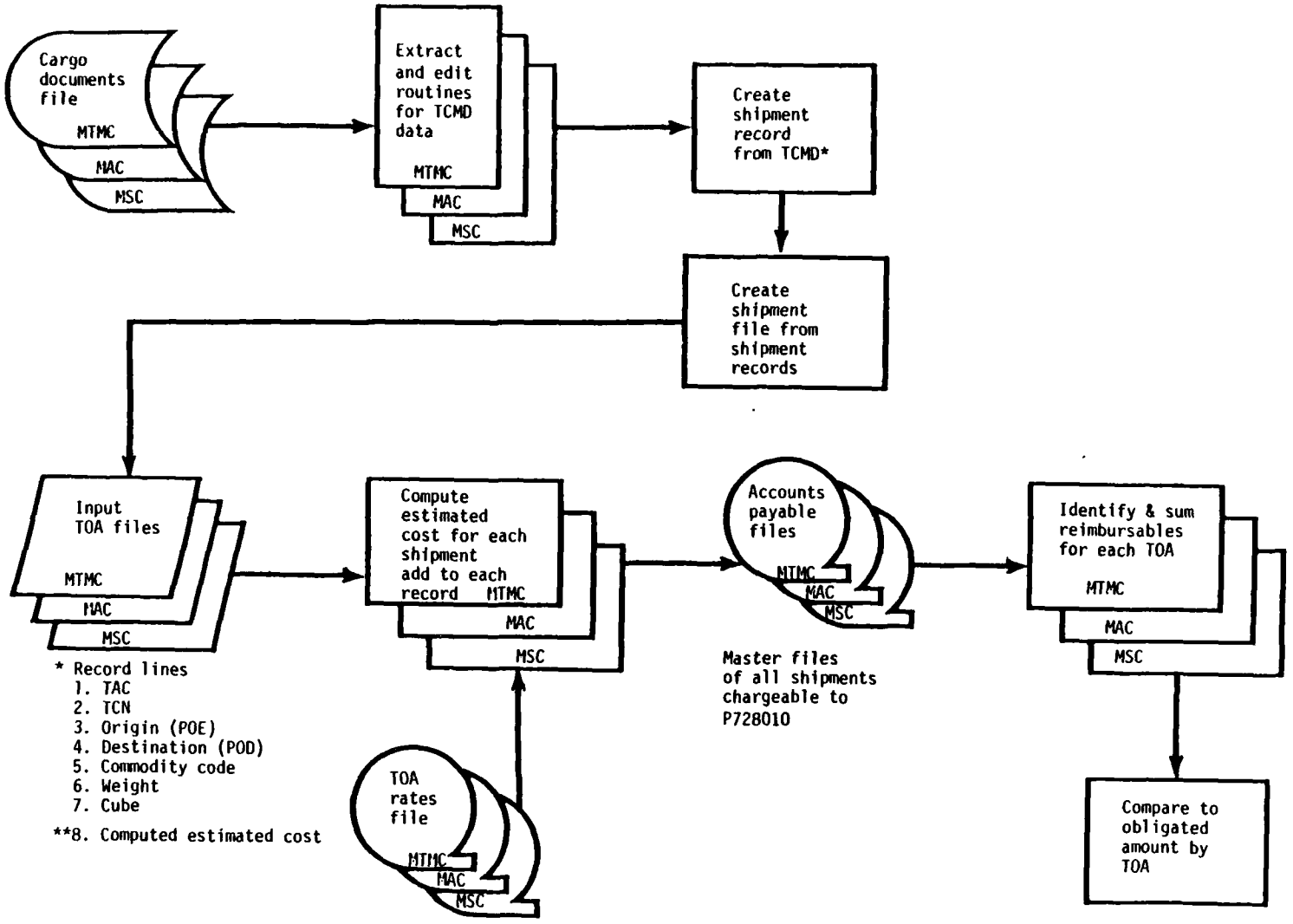


Figure 5-1. Shipment Data Base

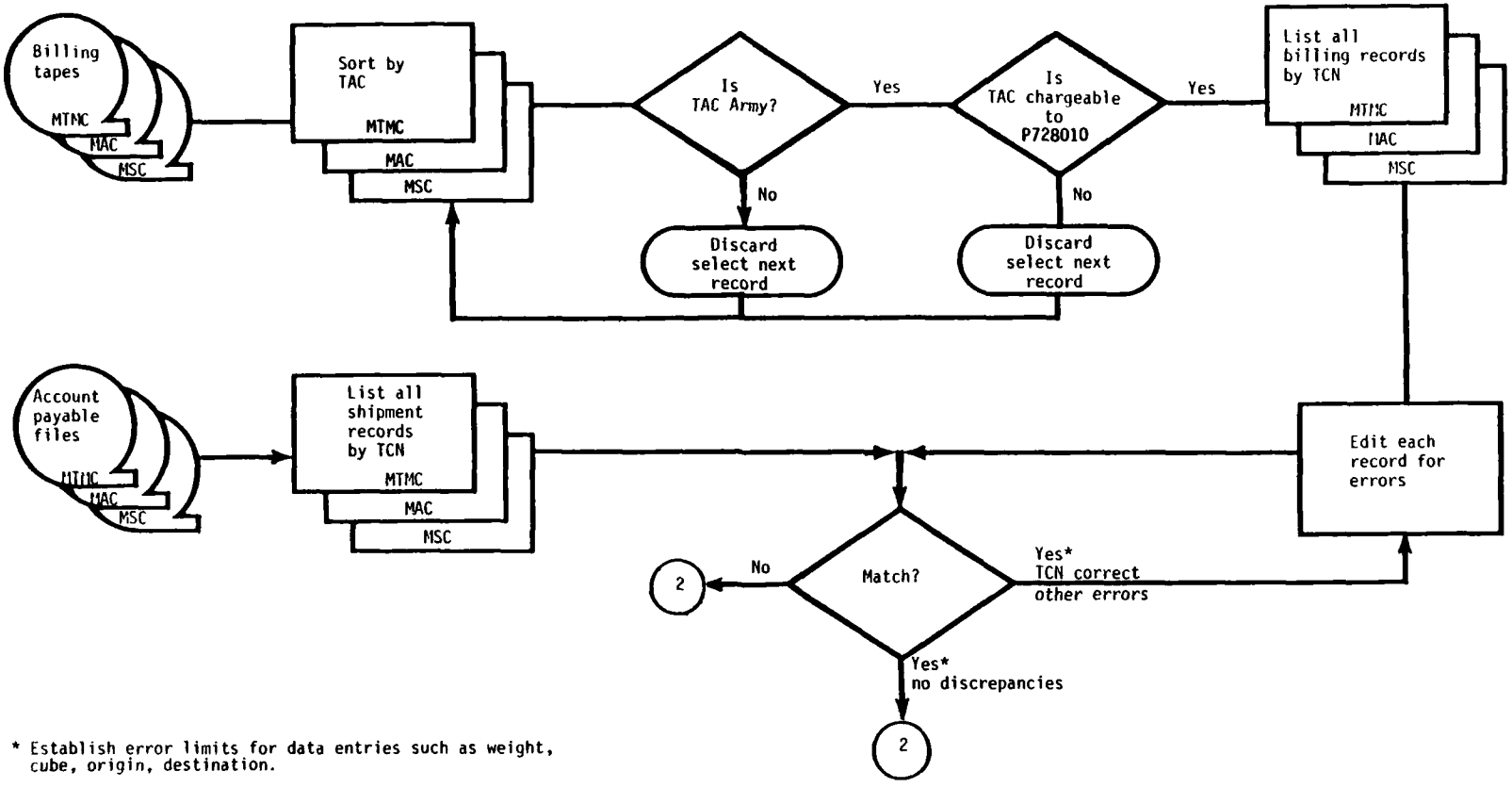


Figure 5-2. Billing File Match

(a) Compare billing record with shipment record for commodity, cube, etc.

(b) Determine if the service is final (storage would not be a final service at a POD).

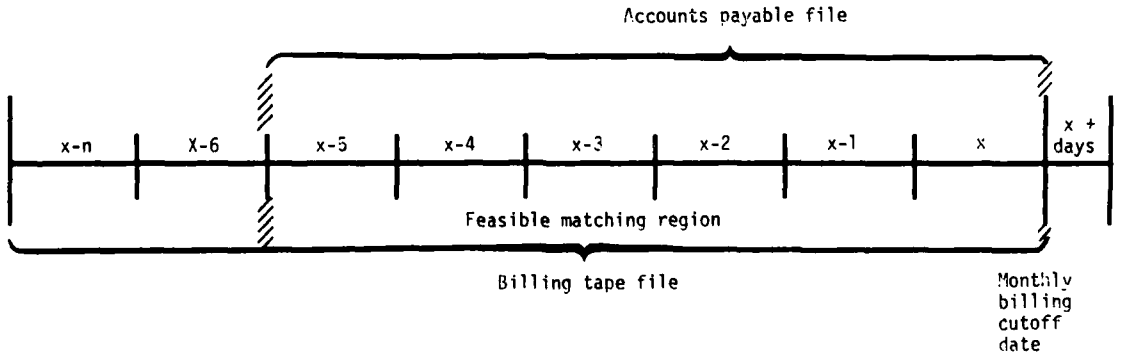
(c) Determine if the following conditions exist:

1. Shipment record exists, no billing record received.

2. Billing record received, no shipment record exists.

3. No billing record received, no shipment record exists.

(d) Determine if the service date on the billing record contained in the billing tape file occurs before the earliest record date for the shipment records in the accounts payable file. Until the accounts payable file contains several years of data, some delayed billing records could precede the shipment records, as illustrated in Figure 5-3 and would not be matched. This condition would essentially be eliminated with the retention of up to 3 years of data.



Probability of match occurs in region denoted by x thru x-5

Figure 5-3. File Duration

c. Obligations and Liquidations. The purpose of the transaction system is to track obligations through to liquidation. Figure 5-4 shows the concept of estimating the obligation and presents the matching process on a transaction-by-transaction basis. The process begins with a shipment which is recorded with an estimated cost and proceeds to the receipt of a bill for that shipment. The accounts payable file contains shipment records for which obligations have been made. Shipment records are placed into the file as they are received, increasing the obligation. The obligations are liquidated as bills are paid. A bills paid file is built as the bills are paid. The purpose of this file is to cross-check bills received for possible duplication and to function as the historical cost data base. Aggregation of this file by time period, commodity, channel, TAC, or other criteria will provide useful budget data. For example, if a unit were to change locations, a sort by consignee (DODAAC) may provide useful cost data, particularly if the new location was supported by different transportation channels. In addition, variance accounts could be maintained from this file indicating whether performance or rates caused shifts from estimated costs.

d. Data Base Considerations. The transaction system would result in a large data base. Entering worldwide cargo documentation for SDT into this data base and using it as a means to edit/audit the bills presented by the TOAs would require personnel knowledgeable in both managerial accounting and transportation management. If a data base similar to the current LCA master movements file is to be established, it would require several years to build sufficient shipping information to have a high probability of a match. This system is an empirical system handling each transaction (shipment) as a unique entity. If the Army is billed for 100,000 transactions per month, even a 1 percent error rate may mean that 1,000 billing records per month would require manual edit/audit. The obligations made using the transaction system would be based on the knowledge of actual shipments rather than an estimate of shipments for some future period.

e. Summary of Long-term Solution. The long-term solution is a transaction-by-transaction system of accounting which derives its basic data from the TOA cargo documentation system. Implementation of this alternative would require one-time contracting support for programing and approximately two additional people for operations and maintenance. Although the system appears complex, LCA personnel, with access to an extensive data base and software programs, consider this alternative very feasible.

5-7. SUMMARY OF ALTERNATIVE SYSTEMS. Four alternatives to the current system were developed to improve the financial management of SDT. A cash management forecasting model was developed as a short-term solution to the SDT financial management problems encountered by DALO-RMB program managers. A transaction-by-transaction accounting system, to be operated by LCA, was selected as the long-term solution.

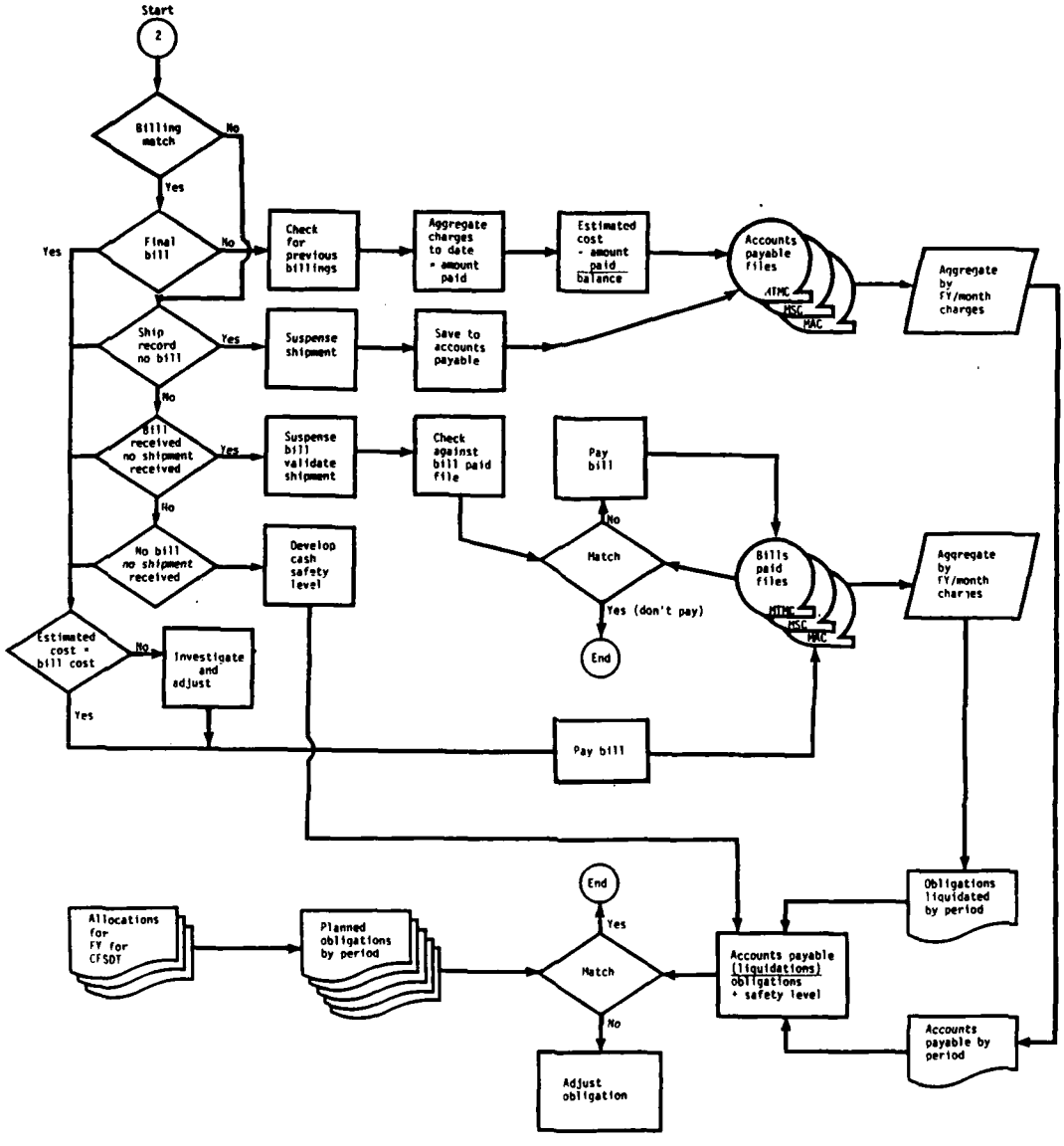


Figure 5-4. Building the Obligation

CHAPTER 6

FINDINGS AND OBSERVATIONS

6-1. INTRODUCTION. The purpose of this chapter is to summarize the study results, address the essential elements of analysis, and state key findings and observations determined during the course of the study.

6-2. ESSENTIAL ELEMENTS OF ANALYSIS (EEA). The EEAs which were developed at the onset of the study and stated in the CFSDT study directive (Appendix B) are addressed below.

a. What was the impact in prior years of over or under obligation of funds for SDT? It has been difficult for ODCSLOG to consistently track budget requests, annual funding, and disbursals. The percent difference between budget requests and disbursals ranged from -13.9 percent (under) to +40.8 percent (over) for the years FY 80 to FY 84. The percent difference between annual funding and disbursals ranged from -5.5 percent (under) to +8.6 percent (over) for this same time period. OCOA has either had to provide additional funding or to deobligate surplus funds for SDT because ODCSLOG program managers cannot provide OCOA with accurate funding requirements at the end of the fiscal year. The uncertainty in determining the SDT budget variance has required the shifting of OMA funds after the end of the fiscal year.

b. How timely and useful are current and historical data on overocean moves for management of resources and budget estimation? Current data are not provided to the program monitor in a timely manner due to the late posting of bills and monthly accumulation of data. Incomplete data are used to forecast workloads, prepare budgets, and track disbursals. Data would be useful for management of resources and budget estimation if received in a timely fashion. Additional historical data would improve forecasting capabilities. Current historical data covers too short a span and is incomplete. More complete data on SDT billings and disbursements over several years would improve SDT financial management during execution of the budget and should provide more accurate shortfall or surplus estimates prior to the end of the fiscal year.

c. Can the MECHTRAM system be modified to provide use of a more extensive data base and to provide timely and accurate cost and performance data for use by forecasters and budget analysts? The current MECHTRAM system could be improved by adding an accrual accounting capability. This could be accomplished either by modifying the current MECHTRAM system or by incorporating the AFLC system into MECHTRAM. Thus, modifying MECHTRAM could improve SDT accounting and reporting, budget forecasting, and tracking as well as provide a means for automating the SDT portion of the budget execution process. However, improvement of MECHTRAM by either of these methods could not be incorporated in the near timeframe and the improved system would still not permit tracking of SDT funds on a transaction-by-transaction basis which is a major goal for the selected long-term solution. Also,

either of these two methods for modifying MECHTRAM would require significant one-time costs. As an alternative for the short-term solution, the MECHTRAM system could incorporate the CAA extract program, which provides input for the Monthly Billing Estimates Model. However, since incorporating the extract program into the MECHTRAM system would not produce any measurable savings in computer time, it is proposed to be run separately.

d. What are the benefits associated with improved reporting and accounting systems? The CAA extract program and the monthly billing estimates model application will permit the program monitor to more accurately forecast obligations and disbursements, thus improving budget execution. Specifically, improved reporting and accounting systems will result in the following benefits:

(1) Ability to manage and forecast SDT expenditures throughout the fiscal year.

(2) Ability to provide OCOA with a more accurate estimate of the shortfall or surplus of SDT funds prior to the end of the fiscal year, resulting in more lead time for any required transfers of OMA funds.

(3) Ability to forecast and budget for nonshipment charges.

(4) Result in a historical data base that can be used to fine tune forecasts over time.

(5) Improve the SDT fund audit trail.

e. What methodologies exist in the other services which might have application to the Army problem?

(1) Air Force. The current Air Force system has improved editing capabilities and permits improved tracking of expenditures during budget execution. A future Air Force system, to be developed under contract, will provide enhanced transportation financial management and documentation and will establish a direct interface with MAC, MSC, and MTMC. The Air Force system shows potential, but a system similar to the Navy system is considered less complex and is more readily available.

(2) Navy. The Navy system incorporates a forecasting methodology which enables the program monitor to obligate funds with a reported error rate of less than 1 percent. This system is directly applicable to the Army problem. CAA has developed a Billing Extract Model with a microcomputer spreadsheet application, which incorporates the principles of the Navy system.

(3) Marines. The Marine system is not applicable to the Army since it is very limited in scope due to the small number of SDT transactions handled by the Marines.

6-3. QUALITATIVE ASSESSMENT. The problem of the current SDT financial management process, namely the inability to provide actual obligations (lift) data in sufficient time to provide a basis for decisions to control and adjust resources, resulted in 4 alternative courses of action to improve SDT financial management. Table 6-1 provides a subjective rating of key factors that were considered by the study team in the selection of the near-term and long-term alternative solutions. Based on discussions with personnel responsible for CFSDT financial management, these factors were considered to be key areas of concern in the selection of the alternative solutions. Alternative 1 was found to offer the best solution for the short term and Alternative 3 was found most suitable for the long term. Alternatives 2 and 4 were rejected because their disadvantages outweighed their potential for improving the current process. The current system evaluation and review of other services provided a basis for judging the feasibility and utility of these alternative systems. Alternative 1 provides a near-term solution to the existing problem by forecasting obligations based on expenditures which compensates for delayed billings. Alternative 3 is a proposed long-term solution that capitalizes on the use of lift data to perform transaction-by-transaction accrual accounting at the Logistic Control Activity. A summary of the advantages and disadvantages of the near-term and long-term solutions follows.

Table 6-1. Rating the Alternatives

Factors	Rating of alternatives[a]			
	1	2	3	4
Initial cost	1	5	3	4
Recurring cost	1	5	3	4
Feasibility	1	2	2	5
Data availability	1	3	2	3
Reduction in obligation error	2	2	2	1
Ability to move cargo	1	1	1	5
Avoidance of financial violation	1	1	1	5
Near-term application	1	5	5	5
Long-term application	5	1	1	1

[a]Favorable 1--5 Unfavorable

a. Alternative 1 (near-term solution). Maintain the current system with some improvements.

(1) Advantages

(a) The current financial management system has not incurred financial violations (31 USC 1517). This is due to the flexibility in the system which allows adjustments to funding levels. Also, accommodation for low funding levels can be made, to a limited extent, by postponing billings.

(b) The cargo would continue to be moved as expeditiously as in the current system. Adjustments to funding would still be made after the fact.

(c) There would be no increased requirements for development of systems or hardware nor would there be increased recurring costs for resources.

(d) The system would continue to function without major changes. Improvements in financial management would reduce, but not eliminate, the budgeting and obligation errors due to late billing.

(2) Disadvantages

(a) DA would still lack timely management information, but the improved system would help in compensating for this lack of information.

(b) The improvements will not permit the auditing of bills on a transaction-by-transaction basis.

(c) DA would continue to rely on the TOA bills, even though some bills are inaccurate, for financial accounting data.

b. Alternative 3 - Transaction-by-Transaction System (long-term solution). Implement a transaction-by-transaction system which estimates obligations based on shipment information transmitted over AUTODIN. This alternative would use the cargo movement documentation currently in the financial management system, with some modifications.

(1) Advantages

(a) Advance obligations can be determined by costing each shipment as the shipment enters the transportation pipeline and by maintaining that shipment in an accounts payable data file as an obligation that must be paid. This procedure would greatly improve obligation estimates.

(b) Each transaction (shipment) data record could be used to audit/edit the bill received from the TOA for that shipment. This system would provide a built-in audit routine that could validate bills for payment.

(c) This system would reduce the level of error in obligation estimates, as compared to the current system, by estimating costs by shipment before the bills are posted.

(d) The major data source is already in place at LCA. In this respect, the Army has an advantage over the Air Force in the development of a transaction-based system.

(2) **Disadvantages**

(a) Requires data links to all theaters, OCONUS and within CONUS.

(b) Requires some program development which would result in one-time costs.

(c) Requires some increase in recurring costs resulting from increased manpower, telecommunications, computer time, and systems maintenance.

(d) Requires an estimated 2 additional people to operate and maintain.

(e) System may result in additional workload without the relative payoff of Alternative 1.

6-4. KEY FINDINGS

a. Prior year data shows a shortage or surplus of money obligated at year end in comparison to the CFSDT budget.

b. Due to the lack of historical data and the substantial programing effort required, a transaction-by-transaction system could not be developed in the limited timeframe of this study.

c. SDT obligations and disbursements can be closely estimated from billing data extracted from MECHTRAM.

d. Nonshipment charges can be estimated and included in the budget forecast by utilizing the CAA-developed factor routine.

e. LCA is the logical choice to implement a transaction-by-transaction system because most data required for this system is currently collected there, and LCA has the required computer capabilities. Development of software would be required.

6-5. KEY OBSERVATIONS. The key observations resulting from this study are:

a. Budget estimates are based on fixed rates, but changes in commodity, mode of shipment, or channel cause significant variations in actual costs.

b. Since TOAs determine routing or mode of shipping of overocean cargo, the cost to ship cargo varies from the ODCSLOG budget estimate using fixed rates.

c. The Navy and Air Force generally have been able to forecast SDT budget requirements more accurately than the Army.

d. Official billings (SF 1080s) lag shipments by about 4 months.

e. There is little correlation between total dollars spent and total tons moved.

f. Nonshipment charges are not budgeted. Direct billings are used rather than the regular monthly bills to cover nonshipment charges.

g. A poor audit trail exists due to missing and inconsistent historical financial accounting records.

h. SDT funds are not fenced. Monthly changes to funding level are experienced.

6-6. SUMMARY

a. The current accounting system is based on the bills received from the TOAs. Since these bills arrive late, an accurate picture of the execution of the CFSDT budget is not available until after the end of the fiscal year. In prior years this has resulted in a shortage or surplus of money obligated at year end. Discussions with the comptroller and financial personnel throughout the agencies visited revealed a preference to underobligate funds at year end. In the case of estimated surplus funds, the preferred procedure is to deobligate, transfer, and reobligate the excess funds. A deobligation after year end is considered lost funds. Historical data indicated that, after year end, adjustments varied both positively (increases in funds were required) and negatively (deobligations of funds were made).

b. The alternatives developed in this study are methods that will allow ODCSLOG program managers to closely monitor the SDT budget during the execution year by estimating the obligations necessary to cover all fiscal year SDT costs. An evaluation of 4 alternatives to the current system was made. A model forecasting obligations based on expenditures was developed for implementation in the near term. A proposed methodology for implementing a transaction-by-transaction accrual accounting system was presented for consideration as a long-term solution.

c. Suggested ODCSLOG actions are to implement the short-term solution by utilizing the CAA-developed computer routine to extract billing data and the microcomputer spreadsheet applications developed to estimate SDT obligations and disbursements. Use of the CAA-developed factor routine within the disbursements spreadsheet application will allow nonshipment charges to be included in the budget forecast. Other actions that are recommended for consideration by ODCSLOG are to continue the use of MECHTRAM, implement a

weekly billing system (if desired) in the last 2 months of the fiscal year, eliminate all TACs not utilized in the past 3 years, combine TACs that may be duplicative, and to retain edited billing files for 5 years. Test the short-term solution and if it proves to be inadequate, adoption of the long-term transaction-based system should be considered. The basic data for this alternative is already being collected at LCA. However, the initial programing requirements, and the 2 additional people estimated to be required for operation and maintenance, warrant consideration of the costs versus benefits of implementing this alternative.

APPENDIX A

STUDY CONTRIBUTORS

1. STUDY TEAM

a. Study Director

Mr. Kenneth R. Simmons, Force Systems Directorate

b. Team Members

LTC Robert G. Emerick
MAJ James K. Bryant
Mr. Joel S. Gordon
MS. Rose Brown

c. Other Contributors

Mr. Kirk S. Reed
Mr. Richard G. Brown
Ms. Linda A. Coblentz

2. PRODUCT REVIEW BOARD

LTC Daniel R. Noonan, Jr., Chairman
MAJ George J. Captain
Mr. Frank O. Gould

APPENDIX B

STUDY DIRECTIVE

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR LOGISTICS
WASHINGTON, D.C. 20310-05

16 APR 1985

DALO-RMB

SUBJECT: Centrally Funded Second Destination Transportation (SDT) Study

Director
U. S. Army Concepts Analysis Agency
Bethesda, MD 20815-2797

1. Purpose of Study Directive. This directive provides for the conduct of a study to evaluate current transportation accounting systems and make recommendations for system modifications.

2. Study Title. Centrally Funded Second Destination Transportation (CFSDT) Study.

3. Background. The current transportation accounting system requires that the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) provide movement forecasts of Army sponsored cargo to the Military Sealift Command (MSC), Military Traffic Management Command (MTMC), and the Military Airlift Command (MAC) in accordance with Joint Chiefs of Staff (JCS) Publication 15. Obligation estimates for cargo moves are provided by ODCSLOG for accounting purposes to the U. S. Army Finance and Accounting Center (USAFAC). USAFAC then establishes obligations of funds based on these bulk forecasted moves. As cargo moves are made, MSC, MTMC, and MAC provide billing data on a monthly basis to USAFAC which pays the billing and performs fund accounting and reporting. However, each transaction which is paid can not be tracked to the specific cargo move to which the obligation pertains, and may lead to potential over obligations or to significant deobligations after the year of execution in which case the funds would be lost to the Army.

4. Study Proponent and Proponent's Study Director. HQDA, ODCSLOG, is the study proponent. LTC Robert H. Ruth, is the Proponent's study representative for the Directorate for Resources and Management, Program 7 and Army Industrial Fund Division (DALO-RMB), ODCSLOG.

5. Study Agency. U. S. Army Concepts Analysis Agency (USACAA).

6. Terms of Reference:

a. Statement of the Problem. Current transportation accounting systems do not provide actual obligation (lift) data in sufficient time to provide a basis for decisions to control and adjust resources.

b. Purpose. To evaluate current transportation accounting systems for SDT and to identify modifications to systems which could be used to obligate and liquidate SDT costs on a transaction-by-transaction basis.

DALO-RMB
SUBJECT: Centrally Funded Second Destination Transportation (SDT) Study

c. Scope. The study will review current transportation accounting systems and make recommendations for system modifications that will permit obligation and liquidation of over ocean SDT costs on a transaction-by-transaction basis.

d. Objectives. Determine problems associated with the current procedure of estimating obligations based on historical data, forecasted shipments, and bills received. Examine alternative solutions to the problem, evaluate these solutions and provide recommended changes to the current management information and reporting systems.

e. Timeframe. Current.

f. Assumptions.

(1) Cargo rates derived for current systems will be applicable to alternatives.

(2) Current transportation accounting systems for over ocean SDT will be maintained.

(3) DOD Regulation 4500.32R military standard transportation and movement procedures (MILSTAMP), will remain in effect during timeframe of study.

g. Limitations.

(1) Only over ocean SDT transactions will be reviewed.

(2) Only data which reflects the current procedures in estimating obligations for bulk shipment will be used. Thus, historical data for prior years will be usable.

h. Essential Elements of Analysis (EEA).

(1) What was the impact in prior year(s) of over obligation or under obligations of funds for SDT?

(2) How timely and useful is current and historical data on over ocean moves for management of resources and budget estimation?

(3) Can the MECHTRAM (Mechanization of Selected Transportation Movement Reports) system be modified to provide use of a more extensive data base and to provide timely and accurate cost and performance data for use by forecasters and budget analysts?

(4) What are the benefits associated with improved reporting and accounting systems?

(5) What methodologies exist in the other services which might have application to the solution of the Army problem?

DALO-RMB
SUBJECT: Centrally Funded Second Destination Transportation (SDT) Study

7. Responsibilities.

a. The study proponent, ODCSLOG will:

(1) Provide a study coordinator.

(2) Establish a study advisory group (SAG) and schedule in-process reviews (IPR) as required.

(3) Assist in providing study agency with available financial, manpower and transaction data, and points of contact (POC) as requested.

(4) Prepare an evaluation of study results IAW AR 5-5.

b. The study agency, CAA will:

(1) Designate a study director and establish a full-time study team.

(2) Establish direct communications with ODCSLOG, MAC, MSC, MTMC, and other agencies as required for the conduct of the study.

(3) Provide an IPR if requested and final study documentation to the study proponent.

(4) Provide programming and ADP support as required for the conduct of the study.

8. Literature Search.

a. A Defense Technical Information Center (DTIC) search will be conducted.

b. Related studies:

(1) Evaluation of Second Destination Transportation Funding, U. S. Army Logistics Evaluation Agency, 29 December 1978.

(2) Transportation Workload Forecasting (TWF) Study, U. S. Army Concepts Analysis Agency, January 1984.

9. References.

a. JCS Pub 15, dated 2 June 1975.

b. AR 55-23, dated 17 March 1978.

c. AR 55-30, dated 15 August 1982.

d. AR 55-133, dated 18 February 1977.

DALO-RMB
SUBJECT: Centrally Funded Second Destination Transportation (SDT) Study

e. AR 59-8, dated 20 August 1982.

f. MECHTRAM Users Manual, dated June 1978.

g. AR 11-18, dated October 1975.

h. AR 11-28, dated December 1975

i. AR 5-5, dated October 1975.

10. Administration.

a. Support.

(1) Funding for temporary duty (TDY) and travel associated with the study will be provided by each participating agency.

(2) Headquarters or agencies represented on the Study Advisory Group will provide own TDY, per diem, and travel funds.

b. Milestone Schedule:

Event	Date
Brief Study Plan	April 1985
In-Process Review (if requested)	July 1985
Brief Study Results	October 1985
Final Report Published	November 1985

11. Coordination. This directive has been coordinated with CAA in accordance with AR 10-38.

FOR THE DEPUTY CHIEF OF STAFF FOR LOGISTICS:

JOHN W. HUDACHEK
Major General, GS
Director, Resources
and Management

APPENDIX C

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AR 55-38 Reporting of Transportation Discrepancies in Shipments, 1 May 1982

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APPENDIX D

ARMY SDT WORKLOAD FORECASTING GUIDELINES

D-1. INTRODUCTION. The purpose of this appendix is to document the three major directives that govern the Army transportation forecasting system and describe the support services provided by LCA.

D-2. FORECASTING. The following paragraphs summarize JCS Publication 15, AR 55-23 and AR 55-30 which provide guidance for Army transportation workload forecasting.

a. Joint Chiefs of Staff Publication 15 (JCS Pub 15). JCS Pub 15, Mobility Systems Policies, Procedures, and Considerations, dated 2 June 1974, contains approved joint transportation procedures applicable to the submission of common-user movement requirements. Specifically, Chapter 4 (Transportation Requirements, Allocations, and Priorities) in JCS Pub 15 addresses shipper service forecasted cargo movement requirements. JCS Pub 15 directs that utilization reports comparing final forecasted requirements with actual cargo for the particular month be provided to the Army monthly. It further requires that each military service and DLA submit four specific forecasts of sealift requirements.

(1) On 1 May of each fiscal year, a preliminary annual forecast (MSC-9) is submitted which provides the worldwide MSC surface movement requirements for the fiscal year beginning 17 months later (e.g., 1 May 84 for fiscal year 1986).

(2) An annual forecast (MSC-10) is submitted on 1 March for the subsequent fiscal year (e.g., 1 March 86 for FY 87). This forecast refines the preliminary forecasts.

(3) A sealift cargo requirement report (short range) is submitted by the 15th day of each month for the succeeding 3 months. Each of the reports states the monthly sealift cargo requirements, in measurement tons, for each traffic route, program, commodity, and type of shipment or mode.

(4) Change reports are required when significant changes to the above forecasts are anticipated.

b. Space Requirements and Performance Reports for Transportation Movements (AR 55-30). AR 55-30 prescribes procedures for the preparation and submission of cargo requirements and performance reports and defines responsibilities for report submission. Responsibilities defined in AR 55-30 are as follows:

(1) The ODCSLOG is responsible for developing long-range cargo movement requirements (preliminary and annual forecast reports) and for programing and budgeting of transportation services.

(2) AMC/LCA has DA responsibility for developing and programing short-range movement requirements.

(3) The commands and agencies reporting under AR 55-30 are required to submit their long-range reports to US Army Management Systems Support Agency (USAMSSA). USAMSSA provides a consolidated report to the Director for Transportation, Energy, and Troop Support, ODCSLOG, who analyzes and adjusts the stated requirements. The adjusted data is then provided to USAMSSA for preparation and submission to MSC and MTMC.

(4) Short-range requirements for surface cargo movement are to be submitted monthly to AMC/LCA. LCA is required to consolidate the reports and forward the Army's statement of requirements to MSC and MTMC.

(5) Change reports are to be submitted when there is a 600-measurement-ton-change over a traffic area (e.g., Gulf Coast to Europe).

c. AR 55-23, Military Sealift, Implements JCS Pub 15 Within the Army. AR 55-23 identifies 57 numbered traffic areas and their associated geographic areas. These areas are the terminals of the traffic channels for which forecasts are submitted. Additionally, AR 55-23 identifies sponsor codes, budgets, programs, cargo classes/commodities, types of shipment, and formats for reports submitted to MSC.

APPENDIX E

CENTRALLY FUNDED ALLOTMENTS

E-1. INTRODUCTION. The purpose of this appendix is to highlight the relationship of centrally funded allotments to the funding of second destination transportation movements. This appendix includes the hierarchy of DOD fund control, related definitions, fund management, and SDT forecasting versus billing activities at Department of the Army level. For a detailed description of centrally funded allotments, refer to DOD Regulation Number 7200.1, subject: Administrative Control of Appropriations.

E-2. HIERARCHY OF DOD FUND CONTROL. The hierarchy of DOD fund control is depicted in Figure E-1. A general discussion of hierarchy elements is included in this paragraph. Paragraph E-3 gives the formal definitions.

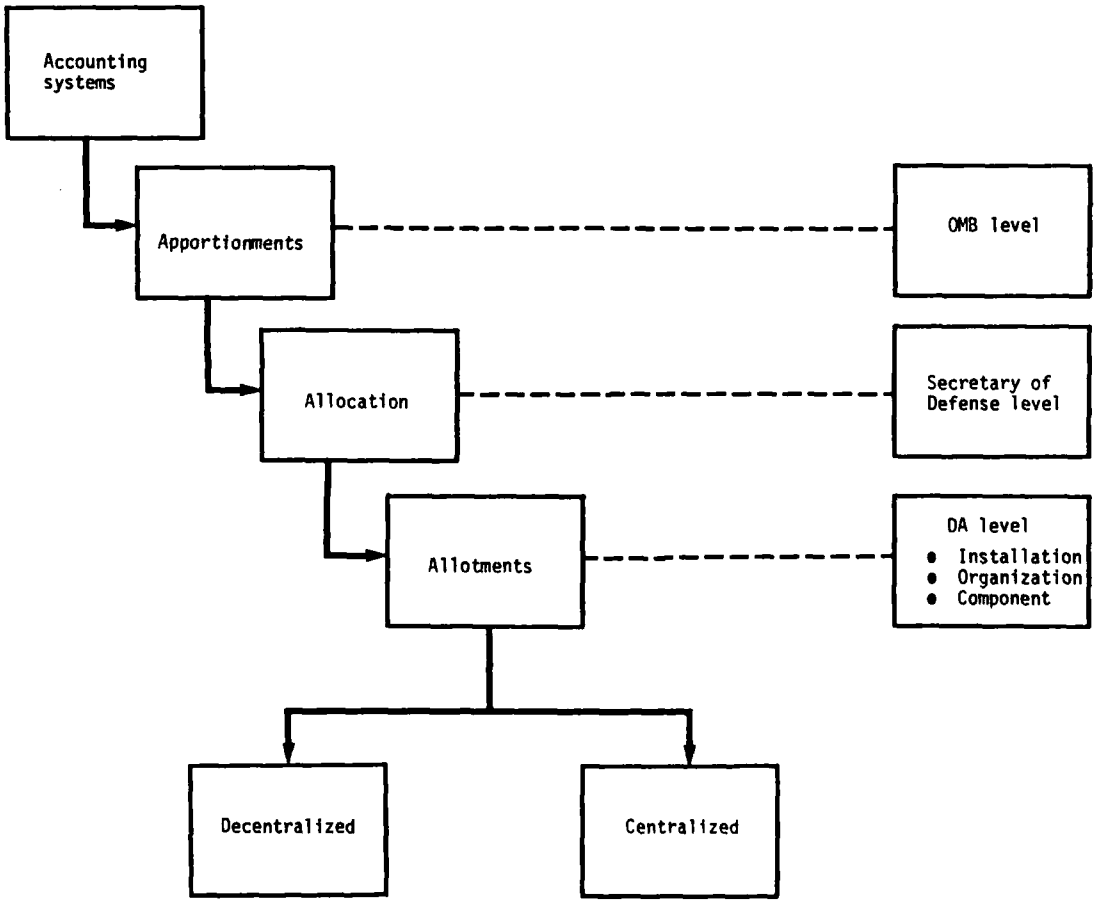


Figure E-1. DOD Fund Control

a. Accounting systems characteristics are designed:

(1) To restrict obligations to the amount of obligational authority available.

(2) To provide timely disclosure of authorizations, obligations, and disbursements in excess of amounts available.

(3) To provide fund management at the highest organizational level possible.

b. Apportionments at OMB level:

(1) Requests for funds to be apportioned are submitted through the Assistant Secretary of Defense (Comptroller) (ASD(C)) to the director of OMB.

(2) Apportionment obligations may not exceed the amount of the approved apportionment over a given time period.

c. Allocation at SECDEF (ASD(C)) level:

(1) ASD(C) allocates apportioned funds.

(2) Secretary of the Army can further suballocate apportioned funds.

(3) Allocations may not exceed the amount of the approved allocation over a given period of time.

d. Allotments are managed at DOD component, installation, and organizational unit level. These allotments include:

(1) Name or title of the allottee.

(2) Amount of allotment.

(3) Period of availability of allotment.

(4) Legal restrictions of obligations and disbursements.

(5) Decentralized allotments.

(6) Centralized allotments.

e. Decentralized allotments are those that require the allotment user to certify the availability of funds prior to obligations of the fund.

f. Centralized allotments permit users to obligate funds without certifying their availability.

E-3. RELATED DEFINITIONS AND CONSTRAINTS. Several definitions and constraints govern the process by which the DOD accounting and fund control system is administered. These were extracted from DOD Regulation 7200.1.

a. **Definitions**

(1) Administrative Subdivision of Funds. Any subdivision of an appropriation or other fund that makes funds available in a specified amount for incurring obligations for a specific purpose and that generally can be further subdivided. The obligation limitation contained in an operating budget is an administrative subdivision of funds and constitutes an allocation, suballocation, or allotment, as appropriate.

(2) Allocation and Suballocation. An authorization by a designated official of a DOD component making funds available within a prescribed amount to an operating agency for the purpose of making allotments and incurring obligations.

(3) Allotment and Suballotment. An authorization by the head of an operating agency (as defined in paragraph E-3a(8), below) or designee, to the head of any organizational unit to incur obligations within a specified amount.

(4) Apportionment and Reapportionment. A distribution made by OMB of amounts available for obligation in an appropriation or fund account into amounts available for specified time periods, activities, projects, objects, or combinations thereof. The amounts so apportioned limit the obligations that may be incurred.

(5) Appropriations. Statutory authority to incur obligations and to make payments out of the Treasury for specified purposes. As used herein, it also includes authorizations to create obligations in advance of funding action.

(6) Centrally Managed Allotment. Authority issued by the holder of an allocation for incurring obligations for a specific purpose and in a specific amount. It is administered by publishing a centrally managed allotment account number that permits authorized officials to charge the account for authorized purposes without further determination or certification of fund availability for individual transactions.

(7) Decentrally Managed Allotment. A decentrally managed allotment is one in which the availability of funds must be determined or certified each time the allotment is charged.

(8) Operating Agency. A major organizational unit within a military department or defense agency that is responsible for (a) the active planning, direction, and control of a program or segment thereof; and (b) the control of the funds allocated to it.

b. Constraints

(1) Expenditure of funds cannot exceed the amount that has been allocated for a project. Over expenditure results in the violation of DOD, OMB, and Congressional statutes which place the user directly accountable for fiscal mismanagement.

(2) Projects cannot be contracted prior to the allotment of project funds.

(3) The control and administration of funds should be conducted at the highest level possible. That is, funds should not be suballotted to lower levels of management without justification that the funds cannot be administered at a higher level.

E-4. MANAGEMENT OF CENTRALLY FUNDED ALLOTMENTS. This paragraph outlines the activities associated with a centrally funded allotment. It includes the conditions under which a central fund is established, the request for establishment, the role of officials establishing central funds, the control mechanism, and postfund management activities conducted on an annual basis.

a. Preconditions to establishing a centrally funded allotment:

(1) It must be established that it is impractical to administer a decentralized allotment.

(2) It must be demonstrated that adequate controls are in place to prohibit overobligation of the allotment.

b. Request to establish a centrally funded allotment:

(1) A request for the establishment of a centrally funded allotment must justify the need for such an account.

(2) A request for the establishment of a centrally funded allotment must delineate and outline alternatives to a centralized allotment.

(3) A request for the establishment of a centrally funded allotment must demonstrate why a centralized fund is practical.

c. Establishing Centrally Funded Allotments

(1) Suballocation. At the Secretary of Defense level (ASD(C)) funds will be suballocated into allotments at DOD component, installation, and organizational level.

(2) Controls. A centrally funded allotment must contain controls to ensure that obligations incurred are not over the amount established by the allotment.

(3) Authorizations. The individual authorized to incur obligations under the allotment must be clearly delineated.

(4) Limitations. Limitations for which obligations are made must be established.

(5) Accounting. A system for accounting and reporting of fund activities on a monthly basis must be established.

d. Control of Centrally Funded Allotments. There are three methods to control a centrally funded allotment which prevents the overobligation of the allotment on a timely basis. These are:

(1) The amount of the centrally funded allotment may be increased over time. For example, funds may be allocated at the beginning of the funding period, and this amount increased on a monthly or quarterly basis as the need arises.

(2) The centrally funded allotment may be terminated.

(3) Other steps may be taken as necessary to prevent the overobligation of the centrally funded allotment.

e. Postfund Management. On an annual basis, a centrally funded allotment must undergo an internal audit, and a determination must be made as to whether or not the continuation of the fund is justified.

E-5. SDT FORECASTING AND BILLING ACTIVITIES. This paragraph provides insights into how the SDT forecast and the SDT centrally funded allotment are used in the forecasting and billing of ODCSLOG cargo movements. Typical program and billing activities are contrasted and compared in the following paragraphs.

a. Contrast of Program versus Billing. Transportation forecasts, shipments, and billings do not occur instantaneously, but rather they occur over time. Figure E-2 is a notional graphic depicting the time lag in forecast and billing between the ODCSLOG, Directorate for Resource Management (DRM), and the DOD component managing the centrally funded allotment. The ODCSLOG SDT program is based on transportation forecasts, or cargo to be moved in the future, whereas expenditures are based on completed movements and processed billings. An example of the time lag is as follows (refer to Figure E-2): the ODCSLOG (DRM) is at the end of the second quarter and has already forecasted X_2 cumulative dollars for the centrally funded SDT allotment. It is now desired to raise the amount to X_3 dollars in order to meet the third quarter transportation requirement. The DOD component is also at the end of the second quarter. However, this data base contains expenditures for bills processed through the first quarter, or X_1 bills, and the DOD component, as controller of the centralized allotment, sees no requirement to increase the allotment to X_3 level until X_2 level has been billed. Time period 5 in this example represents the bills processed during the following year's first quarter.

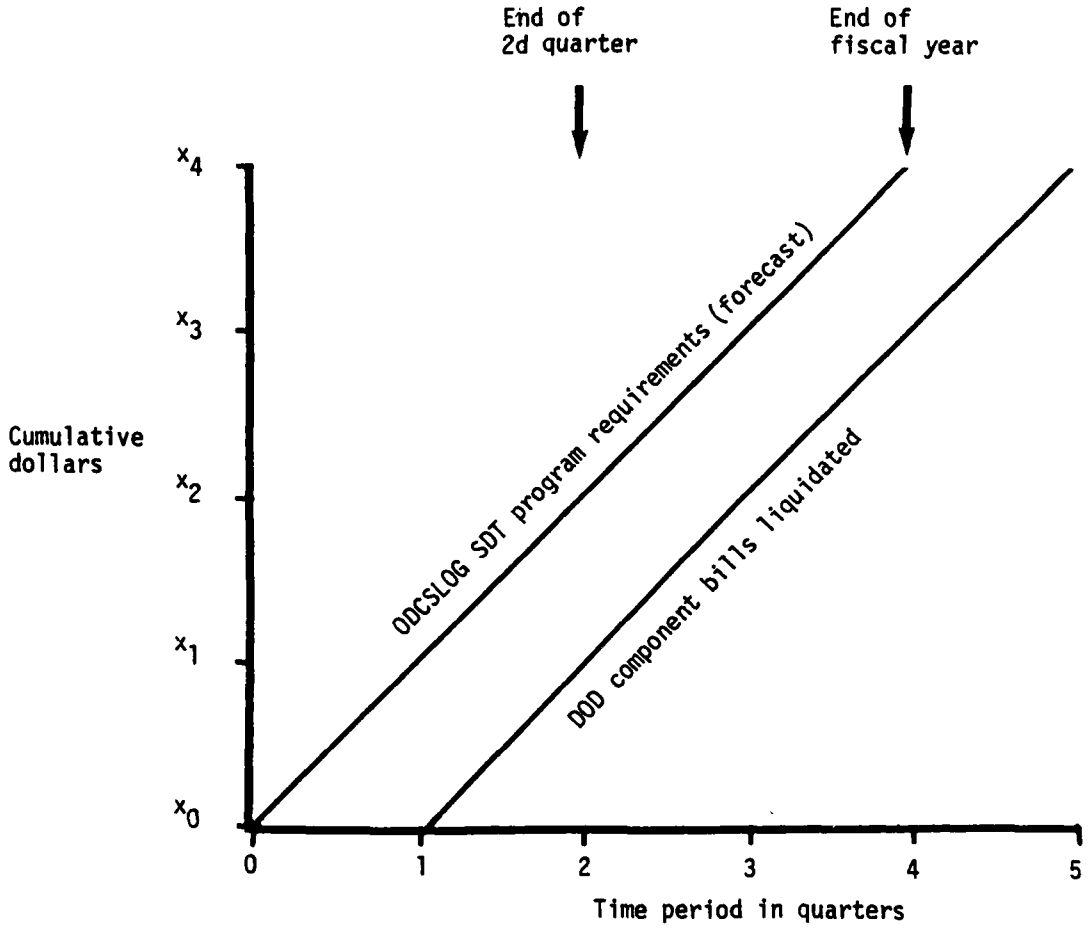


Figure E-2. Time Lag Between Forecast and Bills (notional)

b. Comparison of Shipping versus Billing Months. Table E-1 shows a comparison of obligations and expenditures incurred by month. In this example, prior year billings are omitted, but the funds have been obligated since cargo was moved in the prior months and bills for these ship movements were not received before the end of the last fiscal year. Referring to Table E-1, cargo movements made in October are not billed until November. Thus, in the billing month of November, bills for October movements are paid. Similarly, in December, November bills will be paid in addition to bills for October which were not submitted until November. Thus, a matrix is formed as shown in Table E-1, and this technique was used in developing one of the alternatives in this study.

Table E-1. Relationship of Program and Bills[a]

Billing month	Shipping month						
	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Oct							
Nov	Oct$						
Dec	Oct$	Nov$					
Jan	Oct$	Nov$	Dec$				
Feb	Oct$	Nov$	Dec$	Jan$			
Mar	Oct$	Nov$	Dec$	Jan$	Feb$		
Apr	Oct$	Nov$	Dec$	Jan$	Feb$	Mar$	
May	Oct$	Nov$	Dec$	Jan$	Feb$	Mar$	Apr$

[a]Billings from prior year not shown.

E-6. SUMMARY

a. Centrally funded allotments do not require a certificate of fund availability each time the fund is obligated.

b. Centrally funded allotments are established only when it is impractical to administer decentralized allotments.

c. Generally, a centrally funded allotment is controlled by increasing the amount of the allotment or terminating the allotment altogether.

APPENDIX F

MECHANIZATION OF SELECTED TRANSPORTATION MOVEMENT REPORTS (MECHTRAM)

F-1. INTRODUCTION. The purpose of this appendix is to provide a general summary of the MECHTRAM integrated transportation management information system. This appendix addresses the major organizations and their responsibilities in relation to the MECHTRAM information system, the inputs required to generate the various management reports, and the outputs. A detailed description of the system, extracted from the ODCSLOG Program Maintenance Manual published in August 1985, is provided in Annex I to this appendix. The User's Manual from MECHTRAM, dated August 1985, and maintained by the Directorate of Transportation, Energy and Troop Support (DALO-TSP), ODCSLOG, contains a complete discussion on the MECHTRAM system. Annex II to this apendix lists the MECHTRAM components and Annex III displays sample MECHTRAM reports.

F-2. SYSTEM OPERATION. The MECHTRAM system was developed in 1978 as the Integrated Transportation Management Information System (ITMIS) by the US Army Logistics Evaluation Agency, New Cumberland, Pennsylvania. It was developed as a management tool to capture cost and performance data for budget planning and forecast cargo and passenger movements at the DA level. MECHTRAM automates data received from the TOAs pertaining to cargo and passenger movements; i.e., tonnage, number of passengers, and dollar costs. There have been 16 changes to the system since 1978. The magnetic tapes submitted by the TOAs are in the format prescribed by Chapter 10 of the Military Standard Transportation and Movement Procedures (MILSTAMP), Volume II. The tapes are delivered to the US Army Management System Support Agency (USAMSSA) and become part of the MECHTRAM data base. Tapes arrive at DA by the 15th of the month following the movement month and contain all shipment and cost data collected by the TOA up to the 5th working day before the end of the movement month. In September 1984 an Army contract was initiated for services to design, develop, test and implement the MECHTRAM system. Work under this contract resulted in the system as it currently exists. The MECHTRAM system is run using USAMSSA computers and the related telecommunications facilities. USAMSSA provides the ADP support for MECHTRAM through its computer operation and telecommunication facilities. Maintenance of the MECHTRAM software is a responsibility of USAMSSA. However, DALO-TSP is responsible for the maintenance of the data files.

F-3. ORGANIZATIONS. MECHTRAM provides information to a wide array of consumers, all of which have important roles in the input, output, or analysis of the MECHTRAM forecast, budget, performance, or cost data. While ODCSLOG is the primary user of the system, the functional reports produced by MECHTRAM are the basis for reports used by OSD, JCS, the TOAs, the DA Staff, and the forecasting commands. The responsibilities and activities of these organizations are addressed in the following subparagraphs.

a. Directorate of Transportation, Energy and Troop Support, (DALO-TSP), ODCSLOG. DALO-TSP is responsible for the implementation and operation of the MECHTRAM system. DALO-TSP has overall Army staff responsibility for the development of movement requirements and programing for all Army-sponsored movements forecast for transport by sea or air and for CONUS port transshipment.

b. Director for Resources and Management (DRM), ODCSLOG. The DRM is responsible for the formulation of the budget request and for the management of funds apportioned for SDT. The DALO-TSP provides cost and performance data and appropriation summary data from the prior year out of the MECHTRAM system. The long-range forecast for the budget year is also provided. These are the basic tools used to formulate the budget request. During the execution year the short-range forecasts are used as a guide in estimating the obligations. DALO-TSP analyzes the billing tapes submitted by the TOAs and submits appropriation summary reports in hard copy to the DRM. The appropriation summary reports tons moved and dollar costs by program and point account for each of the TOAs. This provides the budget analyst a means of tracking bills against a given obligation. The DRM is responsible for coordinating the Annual Funding Program (AFP), obligations, and disbursements with USAFAC.

c. Assistant Secretary of Defense (Comptroller) (ASD(C)). The Director for Operations, Assistant Secretary of Defense (Comptroller), analyzes the SDT portion of the Army budget submission in terms of the current year movement program, prior year program performance, and use of inflation factors. The SDT portion of the budget is compared to the industrial fund budgets submitted by the TOAs to ensure consistency. The SDT budget is partially derived from the appropriation summary reports produced by MECHTRAM for MSC, MAC, and MTMC.

d. Joint Chiefs of Staff (JCS). The Army is provided guidance in JCS Publication 15 for the submission of transportation requirements to MSC, MAC, and MTMC. These requirements are generated out of MECHTRAM and become the long-range forecast which is submitted to the TOAs in May of each year for the fiscal year which begins 17 months later. A short-range forecast is also produced each month for the succeeding 3 months.

e. Transportation Operating Agencies (TOA)

(1) Military Sealift Command (MSC). MSC plans the total sealift movement requirement after the receipt of the long-range forecast. MSC adjusts these plans based on the short-range forecast. The cargo is moved by the MSC fleet, chartered vessels, American flag commercial vessels, or in special cases, foreign flag vessels. MSC then provides ODCSLOG monthly billing tapes to DALO-TSP in MILSTAMP format containing the movement data and charges for each shipment.

(2) Military Airlift Command (MAC). MAC prepares the air channel traffic plan, scheduling aircraft, and cost estimates after receiving the long-range forecast. The plans are adjusted based on the services' short-range forecast. MAC aerial ports receive, load, and document cargo moves.

The aerial ports submit this movement data to revenue data collection points where they are consolidated and submitted to the Industrial Fund Accounting Division at MAC headquarters. This movement data and the related charges are submitted monthly on magnetic tape in MILSTAMP format to DALO-TSP, ODCSLOG.

(3) Military Traffic Management Command (MTMC). In 1985 MTMC assumed responsibility for the preparation of the sealift long-range forecast. Implementation of the forecasting system is detailed in the Transportation Workload Forecasting Study Implementation (TWFS-I). This forecast is used by both MSC and MTMC in developing workload requirements, by channel, for sealift and port handling. MTMC provides transshipment services at CONUS terminals and cargo documentation (ship manifests). The cargo documentation prepared by the various MTMC ocean terminals is submitted to Headquarters, MTMC for compilation. MTMC then provides DALO-TSP, ODCSLOG, with the monthly billing tape, in MILSTAMP format, which contains shipment data and related charges.

f. US Army Finance and Accounting Center (USAFAC) Operating Agency 32: USAFAC is responsible for establishing obligations and submitting purchase orders for transportation services to the TOAs. USAFAC is primarily responsible for fund control, i.e., paying the bills (disbursing) and accounting for SDT funds. USAFAC receives copies of the billing tapes after they have been edited by the DALO-TSP using MECHTRAM. The edited tapes are used by USAFAC to establish the amount of payment out of direct funds and the type reimbursement, namely those that are paid by funded reimbursement and those that must be billed as automatic reimbursements. In order to accomplish this, the charges are sorted by TAC to establish the account responsible for payment. Not all bills submitted to USAFAC are processed through the MECHTRAM system, and this constitutes a shortcoming of the current system. Direct billings are paid by USAFAC out of a miscellaneous obligation document (MOD) as opposed to bills processed by the MECHTRAM system which are paid by the obligations established by the short-range forecast and the purchase order.

g. Logistic Control Activity (LCA). LCA is responsible for analyzing the short-range forecasts submitted by the forecasting agencies. They consolidate the forecasted movement requirements and forward the final programed requirements to ODCSLOG and the TOAs. LCA also receives the MECHTRAM billing tapes and compares the shipments forecasted with the shipments billed. This comparison of tons forecasted with tons moved and dollar cost forecasted with dollar costs billed is published as a feedback report to the forecasting agencies.

h. Forecasting Commands and Agencies. The commands and agencies shown in Table F-1 are required to submit both long- and short-range forecasts for both airlift and sealift.

Table F-1. Forecasting Commands and Agencies

Military Postal Service Agency
Army and Air Force Exchange Service
Armed Forces Courier Service
US Army Intelligence and Security Command
Chief of Engineers
National Security Agency
Ballistic Missile Defense Systems Command
US Army Communications Command
US Army, AMC, Logistics Control Activity
US Army Europe
US Army Japan
Eighth US Army
Western Command
US Army Forces Command
US Army 193d Infantry Brigade (Panama)
US Army 172nd Infantry Brigade (Alaska)
Deputy Chief of Staff for Logistics (HQDA)

F-4. GENERAL DESCRIPTION. The MECHTRAM system is an interactive, automated data processing (ADP) system, designed for use as a management tool to collect, organize, and report movement and cost data on Army sponsored cargo and passengers. There are two types of inputs to the MECHTRAM system. The first type of input is the billing data tapes in MILSTAMP, Volume II, format from the TOAs. Annex I to this appendix displays the record formats and describes the data fields. The second type of input is the forecasts of transportation requirements. The TOAs submit their requirements on ADP cards or on a DA Form 3865-R if there is no ADP capability. Appendix B of Army Regulation 55-30, Space Requirements and Performance Reports for Transportation Movements, specifies the input formats to be used by the TOAs. Annex I to this appendix describes the card input format and displays a copy of the form used for manual input. The MECHTRAM system takes the various inputs, selects and compiles data from predetermined record fields, and provides output reports for planning, budgeting, and analysis of performance. A detailed description of the technical components of MECHTRAM is given in Annex II to this appendix.

F-5. OUTPUT REPORTS. The MECHTRAM system provides a variety of reports for management purposes. There are four categories of reports: MSC, MAC, MTMC, and ERROR. Similar reports are generated for each of the TOAs. In the ERROR report, error listings are produced for each of the TOAs with a passenger error list. The most common reports produced for the TOAs are appropriation summaries, budget summaries, and obligation versus disbursement comparisons. MAC and MSC also receive a TAC summary by channel or port.

F-6. MECHTRAM SUMMARY. MECHTRAM, in summary, automates the costing, performance, budgeting, and forecasting associated with SDT. It provides output reports and tapes necessary for all users to perform their roles in meeting Army transportation needs.

a. Forecasting. The process of moving cargo begins at least 18 months in advance of actual shipment. The process begins when the forecasting commands listed in Table F-1 submit their long-range cargo forecasts to USAMSSA. DALO-TSP, ODCSLOG, consolidates the long-range cargo forecasts, makes adjustments based on known program changes, and returns the consolidated forecast to USAMSSA, where it is properly formatted and transmitted to the TOAs for budget development.

b. Budget. The TOAs use the long-range cargo forecast to develop a fleet plan which outlines the number of ships, airplanes, and cargo handlers required to meet the users demand. From the fleet plan the TOA is able to quote a transportation rate or the cost per measurement ton to move a given quantity of cargo. Shipping rates and budget data are then developed by the TOAs and provided to the services and to the ASD(C) for budget approval. The ASD(C) generally approves the submitted shipping rates with minor variations, thus allowing the TOAs to perform appropriate cargo handling and movement functions.

c. Performance. SDT performance begins with the submission of the short-range forecast by the forecasting commands. This forecast is consolidated by the LCA and submitted to the TOAs to alert them to develop air and ship carrier schedules as well as the scheduling of cargo handlers. Once movement performance has been completed, the TOAs pay the carriers and handlers out of their Industrial Fund budgets and then bill the services for reimbursement for services rendered.

d. Cost. Once the performance of a movement is complete and appropriate bills submitted, managers need to know the cost. Detailed reports produced by MECHTRAM allow users to determine the cost of transportation over time. This cost can then be used to compare actual costs with budget costs for ships, airplanes, and cargo handlers. From this comparison it can be determined if costs were over or under the budgeted program cost. In some cases, MECHTRAM data can be used to make adjustments to the Annual Funding Program that will better align the budgeted costs with actual costs.

ANNEX I TO APPENDIX F

MECHTRAM INPUTS

F-I-1. MECHTRAM INPUTS. The following figures, taken from Section B, Volume II, DOD 4500.23-R, document the record layouts for the MECHTRAM inputs discussed in Appendix F.

```
                                (1) (TRANSPORTATION OPERATING AGENCY NAME)
                                   X-----------------------------------X
                                                                                MMM YY
(RCN) (2)                                                                (4) AS OF XXX XX
X---X                           (3) STATEMENT OF CARGO TRANSPORTATION CHARGES
                DD MM YY                                                 (7) PAGE NO. ZZZZ
PRODUCTION DATE XX/XX/XX (5)                 (6) FISCAL YEAR XX
               (8)          (9)
CUSTOMER CODE X---X    TITLE X---(NAME OF BILL TO CUSTOMER)------X
                             X------------(ADDRESS)--------------X
                             X------------(ADDRESS)--------------X
(11) (12)  (13)  (14)    (15)  (16) (17) (18)(19)(20)  (21)  (22)    (23)                                  (24)    (25)
TCN  PROJ  SERV  CON-    CON-   A/   A/  WCC WT  CUBE  RATE  AMOUNT  ERROR X---(TOA UNIQUE DATA)---X MBR NAME  GI
     CD    DATE SIGNEE  SIGNOR  POE  POD                                  (AS DISPLAYED    )
                                                                          (BELOW           )
TAC X--X

X---------X X-X X----X X----X X----X X-X X-X X-X X---X X--X ZZZ.ZZ ZZZZZZ.ZZ X---X X--------------X X------X XX
X---------X X-X X----X X----X X----X X-X X-X X-X X---X X--X ZZZ.ZZ ZZZZZZ.ZZ X---X X--------------X X------X XX

   (TAC)                          WEIGHT          CUBE          BILLED AMOUNT
    X--X SUBTOTALS                ZZZ,ZZZ,ZZZ     ZZZ,ZZZ,ZZZ   ZZZ,ZZZ,ZZZ.ZZ
TAC X--X

X---------X X-X X----X X----X X----X X-X X-X X-X X---X X--X ZZZ.ZZ ZZZZZZ.ZZ X---X X--------------X X------X XX
X---------X X-X X----X X----X X----X X-X X-X X-X X---X X--X ZZZ.ZZ ZZZZZZ.ZZ X---X X--------------X X------X XX

   (TAC)                          WEIGHT          CUBE          BILLED AMOUNT    THE ABOVE TOA UNIQUE DATA FIELDS
    X--X SUBTOTALS                ZZZ,ZZZ,ZZZ     ZZZ,ZZZ,ZZZ   ZZZ,ZZZ,ZZZ.ZZ  ARE AS FOLLOWS:
                                                                                    (A)          (B)(C)(D)(E)(F)
                                  WEIGHT          CUBE          BILLED AMOUNT     MISSION        C  D  C  S  T
FISCAL YEAR XX SUBTOTALS          ZZZ,ZZZ,ZZZ     ZZZ,ZZZ,ZZZ   ZZZ,ZZZ,ZZZ.ZZ (26) DATA       C  C  I  H  P
                                                                                   X------------X X  X  X  X  X
                                  WEIGHT          CUBE          BILLED AMOUNT
CUSTOMER TOTALS (TOA OPTIONAL)    ZZZ,ZZZ,ZZZ     ZZZ,ZZZ,ZZZ   ZZZ,ZZZ,ZZZ.ZZ
                                                                                     VOY   SHIP    TATA CC TPR
                                                                                (27) NR    NAME    PEPD    CDB  MSC
                                                                                   X---X X-----X XXXX XX XXX
          NOTE:
          REFER TO FIGURE F-I-3 FOR
          DATA ELEMENT DESCRIPTIONS
                                                                                     CMDY  PRE   VES  M-
                                                                                (28) CD    CD    NR   TP       MTMC
                                                                                     XX    XX    X--X XX
```

Figure F-I-1. Standard Transportation Billing Print Format

STANDARD TRANSPORTATION BILLING TAPE FORMATS

(18)	51		
WCC	50		
	49		
(17)	48		
POD/APOD	47		
	46		
(16)	45		
POE/APOE	44		
	43		
(15)	42		
	41		
CONSIGNOR	40		
	39		
	38		
	37		
(14)	36		
	35		
CONSIGNEE	34		
	33		
	32		
	31		
(13)	30		
	29		
DATE SERVICE	28		
PERFORMED	27	(23)	78
	26		77
	25	ERROR TAC/TCN	76
(12)	24		75
PROJECT CODE	23		74
	22	(22)	73
	21		72
	20	AMOUNT	71
	19		70
	18		69
(11)	17		68
	16		67
TRANSPORTATION	15		66
CONTROL	14	(21)	65
NUMBER	13		64
	12	RATE	63
	11		62
	10		61
	09	(20)	60
	08		59
	07	CUBE	58
	06		57
	05	(19)	56
(10)	04		55
	03	WEIGHT	54
TAC	02		53
	01		52

NOTES

1. PRIMARY SORT - CUSTOMER CODE
2. SECONDARY SORT - FISCAL YEAR (WITHIN CUSTOMER CODE)
3. TERTIARY SORT - TAC (WITHIN FISCAL YEAR WITHIN CUSTOMER CODE)
4. FINAL SORT - TCN (WITHIN TAC ETC.)
5. INDIVIDUAL TAC SUBTOTALS (WEIGHT - 9 POSITIONS, CUBE - 9 POSITIONS, AMOUNT - 11 POSITIONS, (2 DECIMALS), PLUS EDITING
6. FISCAL YEAR SUBTOTALS (WEIGHT - 9 POSITIONS, CUBE - 9 POSITIONS, AMOUNT - 11 POSITIONS, (2 DECIMALS), PLUS EDITING
7. CUSTOMER TOTALS (OPTIONAL)
8. REFER TO FIGURE F-I-3 FOR DATA ELEMENT DESCRIPTIONS

Figure F-I-2. Standard Transportation Billing Tape Format (page 1 of 2 pages)

CH 1
DoD 4500.32-R
Vol II

STANDARD TRANSPORTATION BILLING TAPE FORMATS

MAC UNIQUE DATA		MSC UNIQUE DATA		MTMC UNIQUE DATA	
	120		120		120
	119		119		119
FILLER	118	(G) RB	118		118
	117	(27F) TP	117		117
	116	CD	116		116
	115	(27E) MSC	115		115
	114	CC	114		114
	113	(27D) TA-	113	FILLER	113
	112	PD	112		112
(F) TP	111	(27C) TA-	111		111
(E) SH	110	PE	110		110
(D) CI	109	(27B)	109		109
(C) DC	108		108		108
(B) CC	107	SHIP	107		107
(26A)	106		106		106
	105	NAME	105		105
MISSION	104		104	(28D) M-	104
	103		103	TP	103
DATA	102		102	(28C)	102
	101		101	VESSEL	101
	100		100	NUMBER	100
	99	(27A)	99		99
	98	VOYAGE	98	(28B) PC	98
	97	DOCUMENT	97		97
	96	NUMBER	96	(28A) CC	96
	95		95		95
(25) GRADE	94	(25) GRADE	94	(25) GRADE	94
INDICATOR	93	INDICATOR	93	INDICATOR	93
BLANK	92	BLANK	92	BLANK	92
(24)	91	(24)	91	(24)	91
	90		90		90
MEMBER	89	MEMBER	89	MEMBER	89
	88		88		88
NAME	87	NAME	87	NAME	87
	86		86		86
	85		85		85
	84		84		84
	83		83		83
	82		82		82
	81		81		81
	80		80		80
	79		79		79

Figure F-I-2. Standard Transportation Billing Tape Format
(page 2 of 2 pages)

	DATA ELEMENT	FIELD LENGTH	PRINT POSITIONS	JUSTIFIED	A/N	REMARKS
(1)	Transportation Operating Agency	35	48-82	Centered	A/N	"Military Airlift Command" or "Military Sealift Command" or "Military Traffic Management Command
(2)	Report Control Number (RCN)	7	1-7	L	A/N	Used for ADP registration/identification
(3)	Report Title	41	46-86	Centered	A/N	"Statement of Cargo Transportation Charges
(4)	"As of" Date	12	121-132	-	A/N	Date - MMM YY MMM - First three letters of the month. YY - Last two digits of calendar year
(5)	"Production Date"	24	1-24	-	A/N	Date - "DD/MM/YY" DD - Day of Month, two digit MM - Numeric Designator of Month (01-12) YY - Last two digits of calendar year The date the bill is produced.
(6)	"Fiscal Year"	14	60-73	-	A/N	XX - Last two digits of fiscal year in which the movement commenced.
(7)	"Page No."	13	120-132	-	A/N	
(8)	"Customer Code"	19	1-19	-	A/N	Code is A/N, 5 Positions (15-19) Code unique within each TOA.
(9)	"Name of Billed to Customer"	70	29-98	L	A/N	Three Lines, Name and Address of "Bill To"
(10)	Transportation Account Code	8	3-10	-	A/N	MILSTAMP Volume II
11	"TCN" (Transportation Control Number)	17	1-17	-	A/N	MILSTAMP, App K
12	"Proj Cd" (Project Code)	3	19-21	-	A/N	Assigned by Shipper
13	"Serv Date" (Date Service Performed)	6	23-28	-	N	YYMMDD
14	"Consignee"	6	30-35	-	A/N	DoDAAC
15	"Consignor"	6	37-42	-	A/N	DoDAAC
16	"POE/APOE" (Port of Embarkation)	3	44-46	-	A/N	MILSTAMP Vol I, Section IV, App B (Water) MILSTAMP Vol I, Section XIV, App B (Air)
17	"POD/APOD" (Port of Debarkation)	3	48-50	-	A/N	MILSTAMP Vol I, Section IV, App B (Water) MILSTAMP Vol I, Section XIV, App B (Air)
18	"WCC" (Water Commodity Code)	3	52-54	-	A/N	MILSTAMP Vol I, Para B13
19	"Wt" (Weight)	5	56-60	R	N	Pounds
20	"Cube"	4	62-65	R	N	Cubic Feet
21	"Rate"	6	67-72	R	N	Pounds or Cubic Feet Rate to Two Decimal places.
22	"Amount"	9	74-82	R	N	Two Decimal Places
23	"Error TAC/TCN" (Erroneous Transportation Account Code/ Transportation Control Number)	5	84-88	-	A/N	See Figure F-I-2 for codes and definitions.

Figure F-I-3. Standard Transportation Billing Format Data Element Descriptions (page 1 of 2 pages)

	DATA ELEMENT				A/N	REMARKS
24	"MBR Name" (Member Name)	13	117-129	L	A/N	For Personal Property Shipment Only*
25	"GI" (Grade Indicator)	2	131-132	L	A/N	For Personal Property Shipments Only* MILSTAMP Vol I, App B, Para 96-103
	TRANSPORTATION OPERATING AGENCY (TOA) UNIQUE DATA					* Absence of name and grade does not invalidate billing.
	MILITARY AIRLIFT COMMAND (MAC)					
26A	"Mission Data"	12	90-101	-	A/N	MAC Manual 55-3 MAC Reg. 60-2, Vol I
26B	"CC" (Commodity Code)	1	103	-	A/N	MILSTAMP Vol I, Para B74
26C	"DC" (Direction Code)	1	105	-	A/N	AFM 300-4
26D	"CI" (Cube Rate Indicator)	1	107	-	A/N	Asterisk, When Set
26E	"SH" (Special Handling Code)	1	109	-	A/N	MILSTAMP Vol I, App B 75-76
26F	"TP" (Transportation Priority)	1	111	-	N	MILSTAMP Vol I, App L
	MILITARY SEALIFT COMMAND (MSC)					
27A	"Voy Nr" (Voyage Document Number)	5	90-94	-	A/N	MILSTAMP Vol I, Section VII
27B	"Ship Name" (Ship Name Abbreviation)	10	95-104	-	A/N	
27C	"TaPe" (Traffic Area of POE)	2	106-107	-	A/N	COMSCINST 7600.3
27D	"TaPd" (Traffic Area of POD)	2	108-109	-	A/N	COMSCINST 7600.3
27E	"CC" (MSC Commodity Code)	2	111-112	-	A/N	COMSCINST 7720.1
27F	"TP-CD" (Type Pack Code)	2	114-115	-	A/N	(114-115) - Type Pack Code. MILSTAMP Vol I, App B, Para 88, 89 and 90
27G	"R-B" (Rate Basis Code)	1	116	-	A/N	(116) - Rate Basis code. See figure 10-0-5 for codes and definitions.
	MILITARY TRAFFIC MANAGEMENT COMMAND (MTMC)					
28A	"CMDY Cd" (Cargo Commodity Code)	2	91-92	-	N	DA PAM 55-3/MTMCR 37-2, Title in Positions 90-93
28B	"PREM Cd" (Premium Commodity Code)	2	96-97	-	N	DA PAM 55-3/MTMCR 37-2, Title in Positions 95-98
28C	"Ves Nr" (Vessel Number)	4	100-103	-	A/N	
28D	"TP Cd" (Type Pack Code)	2	105-106	-	A/N	MILSTAMP Vol I, App B, Para. 88, 89 and 90

Figure F-I-3. Standard Transportation Billing Format Data Element Descriptions (page 2 of 2 pages)

ANNEX II TO APPENDIX F

MECHTRAM COMPONENTS

F-II-1. INTRODUCTION. Figure F-II-1 depicts the data flow of activities occurring in the MECHTRAM process, from input by the forecasting commands to a representation of the management information MECHTRAM is capable of providing. MECHTRAM consists of two major subsystems and seven interrelated components listed as follows. A detailed description of each component is presented in the following paragraphs.

a. Forecast and budget subsystem.

(1) MAC cargo forecast and budget.

(2) MAC passenger forecast and budget.

(3) MSC forecast and budget.

b. Cost and performance subsystem.

(1) MSC cost and performance.

(2) MAC cargo cost and performance.

(3) MTMC cost and performance.

(4) MAC passenger cost and performance.

F-II-2. FORECAST AND BUDGET SUBSYSTEM. Outputs of the forecast and budget subsystem are provided to the activities listed in Table F-1.

a. The forecast and budget subsystem generates the following performance data:

(1) Tons of cargo to be shipped.

(2) Numbers of passengers to be moved.

(3) Dollars to be expended by each TOA.

b. The forecast and budget subsystem performs the following functions:

(1) Updates the sealift and airlift programs.

(2) Provides MSC and MAC with monthly projected cargo movement requirements for near-term operational planning.

(3) Provides MAC with monthly projected airlift passenger movements for near-term operational planning and fiscal year Army-sponsored passenger airlift requirements.

(4) Generates fiscal year Army-sponsored cargo requirements for all three TOAs for long-term forecasting.

F-II-3. **COST AND PERFORMANCE SUBSYSTEM.** The cost and performance subsystem generates the following data:

a. Monthly tons of cargo shipped.

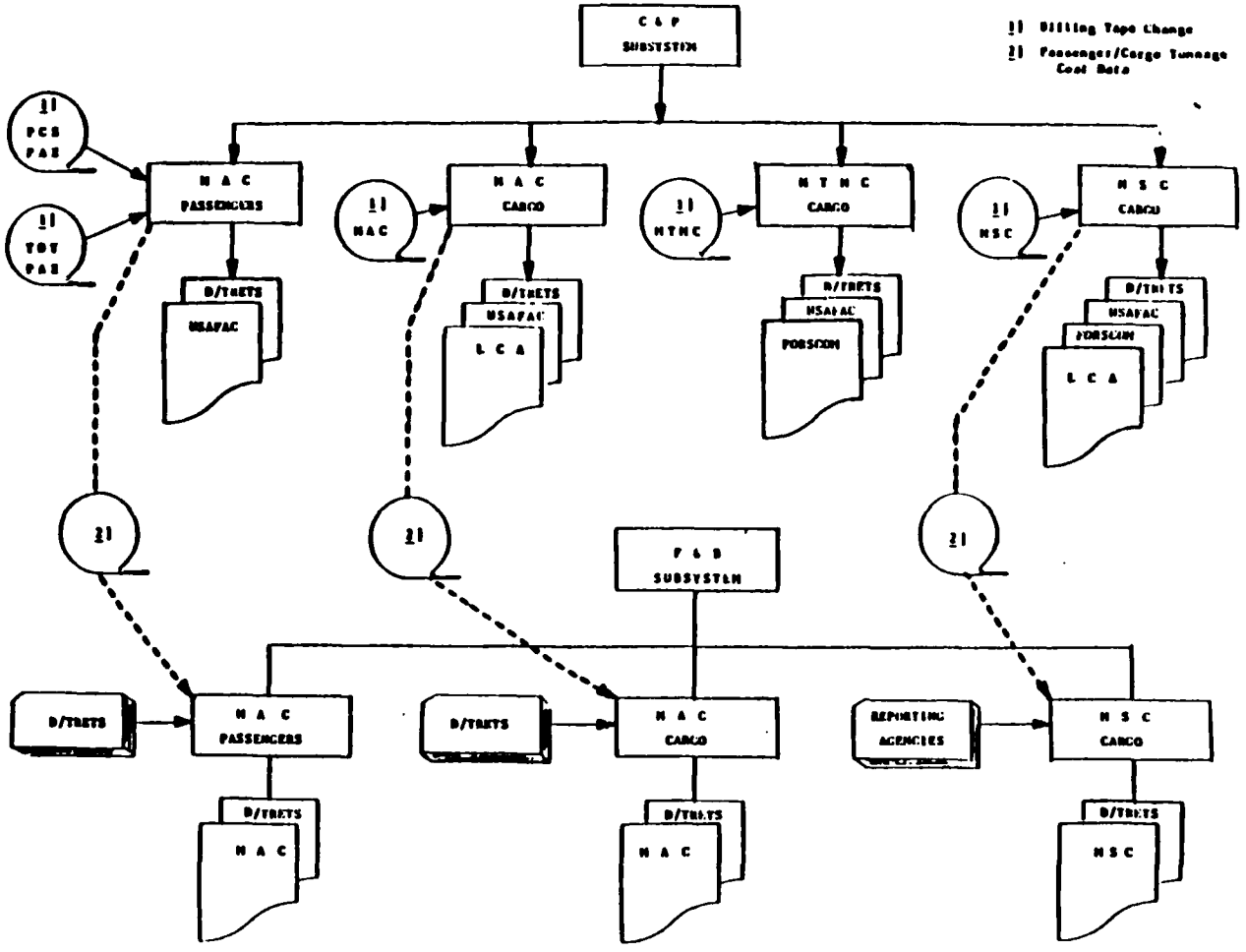
b. Monthly numbers of passengers moved.

c. Monthly dollars expended by each TOA.

d. Current year logistics.

e. Airlift of Army-sponsored cargo by MAC.

f. Sealift of Army-sponsored cargo by MSC.



Reference:
MECHTRAM Program Maintenance Manual
ODCSLOG, Washington, D.C., August 1985

Figure F-II-1. MECHTRAM Data Flow

ANNEX III TO APPENDIX F

SAMPLE MECHTRAM REPORTS

F-III-I. This annex contains sample pages of commonly used MECHTRAM output reports taken from the MECHTRAM System Program Maintenance Manual. The sample reports are Military Airlift Command reports. Similar reports are produced for MSC and MTMC. In order to facilitate a review of the report pages, definitions of the most pertinent abbreviations which appear as row or column headings in the subsequent tables are provided below.

ST	-	short tons
UC	-	unit cost, or cost per short ton
TOT	-	total
CGO	-	cargo
PE7G	-	program element 7 gross or total
PE7D	-	program element 7 direct funded
PE7R	-	program element 7 reimbursable
TSP	-	troop support
FY	-	fiscal year
TAC	-	transportation account code
YTD	-	year to date
CHAN	-	channel
ORIG	-	origin
DEST	-	destination
MTONS	-	measurement tons

Table F-III-1. MAC Cargo Cost and Performance

LN		APR ST	APR UC	MAY ST	MAY UC	JUN ST	JUN UC	3RD QTR ST	3RD QTR UC	A ST	A UC	TOT COST
1	TOT MAC CGO	9,617.9	1628.14					9,617.9	1628.14	62,973.4	1,694.17	106,688,063
2	TOT PE 7G	6,911.8	1719.65					6,911.8	1719.65	45,929.5	1,768.74	81,237,528
3	PE7D	6,803.2	1701.73					6,803.2	1701.73	45,096.9	1,747.83	78,821,921
4	PE7R	108.6	2841.63					108.6	2841.63	832.5	2,901.48	2,415,607
5	TOT MPA	2,154.6	1323.23					2,154.8	1323.23	12,804.1	1,379.38	17,661,723
6	TOT MAP	28.2	1469.35					28.2	1469.35	44.1	1,768.12	78,115
7	TOT SPA-DB	523.6	1683.05					523.6	1683.05	4,195.6	1,837.78	7,710,695
8	TOT DB AF/N	37.3	882.01					37.3	882.01	268.5	799.18	208,245
	** HOUSEHOLD GOODS **											
9	TOT HHG	1,224.9	527.58					1,224.9	527.58	6,562.8	564.20	3,702,329
10	CIV HHG	48.9	1131.87					48.9	1131.87	288.3	1,614.45	336,398
11	MIL HHG	1,176.0	502.43					1,176.0	502.43	6,353.7	529.76	3,365,930
	** BAGGAGE **											
12	TOT BAG	1,006.7	2308.32					1,006.7	2308.32	6,656.8	2,232.27	14,858,037
13	CIV BAG	28.6	2246.47					28.6	2246.47	205.6	2,734.60	562,244
14	MIL BAG	978.0	2310.13					978.8	2310.13	6,450.4	2,216.26	14,295,793
	** GENERAL **											
15	TOT GEN	7,423.5	1713.74					7,423.5	1713.74	50,015.9	1,766.15	88,335,941
16	TSP	5,984.9	1768.72					5,984.9	1768.72	40,807.7	1,796.46	73,309,364
17	TSP-D	5,942.4	1761.58					5,942.4	1761.58	40,473.6	1,790.47	72,467,049
18	TSP-R	42.4	2767.33					42.4	2767.33	334.0	2,521.33	842,315
19	MCP-R	9.5	1599.00					9.5	1599.00	127.5	1,264.05	161,204
20	CAP	.6	2611.55					.6	2611.55	.7	2,592.11	2,063
21	FMS											
22	AFE PE7G	705.1	1299.09					705.1	1299.09	3,629.6	1,354.70	4,917,063
23												
24												
25	AFM PE7	9.2	1148.62					9.2	1148.62	88.6	1,579.76	140,122
26												
27	SAS PE7	68.1	896.94					68.1	896.94	490.2	809.81	396,978
28	SAS DB AF	37.3	882.01					37.3	882.01	260.5	799.18	208,245
29	MAP	28.2	1469.35					28.2	1469.35	44.1	1,768.12	78,115
30	OGA-R	56.6	3106.36					56.6	3106.36	370.9	3,806.80	1,412,037
31	SPA-DB	523.6	1683.05					523.6	1683.05	4,195.6	1,837.78	7,710,695
32	COURIER PE7											
33	COURIER DB AF/NAVY											
34	TOT MAIL	551.7	2069.40					551.7	2069.40	2,669.4	1,416.73	3,781,925
35	DAT MAIL	308.1	2038.21					308.1	2038.21	1,468.6	1,416.01	2,079,568
36												
37												

REPORT TITLE MAC CARGO COST & PERFORMANCE REPORT FOR FISCAL YEAR 1985 RSC-CSGLD 1456

CHANNEL RECAP CHANNEL RECAP

SUB-AREA RECAP SUB-AREA RECAP

AREA RECAP AREA RECAP

* = LESS THAN .1

Table F-III-2. MAC Cargo Monthly TAC Summary

DATE: 08/08/85 — MAC CARGO MONTHLY TAC CODE SUMMARY — BILLING MONTH & FY: JUN 1985

	FY	TAC	ORIG	DEST	RSC	S/TONS	AMT BILLED	YTD TONS	YTD BILLED	TAC	FY	PAGE 1
	3	AH31	DOV	FRF	1	0.000	0.00	0.116	447.84	AH31	3	
TAC TOTAL	3	AH31				0.000	0.00	0.116	447.84	AH31	3	
	3	AH32	BOG	CHS	2	0.000	0.00	3.053	5,501.72	AH32	3	
	3	AH32	BSB	CHS	2	0.000	0.00	7.475	29,492.51	AH32	3	
	3	AH32	BSB	HON	4	0.000	0.00	0.178	1,177.14	AH32	3	
	3	AH32	CHS	ASU	1	0.000	0.00	0.997	3,066.22	AH32	3	
	3	AH32	CHS	GUA	1	0.000	0.00	1.465	2,564.83	AH32	3	
	3	AH32	CHS	LPB	1	0.000	0.00	1.835	4,618.76	AH32	3	
	3	AH32	DOV	AVB	1	0.000	0.00	0.227	654.29	AH32	3	
	3	AH32	DOV	FRF	1	0.000	0.00	0.187	559.80	AH32	3	
	3	AH32	DOV	RMS	1	0.000	0.00	0.215	531.91	AH32	3	
	3	AH32	HON	BUE	4	0.000	0.00	2.961	5,568.00	AH32	3	
	3	AH32	HON	CHS	2	0.000	0.00	0.827	301.23	AH32	3	
	3	AH32	LIM	CHS	2	0.000	0.00	0.436	579.60	AH32	3	
	3	AH32	LIM	HON	4	0.000	0.00	4.720	3,965.00	AH32	3	
	3	AH32	MGA	CHS	2	0.000	0.00	0.720	802.07	AH32	3	
	3	AH32	QCO	CHS	2	0.000	0.00	0.522	1,400.84	AH32	3	
	3	AH32	RUH	DOV	2	0.000	0.00	0.302	990.77	AH32	3	
	3	AH32	SAL	CHS	2	0.000	0.00	0.807	3,243.75	AH32	3	
	3	AH32	SUU	HIK	1	0.000	0.00	0.603	1,038.46	AH32	3	
	3	AH32	TIK	ATH	1	0.000	0.00	0.208	1,061.50	AH32	3	
	3	AH32	TIK	DHA	1	0.000	0.00	0.264	943.01	AH32	3	
	3	AH32	TIK	FRF	1	0.000	0.00	6.540	22,997.60	AH32	3	
	3	AH32	TIK	OKO	1	0.000	0.00	0.250	777.50	AH32	3	
	3	AH32	TIK	RMS	1	0.000	0.00	5.620	19,170.36	AH32	3	
	3	AH32	TIK	THF	1	0.000	0.00	0.494	1,573.60	AH32	3	
TAC TOTAL	3	AH32				0.000	0.00	41.106	112,588.47	AH32	3	
	3	AH34	SUU	RMS	1	0.000	0.00	0.065	230.82	AH34	3	
TAC TOTAL	3	AH34				0.000	0.00	0.065	230.82	AH34	3	
	3	AH35	DOV	RMS	1	0.000	0.00	0.833	2,730.06	AH35	3	
	3	AH35	SUU	FRF	1	0.000	0.00	0.312	1,408.08	AH35	3	
	3	AH35	TCH	EDF	1	0.000	0.00	0.441	513.02	AH35	3	
TAC TOTAL	3	AH35				0.000	0.00	1.586	4,651.08	AH35	3	
	3	AH36	CHS	BOG	1	0.000	0.00	0.330	1,036.89	AH36	3	
	3	AH36	CHS	HON	1	0.000	0.00	0.212	233.87	AH36	3	
	3	AH36	CHS	LPB	1	0.000	0.00	4.167	12,031.59	AH36	3	
	3	AH36	CHS	MIQ	1	0.000	0.00	0.867	1,798.30	AH36	3	
	3	AH36	CHS	TGU	1	0.000	0.00	1.462	2,105.46	AH36	3	

Table F-III-3. MAC TAC Summary by Channel Report

DATE: 04/09/85 MAC TAC SUMMARY BY CHANNEL REPORT BILLING MONTH & FY: FEB 1985 PAGE 1

	ORIG	DEST	FY	TAC	M/TONS	AMT BILLED	YTD TONS	YTD REVN
	ADA	AKT	84	0001	0.000	0.00	0.001	0.75
CHAN TOTAL					0.000	0.00	0.001	0.75
	ADA	AMM	84	0001	0.000	0.00	0.050	9.40
CHAN TOTAL					0.000	0.00	0.050	9.40
	ADA	ATH	84	0001	0.000	0.00	0.057	18.06
			84	A209	0.000	0.00	0.047	14.92
			84	AH46	0.000	0.00	0.326	60.86
			85	A209	0.127	50.94	0.323	128.95
			85	A205	0.000	0.00	0.000	1.99
			85	0001	0.201	82.62	0.849	347.74
CHAN TOTAL					0.328	133.56	1.602	572.52
	ADA	AVB	84	AH46	0.000	0.00	0.284	132.44
			84	0001	0.000	0.00	0.062	40.42
			85	A205	0.026	18.68	0.075	51.86
			85	0001	0.293	246.18	0.492	419.63
CHAN TOTAL					0.319	265.06	0.913	644.35
	ADA	BAH	85	0001	0.002	2.99	0.002	2.99
CHAN TOTAL					0.002	2.99	0.002	2.99
	ADA	BDS	85	0001	0.006	3.74	0.033	20.90
CHAN TOTAL					0.006	3.74	0.033	20.90
	ADA	BZI	84	0001	0.000	0.00	0.000	0.11
			85	0001	0.016	4.81	0.325	92.42
			85	A205	0.000	0.00	0.083	22.74
CHAN TOTAL					0.016	4.81	0.408	115.27
	ADA	DHA	85	0001	0.000	0.00	0.128	91.85
CHAN TOTAL					0.000	0.00	0.128	91.85

Table F-III-4. MAC Cargo Monthly Appropriation Summary Listing

RUN-DATE:08/08/85 MAC CARGO APPROPRIATION SUMMARY LISTING FOR MONTH 1 FY JUN 85 PAGE 1

APPROPRIATION					TAC	SHORT-TONS	AMOUNT	YTD-TONS	YTD-AMOUNT
				TOTAL					
DIRECT BILLING TO MPSA WASH DC BY MAC					0001	380.651	681,543.28	3,571.454	5,658,174.79
				TOTAL		380.651	681,543.28	3,571.454	5,658,174.79
DIRECT BILLING TO S01021 BY MAC					A906	1.475	911.15	23.799	62,151.20
				TOTAL		1.475	911.15	23.799	62,151.20
21-1131080.ES1	332-1824	OL1C-2200	S12121		BESC			.301	648.75
21-1131080.ES1	332-1824	OL1C-2200	S12121		BES4			.009	12.46
				TOTAL				.310	661.21
21-1141030.BL1	432-1824	OL1C-2200	S12121		BBL2			1.705	4,839.90
				TOTAL				1.705	4,839.90
21-1141080.CD1	432-1824	OL1C-2200	S12121		BCDC			.009	67.38
				TOTAL				.009	67.38
21-1141080.EG1	432-1824	OL1C-2200	S12121		BEG4			1.864	7,176.40
				TOTAL				1.864	7,176.40
21-1141080.ES1	432-1824	OL1C-2200	S12121		BESZ			5.209	2,227.55
21-1141080.ES1	432-1824	OL1C-2200	S12121		BES2			.900	1,311.84
21-1141080.ES1	432-1824	OL1C-2200	S12121		BES6			.075	211.35
				TOTAL				6.184	3,750.74
21-1141080.GR1	432-1824	OL1C-2200	S12121		BGR5			.247	157.77
				TOTAL				.247	157.77
21-1141080.JO1	432-1824	OL1C-2200	S12121		BJOE	1.600	4,710.64	1.600	4,710.64
21-1141080.JO1	432-1824	OL1C-2200	S12121		BJO1			.445	1,294.95
				TOTAL		1.600	4,710.64	2.045	6,005.59
21-1141030.NO1	432-1824	OL1C-2200	S12121		BNO3			1.016	2,348.12
				TOTAL				1.016	2,348.12
21-1141080.PI1	432-1824	OL1C-2200	S12121		BPI1			.679	3,516.05
				TOTAL				.679	3,516.05
21-1141080.SR1	432-1824	OL1C-2200	S12121		BSRC	.100	140.60	.100	140.60
21-1141080.SR1	432-1824	OL1C-2200	S12121		BSRM			.293	427.68
21-1141080.SR1	432-1824	OL1C-2200	S12121		BSR1			1.462	5,114.08
				TOTAL		.100	140.60	1.860	5,682.36
21-1141080.TK1	432-1824	OL1C-2200	S12121		BTK3				5.48
				TOTAL					5.48
21-1151080.CD1	532-1824	OL1C-2200	S12121		BCDC			1.001	4,934.47
				TOTAL				1.001	4,934.47
21-1151030.ES1	532-1824	OL1C-2200	S12121		BESZ	3.493	7,416.22	16.426	13,772.68
				TOTAL		3.493	7,416.22	16.426	13,772.68
21-1151080.FI1	532-1824	OL1C-2200	S12121		BFIC			.003	22.46
				TOTAL				.003	22.46
21-1151080.GR1	532-1824	OL1C-2200	S12121		BGR1	1.650	3,554.10	17.377	37,432.22
21-1151080.GR1	532-1824	OL1C-2200	S12121		BGR5			.157	120.14
				TOTAL		1.650	3,554.10	17.534	37,552.36
21-1151080.HO1	532-1824	OL1C-2200	S12121		BHO9			1.005	663.30
				TOTAL				1.005	663.30
21-1151080.ID1	532-1824	OL1C-2200	S12121		BID9			.194	1,199.00
				TOTAL				.194	1,199.00
21-1151080.IT1	532-1824	OL1C-2200	S12121		BIT3			.025	2.68
				TOTAL				.025	2.68
21-1151080.KS1	532-1824	OL1C-2200	S12121		BKS5			1.764	6,698.02
				TOTAL				1.764	6,698.02

Table F-III-5. MAC PE7 Cargo Monthly Appropriation Summary

RUN-DATE:08/08/85 MAC PE7 CARGO APPROPRIATION SUMMARY RPT FOR MONTH & FY JUN 85 PAGE 1

APPROPRIATION			TAC	SHORT-TONS	AMOUNT	YTD-TONS	YTD-AMOUNT
TOTAL							
2132020	32-1824 P728010.12110-2200	S12121	A205	.070	320.07	18.392	20,749.61
2132020	32-1824 P728010.12110-2200	S12121	A206			3.325	4,649.85
2132020	32-1824 P728010.12110-2200	S12121	A209			5.862	15,260.38
2132020	32-1824 P728010.12110-2200	S12121	A213			12.538	12,569.67
2132020	32-1824 P728010.12110-2200	S12121	A288			1.507	2,150.56
2132020	32-1824 P728010.12110-2200	S12121	A547			.001	32.77
2132020	32-1824 P728010.12110-2200	S12121	A561			.067	332.51
2132020	32-1824 P728010.12110-2200	S12121	A581			17.104	94,959.90
2132020	32-1824 P728010.12110-2200	S12121	A583			.678	1,941.98
2132020	32-1824 P728010.12110-2200	S12121	A584			.142	528.57
2132020	32-1824 P728010.12110-2200	S12121	A592			.090	476.58
2132020	32-1824 P728010.12110-2200	S12121	A820				70.05
2132020	32-1824 P728010.12110-2200	S12121	A821			.607	7,151.49
2132020	32-1824 P728010.12110-2200	S12121	A951			14.738	10,219.08
			TOTAL	.070	320.07	75.101	171,092.91
2142020	32-1824 P728010.12110-2200	S12121	A813			.086	192.98
			TOTAL			.086	192.98
2142020	32-1824 P728010.12110-2200	S12121	A204			.212	523.10
2142020	32-1824 P728010.12110-2200	S12121	A205	8.156	12,667.25	827.696	1,791,279.37
2142020	32-1824 P728010.12110-2200	S12121	A206			18.169	51,565.19
2142020	32-1824 P728010.12110-2200	S12121	A209	.038	871.00	393.596	606,290.30
2142020	32-1824 P728010.12110-2200	S12121	A210			6.983	4,608.25
2142020	32-1824 P728010.12110-2200	S12121	A213			82.448	72,998.63
2142020	32-1824 P728010.12110-2200	S12121	A215			6.683	14,036.75
2142020	32-1824 P728010.12110-2200	S12121	A217			164.443	366,001.08
2142020	32-1824 P728010.12110-2200	S12121	A221			.012	29.54
2142020	32-1824 P728010.12110-2200	S12121	A223			12.371	2,968.71
2142020	32-1824 P728010.12110-2200	S12121	A232			2.302	2,508.40
2142020	32-1824 P728010.12110-2200	S12121	A236			5.273	15,985.06
2142020	32-1824 P728010.12110-2200	S12121	A237			.050	23.26
2142020	32-1824 P728010.12110-2200	S12121	A238			.194	834.60
2142020	32-1824 P728010.12110-2200	S12121	A240			5.340	1,997.16
2142020	32-1824 P728010.12110-2200	S12121	A242			176.229	439,166.56
2142020	32-1824 P728010.12110-2200	S12121	A243			.084	360.26
2142020	32-1824 P728010.12110-2200	S12121	A257				10.60
2142020	32-1824 P728010.12110-2200	S12121	A258			.501	1,332.74
2142020	32-1824 P728010.12110-2200	S12121	A263			.381	166.27
2142020	32-1824 P728010.12110-2200	S12121	A265			4.726	30,141.05
2142020	32-1824 P728010.12110-2200	S12121	A269			35.602	62,021.04
2142020	32-1824 P728010.12110-2200	S12121	A270			.408	387.87
2142020	32-1824 P728010.12110-2200	S12121	A288			3.211	16,465.11
2142020	32-1824 P728010.12110-2200	S12121	A289			10.437	26,683.23
2142020	32-1824 P728010.12110-2200	S12121	A301			8.240	4,504.43
2142020	32-1824 P728010.12110-2200	S12121	A318			5.587	779.62
2142020	32-1824 P728010.12110-2200	S12121	A504			.062	133.75
2142020	32-1824 P728010.12110-2200	S12121	A509			.010	60.69
2142020	32-1824 P728010.12110-2200	S12121	A541			.444	2,031.55
2142020	32-1824 P728010.12110-2200	S12121	A547			.266	1,098.19
2142020	32-1824 P728010.12110-2200	S12121	A548			.659	589.84

Table F-III-6. MAC 24-month Disbursement Report

$S IN THOUSANDS — MAC 24 MONTH DISBURSEMENT REPORT

FY84	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OCT	11112	576	73	13	55	141	61	62	79	131	8	79
NOV	10460	387	54	6	156	73	28	21	18	0	71	4
DEC	10925	527	219	167	24	91	54	3	0	20	67	2
JAN	9203	333	397	48	93	149	63	14	73	235	0	1
FEB	9975	1146	206	40	127	40	18	35	917	6	5	17
MAR	13225	620	142	15	217	12	9	271	17	0	49	12
APR	10182	619	65	12	54	10	193	9	0	1	29	0
MAY	13264	613	59	7	60	20	0	0	0	0	0	2
JUN	11697	705	70	5	120	25	0	27	0	0	6	0
JUL	11918	491	55	20	123	0	0	0	9	I6	0	4
AUG	13519	911	331	32	41	9	0	2	108	76	5	0
SEP	12625	866	66	0	13	1	3	49	74	2	0	0
TOT	138105	7794	1737	365	1083	571	429	493	1295	487	240	121

FY85	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OCT	10145	582	28	31	59	4	8	52	5	0	0	0
NOV	9636	144	101	31	28	39	2	0	0	0	0	0
DEC	9788	391	145	421	87	27	0	0	0	0	0	0
JAN	10178	595	480	38	68	13	0	0	0	0	0	0
FEB	9733	843	107	0	64	0	0	0	0	0	0	0
MAR	12003	633	12	2	0	0	0	0	0	0	0	0
APR	10773	722	61	0	0	0	0	0	0	0	0	0
MAY	10871	1124	0	0	0	0	0	0	0	0	0	0
JUN	10395	0	0	0	0	0	0	0	0	0	0	0
JUL	0	0	0	0	0	0	0	0	0	0	0	0
AUG	0	0	0	0	0	0	0	0	0	0	0	0
SEP	0	0	0	0	0	0	0	0	0	0	0	0
TOT	231627	12828	2671	888	1389	654	439	545	1300	487	240	121
COL%	0.91378	0.96438	0.97491	0.97841	0.98388	0.98646	0.98819	0.99034	0.99546	0.99738	0.99832	0.99879

Table F-III-7. PE7 Tons/Dollars by Month and Fiscal Year

RUN DATE 08/08/85

PE7 TONS/DOLLARS BY MONTH & FISCAL YEAR (JUN 85)
(MAC CARGO)

	CURRENT YEAR (CY)				PRIOR YEARS (CY-1)			
	DIR		F/R		DIR		F/R	
	DOL	TON	DOL	TON	DOL	TON	DOL	TON
OCT	5581	12	0	0	15	0	0	0
NOV	726	4	0	0	0	0	0	0
DEC	327	0	0	0	0	0	0	0
JAN	13739	8	0	0	233	1	0	0
FEB	64617	32	0	0	2108	0	0	0
MAR	2973	5	0	0	252	0	0	0
APR	61364	20	0	0	0	0	0	0
MAY	1124561	703	0	0	15	0	0	0
JUN	10395751	5784	2036	1	0	0	0	0
JUL	0	0	0	0	4568	1	0	0
AUG	0	0	0	0	5344	3	0	0
SEP	0	0	0	0	2785	3	0	0
SUBTOT	11669639	6568	2036	1	15320	8	0	0
ERRTOT	0	0	0	0	0	0	0	0
GRDTOT	11669639	6568	2036	1	15320	8	0	0

	PRIOR YEARS (CY-2)				PRIOR YEARS (ALL OTHERS)			
	DIR		F/R		DIR		F/R	
	DOL	TON	DOL	TON	DOL	TON	DOL	TON
OCT	0	0	0	0	0	0	0	0
NOV	0	0	0	0	0	0	0	0
DEC	0	0	0	0	0	0	0	0
JAN	0	0	0	0	0	0	0	0
FEB	0	0	0	0	0	0	0	0
MAR	0	0	0	0	0	0	0	0
APR	0	0	0	0	0	0	0	0
MAY	0	0	0	0	0	0	0	0
JUN	0	0	0	0	0	0	0	0
JUL	0	0	0	0	0	0	0	0
AUG	320	0	0	0	0	0	0	0
SEP	0	0	0	0	0	0	0	0
SUBTOT	320	0	0	0	0	0	0	0
ERRTOT	0	0	0	0	0	0	0	0
GRDTOT	320	0	0	0	0	0	0	0

Table F-III-8. MECHTRAM MAC Cargo Edit Error Listing

08/01/85 MECHTRAM MAC CARGO EDIT ERROR LISTING FOR: JUN, FISCAL YEAR 1985

REC-ID PAGE: 1

000001	A206FB442051480854XXX	850614FB4420GK0002TIKFRF	0006000040015800009480	PBBO3M5	165H	6
000002	A206HW8AAH5155DZ01XXE	850611HX8AAMHX7FDWTIKFRF	018360255003380008619O	PBB08M5P	162K	6
000003	A206HW8AAH5155DZ01XXX	850608HX8AAMHX7FDWTIKFRF	044440450003380015210O	ABA02M5	159K	6
000004	A206HW8AAH5156DZ01XXC	850611HX8AAMHX7FDWTIKFRF	024140350003380011830O	PBB06M5	162A	6
000005	A206HW8AAH5156DZ01XXD	850608HX8AAMHX7FDWTIKFRF	066720840003380028392O	ABA02M5	159A	6
000006	A206HW8AAH5156DZ01XXE	850611HX8AAMHX7FDWTIKFRF	021540255003380008619O	PBB08M5P	162A	6
000007	A206W45PVM51489010XXX	850603FB5250W45PVMTIKBKK	000170001003170000539O	PBP0555	154A	6
000008	A206W800HE51276016XXX	850630WK4F9CGK0002TIKFRF	000090001015800000158O	TBA0WR7	181A	6
000009	A206W80Y4N51202609XXX	850622WK4FUGGK0002TIKFRF	000220002001580000347O	PBBO3M5	173A	6
000010	A206WK4A9C42865330XXX	850630WK4FSRGK0002TIKTHF	000030001016649000166O	TBA0WR7	181A	6
000011	A206WK4E1E5135ACBQXXX	850622WK4JWVGK0002TIKRMS	000560002001560000874O	PBBO3M5	173A	6
000012	A206WK4F1A51405919XXX	850622WK4F1AGK0002TIKRMS	006820024001560010646O	PBBO3M5	173A	6
000013	A206WK4F2451333507XXX	850614WK4F24GF0001TIKRMS	001200006001560001873O	BBARWR3	165A	6
000014	A206WK4FM551340005XXX	850622WK4GBWGK0002TIKRMS	000120001001560000187O	PBBO3M5	173A	6
000015	A206WK4FW251443007XXX	850604WK4FW2GK0002TIKRMS	000070001015610000156O	PBB03M5	155A	6
000016	A206WK4GBW51363027XXZ	850624WK4GBWGK0002TIKRMS	000030001015610000156O	PBB05M5	175A	6
000017	A206WK4GEM51330003XXX	850622WK4GEMGK0002TIKRMS	000120001001560000187O	PBBO3M5	173A	6
000018	A206WK4GET51353042XXX	850622WK4GETGK0002TIKRMS	000570002001560000889O	PBBO3M5	173A	6
000019	A206WK4K6J51300611XXX	850608WK4F98GK0SDDTIKRMS	000160001001560000249O	ABA02M5	159A	6
000020	A206WK4LDX51302336XXX	850622WK4F96GK0002TIKRMS	000190001001560000296O	PBBO3M5	173A	6

APPENDIX G

THE IMPACT OF PROGRAM VARIANCES FROM THE SECOND DESTINATION TRANSPORTATION (SDT) CARGO FORECAST

G-1. INTRODUCTION. The purpose of this appendix is to highlight the significance of the SDT forecast and its impact on budget activities in DOD. The SDT cargo forecast is the Army's cargo program for a given year. The cargo program and the approved DOD SDT rates make up the Army's budget for SDT, such that:

ARMY CARGO PROGRAM X DOD RATES = SDT TRANSPORTATION BUDGET

The Army SDT forecast (Army Program) is important because it is the only variable that can change in the above formula since DOD uses fixed rates for preparing the budget. Because of the DOD fixed rates, any change in the budgeted cost of SDT must normally be attributed to a change in The Army Program or a deviation from the Army forecast. In FY 82, MTMC experienced a 2.5 million measurement ton cargo shortfall from its original forecast. This shortfall had an impact on the Industrial Fund cash balance and affected DOD billing rates for the following year. This appendix presents, from different perspectives, a notional example and some actual shipping data from FY 82 to illustrate the significance of the cargo forecast problem. Additionally, this appendix addresses the impact of cargo forecast variances on Industrial Fund cash balances.

G-2. NOTIONAL EXAMPLE

a. The Cargo Forecast. The Army SDT Program development begins with the Army SDT cargo forecast. As indicated in Chapter 3, shippers submit two types of cargo forecasts. The first is a long-range cargo forecast which ODCSLOG uses to size the SDT budget. The second is a short-range forecast used by the TOAs to allocate resources to specific movements. Table G-1 shows a notional, long-range SDT forecast depicting some 39,000 measurement tons of forecast cargo consisting of various mixes of each item. The TOAs receive this data as the consolidated Army SDT requirement. Based on their negotiations with cargo contractors, the TOAs develop shipping rates and budget data, which is provided to the services for planning purposes. For example, in Table G-1, the 39,000 forecasted measurement tons would be shipped at a rate of $5.03 per ton. Considering this rate, the ODCSLOG would submit, through channels to the ASD(C), a budget request for $197,000 for CFSDT in FY XX.

b. The Cargo Execution. Table G-2 complements Table G-1. Table G-2 shows a total of 27,500 measurement tons of cargo shipped against the 39,000 measurement tons forecasted in Table G-1. Note in this example the shortfall of some 30 percent cargo forecasted but not shipped. Also note the change in commodity mix; for example, in Table G-1, a 12 percent forecast of weapons and fire control equipment becomes a 19 percent requirement for actual SDT execution. Also, the rates established in the long-range forecast, and applied to a different actual shipment, results in a change

to the total transportation cost. The impact of this change is an increase in the rate per ton from $5.03 per measurement ton (MTON) to $5.51 per measurement ton, or a 10 percent increase in transportation rates for the overall transportation program.

Table G-1. Long-range SDT Cargo Forecast, FY XX (notional)[a]

Items forecast	MTON[b]	Item mix (percent)	Rate/MTON (dollars)	Cost (dollars)
Ground forces	1,522	4	$4.79	$ 7,292
Electronics	2,433	6	7.19	17,487
Air	1,006	3	23.83	23,976
Tank/automotive	29,352	74	3.19	93,750
Missiles	343	1	23.84	8,180
Weapons/fire control	4,533	12	10.24	46,462
Total	39,189	100	$5.03	$197,148

[a]This is a notional table and has no specific relationship to a specific commodity such as the weight of a tank.

[b]MTON = measurement tons.

Table G-2. SDT Cargo Execution, FY XX (notional)

Items forecast	MTON	Item mix (percent)	Rate/MTON (dollars)	Cost (dollars)
Ground forces	932	3	$4.79	$ 4,464
Electronics	1,276	5	7.19	9,174
Air	622	2	23.83	14,822
Tank/automotive	19,078	70	3.19	60,858
Missiles	335	1	23.84	7,986
Weapons/fire control	5,312	19	10.24	54,394
Total	27,555	100	$5.51	$151,698

c. The Program Variance. The net result of this example is that $197,148 was budgeted for SDT, while $151,698 was actually expended, thus an opportunity to ship $45,450 of cargo was lost. Also, the Army rate to ship would increase from a forecast rate of $5.03 to an actual execution rate of $5.51 per ton. This higher rate is not readily apparent to the Army during the year of execution since the Industrial Fund uses stabilized or fixed rates. However, rates during subsequent years reflect the current year's rates plus the shortfall or overshipment during the previous year such that:

Current year rate based on forecast	+ or -	Previous year deviation	=	Current year total rate

G-3. IMPACT OF FY 82 SDT SHIPMENT SHORTFALL ON BUDGET PLANNING AND RATES

a. Transportation Workload Forecasting (1982 data)

(1) FY 82 Shipping Data. The FY 82 cargo forecast and actual lift are depicted in Figure G-1. Some 2,000,000 tons of cargo were forecasted, while only 1,400,000 tons were actually executed for the Army. This data was taken from the Transportation Workload Forecasting Study, performed by CAA in 1984, and represents a 25 percent shortfall between the forecast and actual program execution.

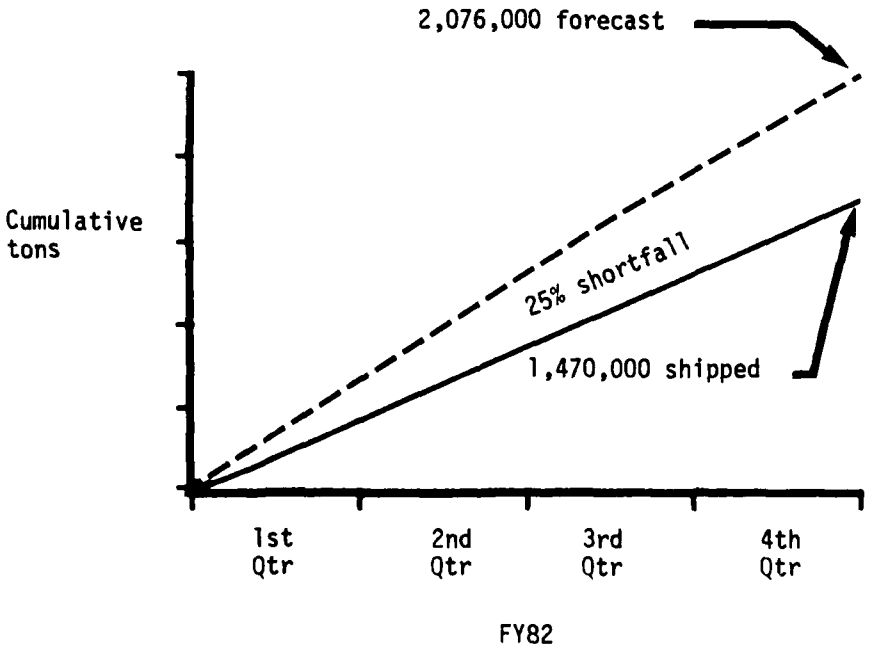


Figure G-1. FY 82 Army SDT Program/Execution (tons)

(2) FY 82 Budget Data. The 1982 budget data for the above SDT tonnages was $601,300,000, or a shipping rate of $290 per ton. Since the Army shipped less than it forecasted, the transportation bill totaled $576,600,000, or a rate of $392 per ton. The difference between $601,300,000 and $576,600,000 is 4 percent, not 25 percent as one would normally expect. The relationship between the budget forecast and budget execution is depicted in Figure G-2.

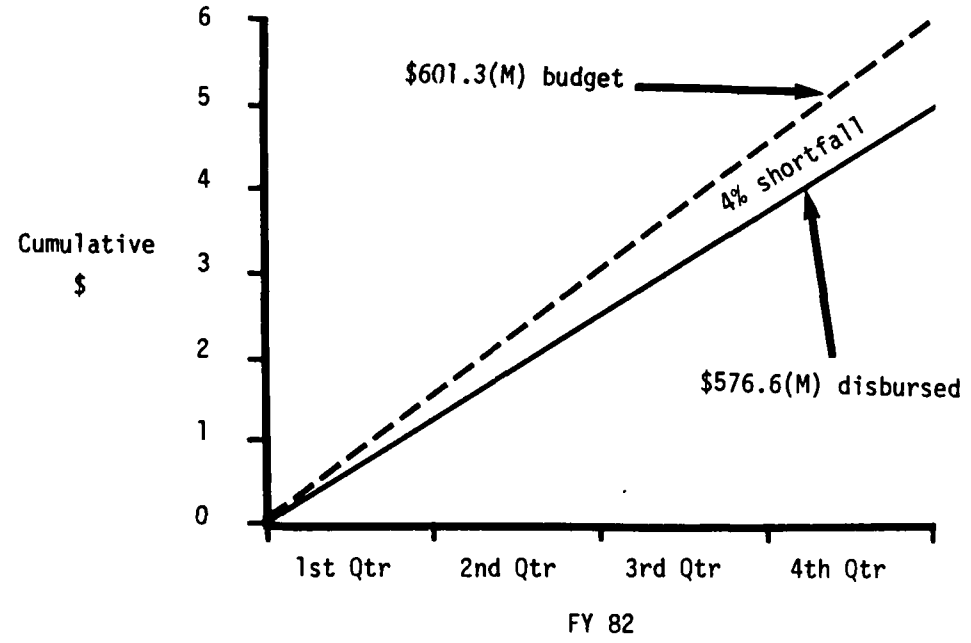


Figure G-2. FY 82 Army SDT Program/Execution (dollars total)

(3) FY 82 Rate Data. Figure G-3 is a comparison of the forecast rates with the actual shipping rates. Note that the forecast rate was $290 per ton while the actual execution rate was $392 per ton. Generally, shipping and handling contracts contain fixed costs which the shipper must pay, irrespective of the quantity of tons shipped. Additionally, most shipping and handling contracts contain penalties to fixed costs for not providing the quantity of cargo forecasted and bid upon. Also, transportation rates in the Industrial Fund are fixed for a period of 12 months from a budgetary standpoint, resulting in budget costs that are adjustable only on an annual basis. These three factors are instrumental in pushing the rate up when the cargo shipment is less than forecast. The services bill using their current published rates which differ from the composite rate. Thus, the increase from $290 to $392 per ton on the composite rate would not be adjustable until the next fiscal year.

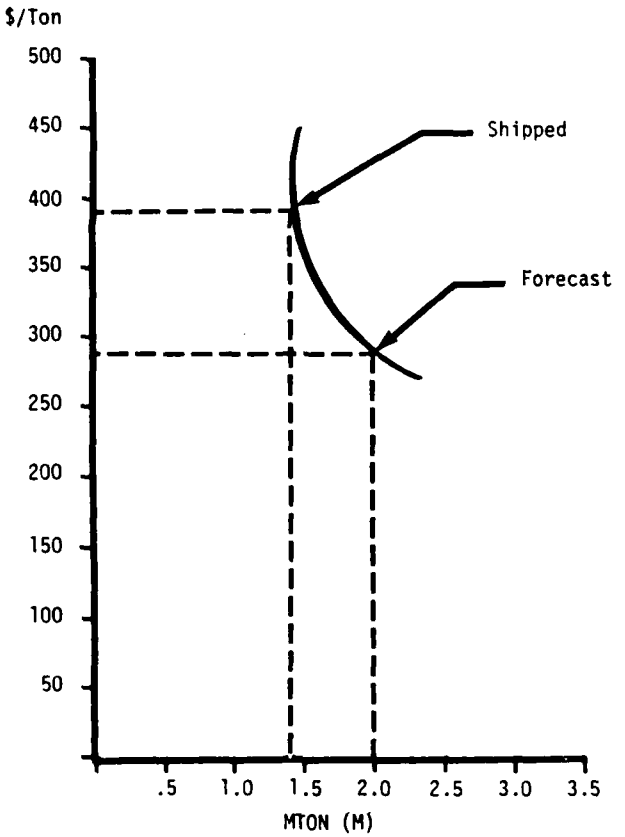


Figure G-3. FY 82 Army SDT Program/Execution (dollars per ton)

b. Regulatory Perspective

(1) Air Force Regulation 76-11. Air Force Regulation 76-11 (subject: Military Airlift (US Government Rate Tariffs)) and Commander, Military Sealift Command (COMSC) Instruction 7600.3G (subject: Military Sealift Command (Billing Rates)) both refer to charges for abnormal expenses. The Army also experiences charges for abnormal expenses. In the foregoing operating agencies, an abnormal expense includes an expense for failure of the user to generate cargo according to forecast. Air Force Regulation 76-11, paragraph 4g, is quoted as follows:

> "Charge for Abnormal Expenses. An abnormal expense is that cost incurred as a result of (a) satisfying a customer's special requirement, or (b) failure of the user to generate cargo according to forecast, or (c) for a change in user's requirements resulting in a suspended mission. To be abnormal, the cost must be an additional expense to the Airlift Service Industrial Fund (ASIF) not recoverable through the published rate tariffs. All costs of this nature will be paid by the customer.

"(1) Channel Cargo. The agency is authorized to make an abnormal charge when necessary to recoup a financial loss due to failure of the using agency to generate cargo/mail according to space assignment. Acceptable limits of variance between actual generation and customer's beginning of the month space assignment are established at ±15%, based on a world-wide total average of each Service Department. Additional charges may be incurred when a peculiar requirement of the customer necessitates the prepositioning or depositioning of special equipment, aircraft or manpower to satisfy the customer's unusual requirements . . .

"NOTE: Computation of expenses for passengers, the Agency will only bill those costs which exceed anticipated revenue for the individual mission cited. For cargo, the charge will be any additional costs incurred due to failure of the user to generate world-wide cargo within the ±15% parameter of beginning of the month forecasts. For specialized equipment, aircraft or manpower incident to any type mission, the charge will be the actual cost incurred to satisfy the unique requirement . . ."

(2) Computation of Army FY 82 Abnormal Expenses. This paragraph addresses the abnormal expenses paid by the Army for transportation during FY 82. Table G-3 depicts forecasting and execution data for FY 82, to include the computation of abnormal expenses.

Table G-3. FY 82 SDT Program/Execution

SDT program[a]		SDT execution[a]	
Tons forecast	2,076,000	Tons shipped	1,470,000
Fixed rate ($/ton)	$ 290	Fixed rate ($/ton)	X$ 290
SDT program cost[b]	$601,300,000	SDT shipping cost[b]	$ 426,300,000
		Deobligated funds[c]	$ 24,700,000
		Abnormal expenses	$ 150,300,000
		SDT execution cost	$ 601,300,000

[a]Computations include a small rounding error.

[b]Cost = tons x rate.

[c]Funds deobligated to balance books.

In the above computations, the 2,076,000 tons of cargo forecasted times the fixed rate of $290 per ton yields an FY 82 SDT program cost of $601,300,000. In the SDT execution, only 1,470,000 tons of cargo was shipped at a fixed rate at $290 per ton and yielded an FY 82 SDT shipping cost of $426,300,000. Additionally, in FY 82, $24,700,000 was deobligated or transferred from the SDT program for a combined total of $451,000,000. Subtraction of the $451,000,000 from the $601,300,000 execution/program cost yields a result of $150,300,000 attributed to abnormal expenses. Abnormal expense is compared with SDT shipping cost as follows:

Category	Dollars	Ratio
SDT shipping cost	$ 426,300,000	1.00
Abnormal expense	150,300,000	0.35

The dollars the SDT fund lost to abnormal expenses are 35 percent of the shipping cost. While minimizing obligations and deobligations of funds are certainly important, equal attention should be given to developing accurate programs which reduce abnormal expenses and thereby accounting for them in the budget process.

c. TOA Perspective. In an analysis titled "Financial Impact of Budget Cargo Lift Versus Cargo Lift," MTMC revealed that the difference between budget versus actual breakbulk cargo income in FY 82 was caused by the following factors:

(1) Changes to total tonnage lifted.

(2) Changes in commodity mix.

(3) Changes in the pattern of operations, i.e., average miles a ton of breakbulk cargo is carried.

d. Table G-4 depicts the FY 82 TOA breakbulk data presented by MTMC. Summarizing FY 82 results, there was a 30 percent shortfall in breakbulk cargo carried. Of this amount, 77 percent is due to a change in total breakbulk tonnage, 20 percent is due to a change in the commodity mix, and 3 percent is due to a change in the cargo channel.

Table G-4. FY 82 Income (breakbulk only)

	Tons (000)	Miles (000,000)	Income ($000)	Income (percent)	Differential (percent)
FY 82 rates developed in preliminary requirement	3,142	12,327	$378,770	100	---
Actual FY 82 cargo results	2,445	8,811	266,960	70	---
Difference	697	3,516	-111,810	30	---
Difference due to less tons carried	---	---	86,003	---	77
Difference due to item mix	---	---	22,286	---	20
Due to miles/tons cargo carried	---	---	3,521	---	3

G-4. IMPACT OF PROGRAM DIFFERENCES ON INDUSTRIAL FUND CASH FLOW. When actual cargo shipment tonnage is less than forecast tonnage, billing begins to lag expected expenditures. As a result, the TOAs may not have enough cash reserves to pay all of their bills since funding will be reduced. This payment lag continues for services until future shipments approache planned shipments or the end of the fiscal year is reached. A study performed by Ralph P. Auriliz, Budget Office, MTMC Comptroller Directorate, 1983, subject; "The Impact of Workload Shortfall and Stabilized Billing Rates on the Army Industrial Fund Cash Posture," adds emphasis to the manner in which shipping rates are developed. The example is based on MTMC but is characteristic of the manner in which the other TOAs operate. In general, a significant amount of late billing can be attributed to inaccurate forecasts.

G-5. DEFINITION OF COSTS, FACTORS, WORKLOAD, AND CONTRACTS

a. Cost Factors. From the fleet plan and long-range cargo forecast, the TOA computes the shipping and handling rates. Shipping rates, when applied to total tons forecast by each service, yield budget data used by the services to make their forecasts. For example, the cost factors used by MTMC in developing their costs for the Industrial Fund are as follows: stevedoring, lumber, lashing, supply, equipment, and labor costs.

b. Shipping Rate. The above costs are provided by the major coastal ports and activities and consolidated by MTMC. This consolidation results in a shipping or handling rate, per measurement ton by commodity item. Shipping rates include: direct, indirect, fixed, variable, and overhead costs as well as the gains or losses from the prior year.

c. OSD Rate Approval. Shipping rates and budget data are provided to the forecasting commands and agencies, the services, and then to OSD for budget approval. OSD generally approves the submitted shipping rates with minor changes.

d. MTMC Contract. Based on the workload forecast and the OSD approved shipping rates, the TOAs can begin entering into contractual agreements to ship, receive, rehandle, transfer, consolidate, containerize, load, and unload cargo. A MTMC contract usually consists of the following categories:

(1) Civil Service labor - 36 percent of budget.

(2) Stevedore company - 35 percent of budget.

(3) Other categories - 29 percent of budget.

e. Civil Service Contracts. These cost contracts are fixed and will not decrease unless the shipping facility is closed down or deactivated. Stevedoring contracts are generally based on budgeted or forecasted workload (not actual workload).

f. Cost Categories. Cost categories contain fixed costs (which the shipper must pay irrespective of the tons shipped) and variable costs.

g. Penalty Costs. The shipper pays a penalty when he fails to provide the quantity cargo upon which the bid was based.

G-6. SUMMARY. The computation of the SDT Fund is dependent on the following components:

- **Forecast.** The forecast is based on the composite rate which is the primary driver for any computation relevant to the SDT Fund.

- **Rate.** A composite rate is computed during the budget process which is fixed for year execution by DOD.

- **Cost.** The cost, which is dependent on the forecast and the rate. Since the rate is fixed, the cost is dependent only on the forecast.

a. Budget. The SDT forecast is used to develop the SDT budget depending on conditions just stated.

b. Rate Changes. Rate changes are not reflected in current year budgets, but instead are reflected in future year budgets.

c. Cargo Costs. Changes in cargo forecasts are not directly proportional to changes in cargo costs. For example, in FY 82, a 25 percent shortfall in the amount of cargo carried resulted in a 4 percent shortfall in costs paid.

d. Abnormal Expenses. Abnormal expenses associated with differences in forecast equate to 35 percent of the SDT shipping cost in the FY 82 example.

e. TOA Analyses. TOA analyses of cargo forecast for FY 82 breakbulk cargo reveal the following contributed to changes from the forecasted values:

(1) Change in tonnage - 77 percent.

(2) Change in item mix - 20 percent.

(3) Change in patterns of operation - 3 percent.

f. Transportation Program Changes. Transportation program changes may reduce TOA's rate of billing and thus may reduce cash reserves for future shipments.

APPENDIX H

AIR FORCE ENHANCED TRANSPORTATION AUTOMATED DATA SYSTEM (ETADS)

H-1. INTRODUCTION. The ETADS is an Air Force project to redesign, integrate, and upgrade the transportation management portions of the current HQ AFLC Logistics Force Structure Management Systems. ETADS will provide a comprehensive transportation data base that will enable detailed financial accounting of transportation funds and management of the movement of Air Force cargo worldwide.

H-2. BACKGROUND. The current system employed by AFLC to manage SDT and FDT funds consists of two separate systems, the Surface Transportation Tonnage and Cost System and the MAC Tonnage and Cost System. The Surface Transportation Tonnage and Cost System processes data for shipments which use MSC and MTMC CONUS port handling services and commercial carriers. The MAC Tonnage and Cost System collects and compiles historical data on all airlift shipments. Neither of these systems provide the Air Force with real-time capability to record obligations by individual shipment at the time the shipment is initiated. Outputs from the Surface Transportation and MAC Tonnage and Cost Systems taken from the ETADS Functional Description, Volume 2, are shown respectively in Tables H-1 and H-2.

H-3. ETADS TRANSPORTATION DATA BASE. The current batch processing of data does not permit obligation of transportation funds by individual shipment/document prior to the beginning of shipment; or provide for liquidation by individual shipment/document; or permit follow-up on delinquent unbilled transactions. ETADS is expected to provide a comprehensive data base that will provide transportation funds reimbursement computation, capability to track and control reimbursement earnings, and improved capability to manage funds in accordance with the DOD Directive 7200.1, Centrally Managed Allotment (CMA), concept. Figure H-1 illustrates the overall functions of ETADS. ETADS transportation financial management functions support the budgeting and operational management of Air Force transportation funds. As a product of daily operations, the Logistics Airlift Service (LOGAIR), Scheduled Truck Service (STS), and overseas cargo movement functions will provide actual movement information that will be used to obligate funds, as well as to verify billing for Air Force cargo movement operations. ETADS will also account for Air Force costs incurred through the use of non-Air Force modes of transportation such as GBL, carrier, and Navy Cargo Airlift System (QUICKTRANS). Historical information on the actual movements will be used to prepare forecast and budget information.

Table H-1. The Surface Transportation Tonnage and Cost System (page 1 of 2 pages)

Full Title	Media	Class.	Frequency	As of Date	Due Date	Copies	On/Off Base Recipient
File Maintenance and Error List	List	U	M	23CD	24CD	1	AFLC/DSXR
Table Item List	List	U	M	23CD	24CD	1	AFLC/DSXR
ECAF File	Tape	U	M	17CD	18CD	1	JPPSO/ECAF
System Message List	List	U	M	17CD	18CD	1	AFLC/DSXR
Conversion TAC Code List	List	U	M	17CD	18CD	2	AFLC/DSXR
Incompatible FMS Transaction List	List	U	M	17CD	18CD	2	AFLC/DSXR
MAC Personal Property Shipments - Detail	List	U	M	17CD	18CD	1	AFLC/DSXR
MAC Personal Property Shipments - Summary by Country	List	U	M	17CD	18CD	1	AFLC/DSXR
MAC Personal Property Shipments - Summary	List	U	M	17CD	18CD	1	AFLC/DSXR
Recycle Exceptions Fund Citation List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
SAP/Grant Aid Shipment List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
Fund Citation List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
DODAAC Summary List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
Project Code Summary List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
Month of Movement Summary List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
Continuous Channel History List	Fiche	U	M	17CD	18CD	5	(1) AFLC/DSXR (1) HQ MAC/RRC (1) HQ MAC/LGT (1) HQ PACAF/LGT (1) 21 COMPW/LGV
Command Summary List	Fiche	U	M	17CD	18CD	5	(1) AFLC/DSXR (1) HQ MAC/RRC (1) HQ MAC/LGT (1) HQ PACAF/LGT (1) 21 COMPW/LGT
MAC Personal Property Shipments - Detail	Fiche	U	M	17CD	18CD	2	(1) AFLC/DSXR (1) HQ USAF/MPPD
MAC Personal Property Shipments - Summary by Country	Fiche	U	M	17CD	18CD	2	(1) AFLC/DSXR (1) HQ USAF/MPPD
MAC Personal Property Shipments - Summary	Fiche	U	M	17CD	18CD	2	(1) AFLC/DSXR (1) HQ USAF/MPPD
Channel Forecast Report	List	U	M	25CD	26CD	2	AFLC/DSXR HQ USAF MTMC
Command Summary Report	List	U	M	25CD	26CD	2	AFLC/DSXR HQ USAF MTMC
POE Summary Report	List	U	M	25CD	26CD	2	AFLC/DSXR HQ USAF MTMC

Table H-1. The Surface Transportation Tonnage and Cost System (page 2 of 2 pages)

Full Title	Media	Class.	Frequency	As of Date	Due Date	Copies	On/Off Base Recipients
Project Code Summary List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
Month of Movement Summary List	Fiche	U	M	17CD	18CD	1	AFLC/DSXR
Continuous Channel History List	Fiche	U	M	17CD	18CD	5	(1) AFLC/DSXR (1) HQ MAC/RRC (1) HQ MAC/LGT (1) HQ PACAF/LGT (1) 21 COMPW/LGV
Command Summary List	Fiche	U	M	17CD	18CD	5	(1) AFLC/DSXR (1) HQ MAC/RRC (1) HQ MAC/LGT (1) HQ PACAF/LGT (1) 21 COMPW/LBT
MAC Personal Property Shipments - Detail	Fiche	U	M	17CD	18CD	2	(1) AFLC/DSXR (1) HQ USAF/MPPD
MAC Personal Property Shipments - Summary by Country	Fiche	U	M	17CD	18CD	2	(1) AFLC/DSXR (1) HQ USAF/MPPD
MAC Personal Property Shipments - Summary	Fiche	U	M	17CD	18CD	2	(1) AFLC/DSXR (1) HQ USAF/MPPD
Channel Forecast Report	List	U	M	25CD	26CD	2	AFLC/DSXR HQ USAF MTMC
Command Summary Report	List	U	M	25CD	26CD	2	AFLC/DSXR HQ USAF MTMC
POE Summary Report	List	U	M	25CD	26CD	2	AFLC/DSXR HQ USAF MTMC
Flying Hour Percent Error List	List	U	•	•	•	2	AFLC/DSXR
Annual Long Range Airlift Requirements	List	U	•	•	•	2	AFLC/DSXR
Average Month within Quarter	Card	U	•	•	•	1	AFLC/DSXR
Annual LR Airlift Requirement Errors	Card	U	•	•	•	1	AFLC/DSXR
LR Airlift Requirement Forecast List	Fiche	U	•	•	•	2	AFLC/DSXR HQ USAF/LET
LR Airlift Requirement Forecast by Average Month within Quarter	Fiche	U	•	•	•	2	AFLC/DSXR HQ USAF/LET

Table H-2. The Military Airlift Command Tonnage and Cost System (page 1 of 3 pages)

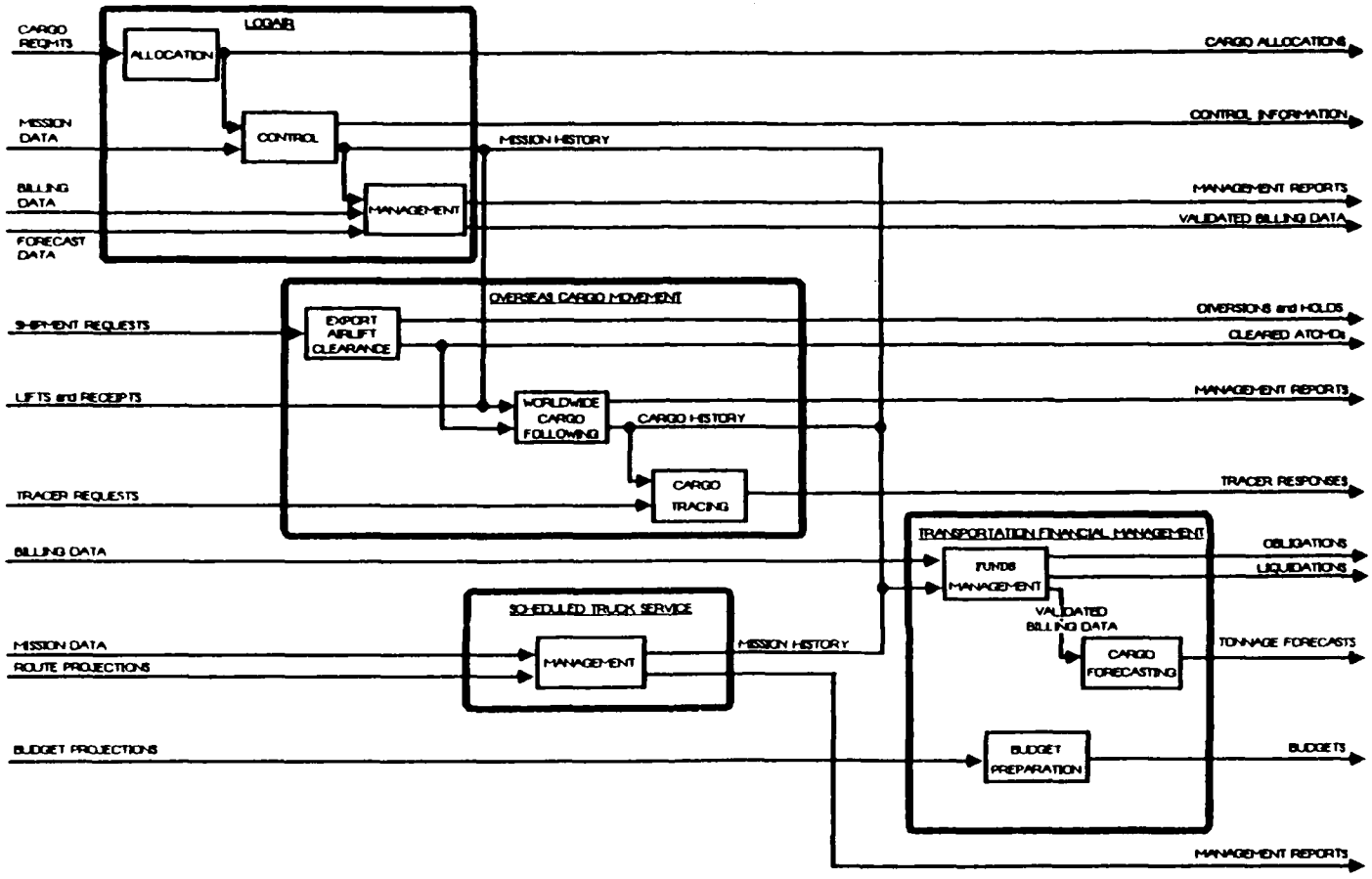
Full Title	Media	Class	Freq	As of Date	Due Date	Copies	On/Off Base Recipients
Annual FY Report of MSC Ocean Transportation Requirements - Cargo	Tape	U	As Req	As Req	ICD	1	COMSC (M51) via Mail
Preliminary Annual FY Report of MSC Ocean Transportation Requirements - Cargo	Tape	U	As Req	As Req	ICD	1	COMSC (M51) via Mail
Report of Sealift Cargo Requirements	Microfiche	U	M	9CD	10CD	1	AFLC/LOZXR
Previous 12-Months History	Microfiche	U	M	9CD	10CD	1	AFLC/LOZXR
Annual FY Report of MSC Ocean Transportation Requirements - Cargo	Microfiche	U	As Req	As Req	ICD	1	AFLC/LOZXR
Preliminary Annual FY Report of MSC Ocean Transportation Requirements-Cargo	Microfiche	U	As Req	As Req	ICD	1	AFLC/LOZXR
O027A/O027B MAC/MSC Tonnage & Cost System Update and Report	Tape	U	M	As Req	ICD	1	JPPSO/ECAF
MTMC Statement of Charges	List	U	M	As Req	ICD	3	(1) AFLC/LOZXR (2) 2750th/ACFSS
MTMC Invalid TAC Codes	List	U	M	As Req	ICD	3	(3) AFLC/LOZXR
MTMC Converted TAC Codes	List	U	M	As Req	ICD	3	(3) AFLC/LOZXR
MTMC Month of Movement	List	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Billing Errors	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Statement of Charges	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MTMC Reimbursement Report	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MTMC Invalid TAC Report	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Converted TAC Report	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Original Input Reconciliation Summary	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Port Handling History	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MTMC DODAAC Summary	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Project Code Summary	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC Month of Movement	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MTMC SAP Grant Aid	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
Updated Tables List	List	U	As Req	As Req	ICD	1	AFLC/LOZXR
Table Changes Error List	List	U	As Req	As Req	ICD	1	AFLC/LOZXR
GBL Transaction Error List	List	U	As Req	As Req	ICD	1	AFLC/LOZXR
USAF GBL Transportation Summary	List	U	As Req	As Req	ICD	1	AFLC/LOZXR
AFLC GBL Trans. SAP Grant Aid Summary	List	U	As Req	As Req	ICD	1	AFLC/LOZXR

Table H-2. The Military Airlift Command Tonnage and Cost System (page 2 of 3 pages)

Full Title	Media	Class	Freq	As of Date	Due Date	Copies	On/Off Base Recipients
USAF GBL Transportation Summary	Microfiche	U	As Req	As Req	ICD	3	(1) AFLC/LOZXR (1) AFSC/LGTT (1) HQ USAF/LETTB
AFLC GBL Trans. SAP Grant Aid Summary	Microfiche	U	As Req	As Req	ICD	1	AFLC/LOZXR
Tables Listing	List	U	As Req	As Req	1WD	2	(1) AFLC/LOZXR (1) AFLC/LMVTF
Table Statistics	List	U	As Req	As Req	1WD	2	(1) AFLC/LOZXR (1) AFLC/LMVTF
Exception List	List	U	As Req	As Req	1WD	2	(1) AFLC/LOZXR (1) AFLC/LMVTF
O027A/O027B MAC/MSC Tonnage and Cost System Update and Report	Tape	U	M	As Req	ICD	1	JPPSO/ECAF
MSC Statement of Charges	List	U	M	As Req	ICD	3	(1) AFLC/LOZXR (2) 2750th/ACFSS
MSC Reimbursement Report	List	U	M	As Req	ICD	3	(3) 2750th/ACFSS
MSC Invalid TAC Codes	List	U	M	As Req	ICD	3	(3) AFLC/LOZXR
MSC Converted TAC Codes	List	U	M	As Req	ICD	3	(3) AFLC/LOZXR
MSC Month of Movement Report	List	U	M	As Req	ICD	1	AFLC/LOZXR
MSC Transaction Errors	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MSC Statement of Charges	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MSC Reimbursement Report	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MSC Invalid TAC Report	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MSC Converted TAC Report	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MSC Original Input Reconciliation Summary	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MSC History Report-Mil Pers Prop, Grant Aid, Stock Fund/ANG-Previous Fiscal Year	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MSC History Report-Mil Pers Prop, Grant Aid, Stock Fund/ANG-Current Fiscal Year	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB
MSC History Report-Troop Support-Previous Fiscal Year	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MSC History Report-Troop Support-Current Fiscal Year	Microfiche	U	M	As Req	ICD	1	AFLC/LOZXR
MSC Military Personal Property-Current Fiscal Year	Microfiche	U	M	As Req	ICD	2	(1) AFLC/LOZXR (1) HQ USAF/MPPB

Table H-2. The Military Airlift Command Tonnage and Cost System (page 3 of 3 pages)

Full Title	Media	Class	Freq	As of Date	Due Date	Copies	On/Off Base Recipients
MSC Grant Aid-Previous Fiscal Year	Microfiche	U	M	As Req	1CD	1	AFLC/LOZXR
MSC Grant Aid-Current Fiscal Year	Microfiche	U	M	As Req	1CD	1	AFLC/LOZXR
MSC DODAAC Summary	Microfiche	U	M	As Req	1CD	1	AFLC/LOZXR
MSC Project Code Summary	Microfiche	U	M	As Req	1CD	1	AFLC/LOZXR
MSC Month of Movement	Microfiche	U	M	As Req	1CD	1	AFLC/LOZXR
MSC Forecast Error List	List	U	M	9CD	10CD	1	AFLC/LOZXR
Report of Sealift Cargo Requirements	List	U	M	9CD	10CD	2	(1) AFLC/LOZXR (1) MSC/M8
Previous 12-Months History	List	U	M	9CD	10CD	1	AFLC/LOZXR
Long Range Forecast Work List	List	U	As Req	As Req	1CD	1	AFLC/LOZXR
Preliminary Annual FY Report of MSC Ocean Transportation Requirements - Cargo	List	U	As Req	As Req	1CD	4	(1) AFLC/LOZXR (1) MTMC/PLCR (1) HQ USAF/LETTB (1) MSC/M-51
Annual FY Report of MSC Ocean Transportation Requirements - Cargo	List	U	As Req	As Req	1CD	4	(1) AFLC/LOZXR (1) MTMC/PLCR (1) HQ USAF/LETTB (1) MSC/M-51
Report of Sealift Cargo Requirements	Tape	U	M	9CD	10CD	1	MSC/M8
Report of Sealift Cargo Requirements	Tape	U	M	9CD	10CD	1	MTMC/MT-IT



Reference: ETADS functional description
Vol. 2, MITRE Corp., May 1984

Figure H-1. ETADS Major Functions

H-4. SDT FUNDS MANAGEMENT. Management activities for SDT funds under ETADS will include establishing obligations, processing vouchers, auditing vouchers, processing reimbursements, maintaining internal accounting spreadsheets, allocating funds to the various modes of transportation, and reallocating funds as required. The primary objectives of funds management will be to obligate funds within 30 days after a shipment takes place, to liquidate the obligations as bills are paid, and to provide data necessary for fiscal control.

a. ETADS will receive information on receipt, lift, and data manifest from HQ MAC, HQ MSC, and HQ MTMC. Upon receipt of cargo at the points of embarkation, a receipt transaction will be created. Subsequently, a manifest and lift message will be prepared and transmitted upon movement of the shipment out of the aerial or water point of embarkation. ETADS will create an obligation for each manifest and lift transaction it receives. Upon receipt of monthly billing transactions from the Army, Air Force, and Navy Industrial Funds, ETADS will liquidate the existing obligations by transactions. If ETADS receives a transaction for which there is no obligation, it will include this transaction in an exception report. AFLC personnel will use the exception report to determine why that obligation information is missing and take corrective action.

b. Shippers for commercial air and surface movements will provide GBL information to ETADS. ETADS will utilize cost and appropriation information associated with GBL number to establish obligations. USAFAC will provide billing information for commercial air and surface movements that ETADS will use to liquidate the obligations on a transaction-by-transaction basis.

c. ETADS will permit the preparation of short- and long-range forecasts for Industrial Funds administered by MAC, MSC, and MTMC. Monthly short-range tonnage forecasts for MAC will project cargo movements for a 1-month period beginning 3½ months in the future. This forecast will be based on any known adjustment factors and on triple-exponential smoothing techniques applied to historical shipment data.

(1) Long-range tonnage forecasts for MSC will annually project cargo movements in February for the fiscal year beginning 7 months later, and in April for the fiscal year beginning 18 months later. These forecasts will be based on known adjustment factors and on linear regression techniques applied to historical tons, historical flying hours, and programed flying hours. These forecasts will also be based on historical and programed PCS moves. The MSC long-range tonnage projection will be broken out by type of cargo, commodity, and traffic area.

(2) Monthly short-range tonnage forecasts for MSC will project cargo movements for 3-month periods beginning ½ month in the future. This forecast will be based on the MSC long-range forecast and any known adjustment factors.

d. The obligation, liquidation, and billing process under ETADS for cargo shipments moved by MAC are discussed in the following paragraphs with respect to four separate shipment categories of general cargo, subsistence, special airlift assignment missions (SAAM), and Program Action Directives (PAD). AFLC analysts will occasionally need to obligate additional amounts, liquidate individual obligations, and add billing information. This need will be met through the use of MAC manual obligation entries, MAC manual liquidation entries, and MAC manual billing entries.

H-5. GENERAL CARGO. Obligations by transaction will be created by combining the MAC Billing Rate Table with information from the airlifts forwarded by HQ MAC to ETADS. The TAC Table will contain the information on the TACs that are AFLC responsibility. Liquidation by transaction will be based on the information contained in the detailed billing information received from HQ MAC. The actual bill will be the hard copy SF 1080 received twice per month (a progress version and a final version) from HQ MAC. ETADS will access the two most recent MAC Billing Rate Tables.

H-6. SUBSISTENCE. Obligations by transaction will be created by combining the MAC Billing Rate Table with airlift data forwarded by HQ MAC to ETADS. Subsistence shipments will be identified by three TACs: S1JP, S1LP, and S1UP. For S1JP and S1LP, the full amount calculated as the cost of the shipment will be obligated. For S1UP (shipments to warehouses that serve a given geographic area), the amount obligated will be the amount calculated multiplied by a percentage taken from an AF Personnel by Area Table. Liquidation will be based on the information contained in the detailed billing information received from DLA. The actual bill will be the SF 1080 received once per month from DLA. Both the billing information and the SF 1080 will contain combined information for MAC, MSC, and MTMC. ETADS shall use the customer code to distinguish the billing information for MAC, MSC, and MTMC.

H-7. Special Airlift Assignment Mission (SAAM). SAAM shipments will be obligated by transaction based on the estimated cost of a proposed SAAM as entered in the SAAM Document Register maintained by AFLC. Analysts from AFLC will manually liquidate SAAMs based on the SF 1080 received from HQ MAC. This SF 1080 will show a total of all SAAMs and have an attachment that lists the actual cost of each SAAM.

H-8. Program Action Directive (PAD). Since PAD shipments are a form of general cargo, they will be handled as part of the general cargo shipments for the purpose of obligating, liquidating, and billing each shipment.

H-9. SUMMARY. The current batch processing of SDT data does not provide the Air Force with real-time capability to record obligations by individual shipment at the time the shipment is initiated. ETADS will provide on-line capabilities and establish direct interfaces with MAC, MTMC, and MSC, along with other agencies for receipt and lift data to be used for financial management on a transaction-by-transaction basis.

APPENDIX I

CFSDT MONTHLY BILLING ESTIMATES MODEL OPERATIONS

I-1. PURPOSE. The purpose of this appendix is to document the CFSDT Monthly Billing Estimates Model. The model was created in the form of microcomputer spreadsheets.

I-2. OVERVIEW. Two types of spreadsheets were created--the monthly billing estimates spreadsheet and the disbursements spreadsheet. The two microcomputer spreadsheets respectively produce monthly estimates of billing costs by fiscal year for each TOA and the total disbursements (including DLA and other direct billings). The model provides the transportation analyst with a method of examining the data presented on the TOA monthly billing tapes for the three TOAs--MSC, MAC, and MTMC. Each TOA is processed for a billing period of 29 months. By entering the charges for each service month and accumulating this information over the course of 29 months, the analyst can determine the lag in percentage in a fiscal year's bills and compare this lag with the prior year lag. Once the lag has been determined, the analyst can make an estimate of the total bill by month or for the fiscal year.

I-3. HARDWARE. The model operates on an IBM IPC-AT microcomputer under DOS 3.1 with 512K memory, two disk drives, and one hard disk.

I-4. SOFTWARE. The LOTUS 1-2-3 software package was used to create the spreadsheets. The model can be adapted to work on most other spreadsheet software packages.

I-5. MONTHLY BILLING ESTIMATES SPREADSHEET

a. Input. Input data for the model are the aggregated billing costs ($) by month and fiscal year for each TOA (MSC, MAC, and MTMC). The input data set for each command is obtained from the CAA CFSDT billing program (see Annex I to this appendix). These data are keyed into the LOTUS spreadsheet in the appropriate month columns.

b. Spreadsheet Procedure

(1) The LOTUS 1-2-3 system diskette should be in disk drive A and the data diskette containing the shell spreadsheet files (MACSHELL, MSCSHELL, MTMSHELL), and previous billing estimates files should be in disk drive B.

(2) Enter these commands:

(a) /Worksheet File Retrieve MACSHELL (or one of the other shell spreadsheet files) <ENTER>.

(b) Press HOME Key to position spreadsheet at initial cell, A1.

(3) Enter the fiscal year in the title line of the spreadsheet, if it is different from that shown.

(4) The current date will be updated automatically by the LOTUS function @TODAY.

(5) Key in the aggregated monthly billing costs by reading across the rows of the CFSDT billing program report and entering the data on the spreadsheet down each column by month. Begin at cell B6.

(6) Enter prior year percentages for the past 18 months in column O. Begin at cell O28. Prior year percentages are found in the YR-T-DATE column of the Monthly Billing Estimates Report for the previous fiscal year for each TOA. Percentages and cost estimates for each month will be automatically recalculated by LOTUS. A display of formulas used to compute the estimates is given in Table I-1.

(7) To SAVE the spreadsheet, enter the command: /File Save (FILENAME). Name the file using the following convention: three-character command, two-character fiscal year, two-character billing month (example: MSC8506).

(8) Repeat steps 1 through 7 for each of the three TOAs.

c. **Output.** To print each billing spreadsheet, enter the following commands:

- /Print Printer Options Margins Left 0 ENTER
- Margins Right 134 ENTER Quit
- Range A1 .. O46 ENTER Align Go Page
- Range A46 .. O79 ENTER Align Go Page Quit

Table I-1. Billing Estimates Cell Formulas
(page 1 of 4 pages)

```
E1:  ^FISCAL YEAR 1984 MONTHLY BILLING ESTIMATES
F2:  ^MILITARY SEALIFT COMMAND
N2:  (D1) @TODAY
B4:  ^OCT
C4:  ^NOV
D4:  ^DEC
E4:  ^JAN
F4:  ^FEB
G4:  ^MAR
H4:  ^APR
I4:  ^MAY
J4:  ^JUN
K4:  ^JUL
L4:  ^AUG
M4:  ^SEP
N4:  ^TOTALS
A5:  ^BILL
A6:  1
N6:  @SUM(ROW3)
A7:  2
N7:  @SUM(ROW4)
A8:  3
N8:  @SUM(ROW5)
A9:  4
N9:  @SUM(ROW6)
A10: 5
N10: @SUM(ROW7)
A11: 6
N11: @SUM(ROW8)
A12: 7
N12: @SUM(ROW9)
A13: 8
N13: @SUM(ROW10)
A14: 9
N14: @SUM(ROW11)
A15: 10
N15: @SUM(ROW12)
A16: 11
N16: @SUM(ROW13)
A17: 12
N17: @SUM(ROW14)
A18: 13
N18: @SUM(ROW15)
A19: 14
N19: @SUM(ROW16)
A20: 15
N20: @SUM(ROW17)
A21: 16
N21: @SUM(ROW18)
A22: 17
N22: @SUM(ROW19)
A23: 18
N23: @SUM(ROW20)
A24: ^TOT BILL
B24: @SUM(TBOCT)
C24: @SUM(TBNOV)
D24: @SUM(TBDEC)
E24: @SUM(TBJAN)
F24: @SUM(TBFEB)
G24: @SUM(TBMAR)
H24: @SUM(TBAPR)
I24: @SUM(TBMAY)
J24: @SUM(TBJUN)
K24: @SUM(TBJUL)
L24: @SUM(TBAUG)
M24: @SUM(TBSEP)
N24: @SUM(TBROW)
A25: ^
D26: ^PRIOR
A27: ^PERCENT
B27: ^OCT
C27: ^NOV
D27: ^DEC
E27: ^JAN
F27: ^FEB
G27: ^MAR
H27: ^APR
I27: ^MAY
J27: ^JUN
K27: ^JUL
L27: ^AUG
M27: ^SEP
N27: ^YR-T-DATE
D27: ^YEAR
A28: 1
B28: +B6/+B24
C28: +C6/+C24
D28: +D6/+D24
E28: +E6/+E24
F28: +F6/+F24
G28: +G6/+G24
H28: +H6/+H24
I28: +I6/+I24
J28: +J6/+J24
K28: +K6/+K24
L28: +L6/+L24
M28: +M6/+M24
N28: +N6/+N24
A29: 2
B29: @SUM(B6..B7)/B24
C29: @SUM(C6..C7)/C24
D29: @SUM(D6..D7)/D24
E29: @SUM(E6..E7)/E24
F29: @SUM(F6..F7)/F24
G29: @SUM(G6..G7)/G24
H29: @SUM(H6..H7)/H24
I29: @SUM(I6..I7)/I24
J29: @SUM(J6..J7)/J24
K29: @SUM(K6..K7)/K24
L29: @SUM(L6..L7)/L24
M29: @SUM(M6..M7)/M24
N29: @SUM(N6..N7)/N24
A30: 3
B30: @SUM(B6..B8)/B24
C30: @SUM(C6..C8)/C24
D30: @SUM(D6..D8)/D24
E30: @SUM(E6..E8)/E24
F30: @SUM(F6..F8)/F24
G30: @SUM(G6..G8)/G24
H30: @SUM(H6..H8)/H24
I30: @SUM(I6..I8)/I24
J30: @SUM(J6..J8)/J24
K30: @SUM(K6..K8)/K24
L30: @SUM(L6..L8)/L24
M30: @SUM(M6..M8)/M24
N30: @SUM(N6..N8)/N24
A31: 4
B31: @SUM(B6..B9)/B24
C31: @SUM(C6..C9)/C24
D31: @SUM(D6..D9)/D24
E31: @SUM(E6..E9)/E24
F31: @SUM(F6..F9)/F24
G31: @SUM(G6..G9)/G24
H31: @SUM(H6..H9)/H24
I31: @SUM(I6..I9)/I24
J31: @SUM(J6..J9)/J24
K31: @SUM(K6..K9)/K24
L31: @SUM(L6..L9)/L24
M31: @SUM(M6..M9)/M24
N31: @SUM(N6..N9)/N24
A32: 5
B32: @SUM(B6..B10)/B24
C32: @SUM(C6..C10)/C24
D32: @SUM(D6..D10)/D24
E32: @SUM(E6..E10)/E24
F32: @SUM(F6..F10)/F24
G32: @SUM(G6..G10)/G24
H32: @SUM(H6..H10)/H24
I32: @SUM(I6..I10)/I24
J32: @SUM(J6..J10)/J24
K32: @SUM(K6..K10)/K24
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M32: @SUM(M6..M10)/M24
N32: @SUM(N6..N10)/N24
A33: 6
B33: @SUM(B6..B11)/B24
C33: @SUM(C6..C11)/C24
D33: @SUM(D6..D11)/D24
E33: @SUM(E6..E11)/E24
F33: @SUM(F6..F11)/F24
G33: @SUM(G6..G11)/G24
H33: @SUM(H6..H11)/H24
I33: @SUM(I6..I11)/I24
J33: @SUM(J6..J11)/J24
K33: @SUM(K6..K11)/K24
L33: @SUM(L6..L11)/L24
M33: @SUM(M6..M11)/M24
N33: @SUM(N6..N11)/N24
```

Table I-1. Billing Estimates Cell Formulas
(page 2 of 4 pages)

```
A34: 7
B34: @SUM(B6..B12)/B24
C34: @SUM(C6..C12)/C24
D34: @SUM(D6..D12)/D24
E34: @SUM(E6..E12)/E24
F34: @SUM(F6..F12)/F24
G34: @SUM(G6..G12)/G24
H34: @SUM(H6..H12)/H24
I34: @SUM(I6..I12)/I24
J34: @SUM(J6..J12)/J24
K34: @SUM(K6..K12)/K24
L34: @SUM(L6..L12)/L24
M34: @SUM(M6..M12)/M24
N34: @SUM(N6..N12)/N24
A35: 8
B35: @SUM(B6..B13)/B24
C35: @SUM(C6..C13)/C24
D35: @SUM(D6..D13)/D24
E35: @SUM(E6..E13)/E24
F35: @SUM(F6..F13)/F24
G35: @SUM(G6..G13)/G24
H35: @SUM(H6..H13)/H24
I35: @SUM(I6..I13)/I24
J35: @SUM(J6..J13)/J24
K35: @SUM(K6..K13)/K24
L35: @SUM(L6..L13)/L24
M35: @SUM(M6..M13)/M24
N35: @SUM(N6..N13)/N24
A36: 9
B36: @SUM(B6..B14)/B24
C36: @SUM(C6..C14)/C24
D36: @SUM(D6..D14)/D24
E36: @SUM(E6..E14)/E24
F36: @SUM(F6..F14)/F24
G36: @SUM(G6..G14)/G24
H36: @SUM(H6..H14)/H24
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J36: @SUM(J6..J14)/J24
K36: @SUM(K6..K14)/K24
L36: @SUM(L6..L14)/L24
M36: @SUM(M6..M14)/M24
N36: @SUM(N6..N14)/N24
A37: 10
B37: @SUM(B6..B15)/B24
C37: @SUM(C6..C15)/C24
D37: @SUM(D6..D15)/D24
E37: @SUM(E6..E15)/E24
F37: @SUM(F6..F15)/F24
G37: @SUM(G6..G15)/G24
H37: @SUM(H6..H15)/H24
I37: @SUM(I6..I15)/I24
J37: @SUM(J6..J15)/J24
K37: @SUM(K6..K15)/K24
L37: @SUM(L6..L15)/L24
M37: @SUM(M6..M15)/M24
N37: @SUM(N6..N15)/N24
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B38: @SUM(B6..B16)/B24
C38: @SUM(C6..C16)/C24
D38: @SUM(D6..D16)/D24
E38: @SUM(E6..E16)/E24
F38: @SUM(F6..F16)/F24
G38: @SUM(G6..G16)/G24
H38: @SUM(H6..H16)/H24
I38: @SUM(I6..I16)/I24
J38: @SUM(J6..J16)/J24
K38: @SUM(K6..K16)/K24
L38: @SUM(L6..L16)/L24
M38: @SUM(M6..M16)/M24
N38: @SUM(N6..N16)/N24
A39: 12
B39: @SUM(B6..B17)/B24
C39: @SUM(C6..C17)/C24
D39: @SUM(D6..D17)/D24
E39: @SUM(E6..E17)/E24
F39: @SUM(F6..F17)/F24
G39: @SUM(G6..G17)/G24
H39: @SUM(H6..H17)/H24
I39: @SUM(I6..I17)/I24
J39: @SUM(J6..J17)/J24
K39: @SUM(K6..K17)/K24
L39: @SUM(L6..L17)/L24
M39: @SUM(M6..M17)/M24
N39: @SUM(N6..N17)/N24
A40: 13
B40: @SUM(B6..B18)/B24
C40: @SUM(C6..C18)/C24
D40: @SUM(D6..D18)/D24
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F40: @SUM(F6..F18)/F24
G40: @SUM(G6..G18)/G24
H40: @SUM(H6..H18)/H24
I40: @SUM(I6..I18)/I24
J40: @SUM(J6..J18)/J24
K40: @SUM(K6..K18)/K24
L40: @SUM(L6..L18)/L24
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B41: @SUM(B6..B19)/B24
C41: @SUM(C6..C19)/C24
D41: @SUM(D6..D19)/D24
E41: @SUM(E6..E19)/E24
F41: @SUM(F6..F19)/F24
G41: @SUM(G6..G19)/G24
H41: @SUM(H6..H19)/H24
I41: @SUM(I6..I19)/I24
J41: @SUM(J6..J19)/J24
K41: @SUM(K6..K19)/K24
L41: @SUM(L6..L19)/L24
M41: @SUM(M6..M19)/M24
N41: @SUM(N6..N19)/N24
A42: 15
B42: @SUM(B6..B20)/B24
C42: @SUM(C6..C20)/C24
D42: @SUM(D6..D20)/D24
E42: @SUM(E6..E20)/E24
F42: @SUM(F6..F20)/F24
G42: @SUM(G6..G20)/G24
H42: @SUM(H6..H20)/H24
I42: @SUM(I6..I20)/I24
J42: @SUM(J6..J20)/J24
K42: @SUM(K6..K20)/K24
L42: @SUM(L6..L20)/L24
M42: @SUM(M6..M20)/M24
N42: @SUM(N6..N20)/N24
A43: 16
B43: @SUM(B6..B21)/B24
C43: @SUM(C6..C21)/C24
D43: @SUM(D6..D21)/D24
E43: @SUM(E6..E21)/E24
F43: @SUM(F6..F21)/F24
G43: @SUM(G6..G21)/G24
H43: @SUM(H6..H21)/H24
I43: @SUM(I6..I21)/I24
J43: @SUM(J6..J21)/J24
K43: @SUM(K6..K21)/K24
L43: @SUM(L6..L21)/L24
M43: @SUM(M6..M21)/M24
N43: @SUM(N6..N21)/N24
A44: 17
B44: @SUM(B6..B22)/B24
C44: @SUM(C6..C22)/C24
D44: @SUM(D6..D22)/D24
E44: @SUM(E6..E22)/E24
F44: @SUM(F6..F22)/F24
G44: @SUM(G6..G22)/G24
H44: @SUM(H6..H22)/H24
I44: @SUM(I6..I22)/I24
J44: @SUM(J6..J22)/J24
K44: @SUM(K6..K22)/K24
L44: @SUM(L6..L22)/L24
M44: @SUM(M6..M22)/M24
N44: @SUM(N6..N22)/N24
A45: 18
B45: @SUM(TBOCT)/B24
C45: @SUM(TBNOV)/C24
D45: @SUM(TBDEC)/D24
E45: @SUM(TBJAN)/E24
F45: @SUM(TBFEB)/F24
G45: @SUM(TBMAR)/G24
H45: @SUM(TBAPR)/H24
I45: @SUM(TBMAY)/I24
J45: @SUM(TBJUN)/J24
K45: @SUM(TBJUL)/K24
L45: @SUM(TBAUG)/L24
M45: @SUM(TBSEP)/M24
N45: @SUM(TBROW)/N24
```

Table I-1. Billing Estimates Cell Formulas
(page 3 of 4 pages)

```
B47: ^OCT
C47: ^NOV
D47: ^DEC
E47: ^JAN
F47: ^FEB
G47: ^MAR
H47: ^APR
I47: ^MAY
J47: ^JUN
K47: ^JUL
L47: ^AUG
M47: ^SEP
A48: ^ESTIMATE
O48: ^ANNUAL
A49: ^OCT
B49: +B6/O28
O49: +B49*12
A50: ^NOV
B50: @SUM(B$6..B7)/O29
C50: +C6/O28
O50: @SUM(B50..C50)/2*12
A51: ^DEC
B51: @SUM(B$6..B8)/O30
C51: @SUM(C$6..C7)/O29
D51: +D6/O28
O51: @SUM(B51..D51)/3*12
A52: ^JAN
B52: @SUM(B$6..B9)/O31
C52: @SUM(C$6..C8)/O30
D52: @SUM(D$6..D7)/O29
E52: +E6/O28
O52: @SUM(B52..E52)/4*12
A53: ^FEB
B53: @SUM(B$6..B10)/O32
C53: @SUM(C$6..C9)/O31
D53: @SUM(D$6..D8)/O30
E53: @SUM(E$6..E7)/O29
F53: +F6/O28
O53: @SUM(B53..F53)/5*12
A54: ^MAR
B54: @SUM(B$6..B11)/O33
C54: @SUM(C$6..C10)/O32
D54: @SUM(D$6..D9)/O31
E54: @SUM(E$6..E8)/O30
F54: @SUM(F$6..F7)/O29
G54: +G6/O28
O54: @SUM(B54..G54)/6*12
A55: ^APR
B55: @SUM(B$6..B12)/O34
C55: @SUM(C$6..C11)/O33
D55: @SUM(D$6..D10)/O32
E55: @SUM(E$6..E9)/O31
F55: @SUM(F$6..F8)/O30
G55: @SUM(G$6..G7)/O29
H55: +H6/O28
O55: @SUM(B55..H55)/7*12
A56: ^MAY
B56: @SUM(B$6..B13)/O35
C56: @SUM(C$6..C12)/O34
D56: @SUM(D$6..D11)/O33
E56: @SUM(E$6..E10)/O32
F56: @SUM(F$6..F9)/O31
G56: @SUM(G$6..G8)/O30
H56: @SUM(H$6..H7)/O29
I56: +I6/O28
O56: @SUM(B56..I56)/8*12
A57: ^JUN
B57: @SUM(B$6..B14)/O36
C57: @SUM(C$6..C13)/O35
D57: @SUM(D$6..D12)/O34
E57: @SUM(E$6..E11)/O33
F57: @SUM(F$6..F10)/O32
G57: @SUM(G$6..G9)/O31
H57: @SUM(H$6..H8)/O30
I57: @SUM(I$6..I7)/O29
J57: +J6/O28
O57: @SUM(B57..J57)/9*12
A58: ^JUL
B58: @SUM(B$6..B15)/O37
C58: @SUM(C$6..C14)/O36
D58: @SUM(D$6..D13)/O35
E58: @SUM(E$6..E12)/O34
F58: @SUM(F$6..F11)/O33
G58: @SUM(G$6..G10)/O32
H58: @SUM(H$6..H9)/O31
I58: @SUM(I$6..I8)/O30
J58: @SUM(J$6..J7)/O29
K58: +K6/O28
O58: @SUM(B58..K58)/10*12
A59: ^AUG
B59: @SUM(B$6..B16)/O38
C59: @SUM(C$6..C15)/O37
D59: @SUM(D$6..D14)/O36
E59: @SUM(E$6..E13)/O35
F59: @SUM(F$6..F12)/O34
G59: @SUM(G$6..G11)/O33
H59: @SUM(H$6..H10)/O32
I59: @SUM(I$6..I9)/O31
J59: @SUM(J$6..J8)/O30
K59: @SUM(K$6..K7)/O28
L59: +L6/O28
O59: @SUM(B59..L59)/11*12
A60: ^SEP
B60: @SUM(B$6..B17)/O39
C60: @SUM(C$6..C16)/O38
D60: @SUM(D$6..D15)/O37
E60: @SUM(E$6..E14)/O36
F60: @SUM(F$6..F13)/O35
G60: @SUM(G$6..G12)/O34
H60: @SUM(H$6..H11)/O33
I60: @SUM(I$6..I10)/O32
J60: @SUM(J$6..J9)/O31
K60: @SUM(K$6..K8)/O29
L60: @SUM(L$6..L7)/O28
M60: +M6/O28
O60: @SUM(B60..M60)
A61: ^OCT
B61: @SUM(B$6..B18)/O40
C61: @SUM(C$6..C17)/O39
D61: @SUM(D$6..D16)/O38
E61: @SUM(E$6..E15)/O37
F61: @SUM(F$6..F14)/O36
G61: @SUM(G$6..G13)/O35
H61: @SUM(H$6..H12)/O34
I61: @SUM(I$6..I11)/O33
J61: @SUM(J$6..J10)/O32
K61: @SUM(K$6..K9)/O30
L61: @SUM(L$6..L8)/O29
M61: @SUM(M$6..M7)/O28
O61: @SUM(B61..M61)
A62: ^NOV
B62: @SUM(B$6..B19)/O41
C62: @SUM(C$6..C18)/O40
D62: @SUM(D$6..D17)/O39
E62: @SUM(E$6..E16)/O38
F62: @SUM(F$6..F15)/O37
G62: @SUM(G$6..G14)/O36
H62: @SUM(H$6..H13)/O35
I62: @SUM(I$6..I12)/O34
J62: @SUM(J$6..J11)/O33
K62: @SUM(K$6..K10)/O31
L62: @SUM(L$6..L9)/O30
M62: @SUM(M$6..M8)/O30
O62: @SUM(B62..M62)
A63: ^DEC
B63: @SUM(B$6..B20)/O42
C63: @SUM(C$6..C19)/O41
D63: @SUM(D$6..D18)/O40
E63: @SUM(E$6..E17)/O39
F63: @SUM(F$6..F16)/O38
G63: @SUM(G$6..G15)/O37
H63: @SUM(H$6..H14)/O36
I63: @SUM(I$6..I13)/O35
J63: @SUM(J$6..J12)/O34
K63: @SUM(K$6..K11)/O33
L63: @SUM(L$6..L10)/O32
M63: @SUM(M$6..M9)/O31
O63: @SUM(B63..M63)
A64: ^JAN
B64: @SUM(B$6..B21)/O43
C64: @SUM(C$6..C20)/O42
D64: @SUM(D$6..D19)/O41
E64: @SUM(E$6..E18)/O40
F64: @SUM(F$6..F17)/O39
G64: @SUM(G$6..G16)/O38
H64: @SUM(H$6..H15)/O37
I64: @SUM(I$6..I14)/O36
J64: @SUM(J$6..J13)/O35
```

Table I-1. Billing Estimates Cell Formulas
(page 4 of 4 pages)

K64: @SUM(+K66..K12)/034
L64: @SUM(+L66..L11)/033
M64: @SUM(+M66..M10)/032
O64: @SUM(B64..M64)
A65: ^FEB
B65: @SUM(+B66..B22)/044
C65: @SUM(+C66..C21)/043
D65: @SUM(+D66..D20)/042
E65: @SUM(+E66..E19)/041
F65: @SUM(+F66..F18)/040
G65: @SUM(+G66..G17)/039
H65: @SUM(+H66..H16)/038
I65: @SUM(+I66..I15)/037
J65: @SUM(+J66..J14)/036
K65: @SUM(+K66..K13)/035
L65: @SUM(+L66..L12)/034
M65: @SUM(+M66..M11)/033
O65: @SUM(B65..M65)
A66: ^MAR
B66: @SUM(TBOCT)/045
C66: @SUM(+C66..C22)/044
D66: @SUM(+D66..D21)/043
E66: @SUM(+E66..E20)/042
F66: @SUM(+F66..F19)/041
G66: @SUM(+G66..G18)/040
H66: @SUM(+H66..H17)/039
I66: @SUM(+I66..I16)/038
J66: @SUM(+J66..J15)/037
K66: @SUM(+K66..K14)/035
L66: @SUM(+L66..L13)/034
M66: @SUM(+M66..M12)/034
O66: @SUM(B66..M66)
A67: ^APR
B67: +B66
C67: @SUM(TBNOV)/045
D67: @SUM(+D66..D22)/044
E67: @SUM(+E66..E21)/043
F67: @SUM(+F66..F20)/042
G67: @SUM(+G66..G19)/041
H67: @SUM(+H66..H18)/040
I67: @SUM(+I66..I17)/039
J67: @SUM(+J66..J16)/038
K67: @SUM(+K66..K15)/037
L67: @SUM(+L66..L14)/036
M67: @SUM(+M66..M13)/035
O67: @SUM(B67..M67)
A68: ^MAY
B68: +B66
C68: +C67
D68: @SUM(TBDEC)/045
E68: @SUM(+E66..E22)/044
F68: @SUM(+F66..F21)/043
G68: @SUM(+G66..G20)/042
H68: @SUM(+H66..H19)/041
I68: @SUM(+I66..I18)/040
J68: @SUM(+J66..J17)/039
K68: @SUM(+K66..K16)/038
L68: @SUM(+L66..L15)/037
M68: @SUM(+M66..M14)/036
O68: @SUM(B68..M68)
A69: ^JUN
B69: +B66
C69: +C67
D69: +D68
E69: @SUM(TBJAN)/045
F69: @SUM(+F66..F22)/044
G69: @SUM(+G66..G21)/043
H69: @SUM(+H66..H20)/042
I69: @SUM(+I66..I19)/041
J69: @SUM(+J66..J18)/040
K69: @SUM(+K66..K17)/039
L69: @SUM(+L66..L16)/038
M69: @SUM(+M66..M15)/037
O69: @SUM(B69..M69)
A70: ^JUL
B70: +B66
C70: +C67
D70: +D68
E70: +$E$69
F70: @SUM(TBFEB)/045
G70: *@SUM(+G66..G22)/044*
H70: @SUM(+H66..H21)/043
I70: @SUM(+I66..I20)/042
J70: @SUM(+J66..J19)/041
K70: @SUM(+K66..K18)/040
L70: @SUM(+L66..L17)/039
M70: @SUM(+M66..M16)/038
O70: @SUM(B70..M70)
A71: ^AUG
B71: +B66
C71: +C67
D71: +D68
E71: +$E$69
F71: +$F$70
G71: @SUM(TBMAR)/045
H71: @SUM(+H66..H22)/044
I71: @SUM(+I66..I21)/043
J71: @SUM(+J66..J20)/042
K71: @SUM(+K66..K19)/041
L71: @SUM(+L66..L18)/040
M71: @SUM(+M66..M17)/039
O71: @SUM(B71..M71)
A72: ^SEP
B72: +B66
C72: +C67
D72: +D68
E72: +$E$69
F72: +$F$70
G72: +$G$71
H72: @SUM(TBAPR)/045
I72: @SUM(+I66..I22)/044
J72: @SUM(+J66..J21)/043
K72: @SUM(+K66..K20)/042
L72: @SUM(+L66..L19)/041
M72: @SUM(+M66..M18)/040
O72: @SUM(B72..M72)
A73: ^OCT
B73: +B66
C73: +C67
D73: +D68
E73: +$E$69
F73: +$F$70
G73: +$G$71
H73: +$H$63
I73: @SUM(TBMAY)/045
J73: @SUM(+J66..J22)/044
K73: @SUM(+K66..K21)/043
L73: @SUM(+L66..L20)/042
M73: @SUM(+M66..M19)/041
O73: @SUM(B73..M73)
A74: ^NOV
B74: +B66
C74: +C67
D74: +D68
E74: +$E$69
F74: +$F$70
G74: +$G$71
H74: +$H$63
I74: +$I$73
J74: @SUM(TBJUN)/045
K74: @SUM(+K66..K22)/044
L74: @SUM(+L66..L21)/043
M74: @SUM(+M66..M20)/042
O74: @SUM(B74..M74)
A75: ^DEC
B75: +B66
C75: +C67
D75: +D68
E75: +$E$69
F75: +$F$70
G75: +$G$71
H75: +$H$63
I75: +$I$73
J75: +$J$74
K75: @SUM(TBJUL)/044
L75: @SUM(+L66..L22)/044
M75: @SUM(+M66..M21)/043
O75: @SUM(B75..M75)
A76: ^JAN
B76: +B66
C76: +C67
D76: +D68
E76: +$E$69
F76: +$F$70
G76: +$G$71
H76: +$H$63
I76: +$I$73
J76: +$J$74
K76: +K75
L76: @SUM(TBAUG)/044
M76: @SUM(+M66..M22)/044
O76: @SUM(B76..M76)
A77: ^FEB
B77: +B66
C77: +C67
D77: +D68
E77: +$E$69
F77: +$F$70
G77: +$G$71
H77: +$H$72
I77: +$I$73
J77: +$J$74
K77: +K75
L77: +L76
M77: @SUM(TBSEP)/045
O77: @SUM(B77..M77)

I-6. CFSDT MONTHLY DISBURSEMENTS SPREADSHEET

a. Input

(1) The input data for columns MSC$, MAC$, MTMC$, DLA$, and OTHER$ cumulative are taken from the Interim SDT Execution Data Report RCS-CSGLD-1918, prepared by USAFAC.

(2) The TOTAL$ CUMULATIVE column is taken from the Status of Approved Operating Budget Report, RCS-CSCFA-218, prepared by USAFAC.

(3) The disbursement rates table of prior year percentages is derived from the latest fiscal year for which 36 months of data is available. The actual rates can be modified. Indicate actual or modified in the table heading (example: FY85A for actual or FY85M for modified).

b. Processing

(1) The LOTUS 1-2-3 system diskette should be in disk drive A and the data diskette containing the shell spreadsheet for the CFSDT disbursement data and formulas should be in disk drive B.

(2) Enter these commands:

Worksheet File Retrieve DISBSHELLB <ENTER>
Press HOME key to position spreadsheet to its initial cell, A1.

(3) Enter the fiscal year in the title lines for each of the four spreadsheet sections.

(4) The current date will be updated automatically by the LOTUS function @TODAY.

(5) Key in input data columns: MSC$ Cumulative, MAC$ Cumulative, MTMC$ Cumulative, DLA$ Cumulative, OTHER$ Cumulative and TOTAL$ Cumulative. The formulas as displayed in Table I-2 are used to compute the monthly dollars for the TOAs and others.

(6) The ESTIMATE row (row 43) data is taken from the TOA monthly billing estimates spreadsheet. DLA, OTHER, and TOTAL estimates are calculated as indicated on the display of formulas.

(7) Prior year disbursement rates should be keyed into the disbursement rates spreadsheet section.

(8) The calculated CFSDT disbursement dollars and current CFSDT disbursement rates (percent) are calculated as specified by the formulas for each cell as shown in Table I-2.

(9) To save the spreadsheet, enter the command:

(a) /FILE SAVE (FILE NAME)

(b) Name the file DISBXXYY where XX is the fiscal year and YY is the update month.

c. Output. To print the disbursements spreadsheet, enter the following commands:

- /Print Printer Options Margins Left 0 <ENTER>
- Margins Right 134 < ENTER> Quit
- Range A1 .. N44 < ENTER> Align Go Page
- Range P1 .. W44 < ENTER> Align Go Page
- Range A47 .. N88 < ENTER> Align Go Page
- Range A47 .. W88 <ENTER> Align Go Page Quit

NOTE: ENTER

Table I-2. CFSDT Disbursements Cell Formulas
(page 1 of 8 pages)

A1: '
H1: 'CFSDT DISBURSEMENTS
J1: 'FY85
M1: (D1) @TODAY
T1: 'FY85
V1: (D1) @TODAY
H2: 'DOLLARS IN THOUSANDS (000)
S2: 'CALCULATED CFSDT DISBURSEMENTS
C3: 'MSC$
D3: 'MSC$
F3: 'MAC$
F3: 'MAC$
G3: 'MTMC$
H3: 'MTMC
I3: 'DLA$
J3: 'DLA$
K3: 'OTHER$
L3: 'OTHER$
M3: 'TOTAL$
N3: 'TOTAL$
R3: 'MSC$
S3: 'MAC$
T3: 'MTMC$
U3: 'DLA$
V3: 'OTHER$
W3: 'TOTAL$
C4: 'CUMULATIVE
D4: 'MONTHLY
E4: 'CUMULATIVE
F4: 'MONTHLY
G4: 'CUMULATIVE
H4: 'MONTHLY
I4: 'CUMULATIVE
J4: 'MONTHLY
K4: 'CUMULATIVE
L4: 'MONTHLY
M4: 'CUMULATIVE
N4: 'MONTHLY
R4: 'CUMULATIVE
S4: 'CUMULATIVE
T4: 'CUMULATIVE
U4: 'CUMULATIVE
V4: 'CUMULATIVE
W4: 'CUMULATIVE
B5: '
R5: 'CALCULATED
S5: 'CALCULATED
T5: 'CALCULATED
U5: 'CALCULATED
V5: 'CALCULATED
W5: 'CALCULATED
A6: 1
B6: 'OCT
C6: 0
D6: +C6
E6: 0
F6: +E6
G6: 0
H6: +G6
I6: 0
J6: +I6
K6: 13
L6: +K6
M6: 12
N6: +M6
P6: 1
Q6: 'OCT
R6: (F0) +$M$43*R52
S6: (F0) +$M$43*S52
T6: (F0) +$M$43*T52
U6: (F0) +$M$43*U52
V6: (F0) +$M$43*V52
W6: (F0) +$M$43*W52
A7: 2
B7: 'NOV
C7: 0
D7: @IF(@ISNA(C7),0,+C7-C6)
E7: 0
F7: @IF(@ISNA(E7),0,+E7-E6)
G7: 0
H7: @IF(@ISNA(G7),0,+G7-G6)
I7: 0
J7: @IF(@ISNA(I7),0,+I7-I6)
K7: 13
L7: @IF(@ISNA(K7),0,+K7-K6)
M7: 12
N7: @IF(@ISNA(M7),0,+M7-M6)
P7: 2
Q7: 'NOV
R7: (F0) +$M$43*R53
S7: (F0) +$M$43*S53
T7: (F0) +$M$43*T53
U7: (F0) +$M$43*U53
V7: (F0) +$M$43*V53
W7: (F0) +$M$43*W53
A8: 3
B8: 'DEC
C8: 0
D8: @IF(@ISNA(C8),0,+C8-C7)
E8: 0
F8: @IF(@ISNA(E8),0,+E8-E7)
G8: 0
H8: @IF(@ISNA(G8),0,+G8-G7)
I8: 0
J8: @IF(@ISNA(I8),0,+I8-I7)
K8: 13
L8: @IF(@ISNA(K8),0,+K8-K7)
M8: 7320
N8: @IF(@ISNA(M8),0,+M8-M7)
P8: 3
Q8: 'DEC
R8: (F0) +$M$43*R54
S8: (F0) +$M$43*S54
T8: (F0) +$M$43*T54
U8: (F0) +$M$43*U54
V8: (F0) +$M$43*V54
W8: (F0) +$M$43*W54
A9: 4
B9: 'JAN
C9: 0
D9: @IF(@ISNA(C9),0,+C9-C8)
E9: 21861
F9: @IF(@ISNA(E9),0,+E9-E8)
G9: 6641
H9: @IF(@ISNA(G9),0,+G9-G8)
I9: 0
J9: @IF(@ISNA(I9),0,+I9-I8)
K9: 20000
L9: @IF(@ISNA(K9),0,+K9-K8)
M9: 34619
N9: @IF(@ISNA(M9),0,+M9-M8)
P9: 4
Q9: 'JAN
R9: (F0) +$M$43*R55
S9: (F0) +$M$43*S55
T9: (F0) +$M$43*T55
U9: (F0) +$M$43*U55
V9: (F0) +$M$43*V55
W9: (F0) +$M$43*W55
A10: 5
B10: 'FEB
C10: 8600
D10: @IF(@ISNA(C10),0,+C10-C9)
E10: 22594
F10: @IF(@ISNA(E10),0,+E10-E9)
G10: 6641
H10: @IF(@ISNA(G10),0,+G10-G9)
I10: 6345
J10: @IF(@ISNA(I10),0,+I10-I9)
K10: 22000
L10: @IF(@ISNA(K10),0,+K10-K9)
M10: 65979
N10: @IF(@ISNA(M10),0,+M10-M9)
P10: 5
Q10: 'FEB
R10: (F0) +$M$43*R56
S10: (F0) +$M$43*S56
T10: (F0) +$M$43*T56
U10: (F0) +$M$43*U56
V10: (F0) +$M$43*V56
W10: (F0) +$M$43*W56
A11: 6
B11: 'MAR
C11: 27011
D11: @IF(@ISNA(C11),0,+C11-C10)
E11: 45028
F11: @IF(@ISNA(E11),0,+E11-E10)
G11: 3199
H11: @IF(@ISNA(G11),0,+G11-G10)
I11: 13200
J11: @IF(@ISNA(I11),0,+I11-I10)
K11: 12600
L11: @IF(@ISNA(K11),0,+K11-K10)
M11: 102244
N11: @IF(@ISNA(M11),0,+M11-M10)
P11: 6
Q11: 'MAR
R11: (F0) +$M$43*R57
S11: (F0) +$M$43*S57
T11: (F0) +$M$43*T57
U11: (F0) +$M$43*U57
V11: (F0) +$M$43*V57
W11: (F0) +$M$43*W57
A12: 7
B12: 'APR
C12: 66816
D12: @IF(@ISNA(C12),0,+C12-C11)
E12: 56837
F12: @IF(@ISNA(E12),0,+E12-E11)
G12: 16614
H12: @IF(@ISNA(G12),0,+G12-G11)
I12: 17500
J12: @IF(@ISNA(I12),0,+I12-I11)
K12: 11361
L12: @IF(@ISNA(K12),0,+K12-K11)
M12: 174118
N12: @IF(@ISNA(M12),0,+M12-M11)
P12: 7
Q12: 'APR
R12: (F0) +$M$43*R58
S12: (F0) +$M$43*S58
T12: (F0) +$M$43*T58
U12: (F0) +$M$43*U58
V12: (F0) +$M$43*V58
W12: (F0) +$M$43*W58
A13: 8
B13: 'MAY
C13: 77942
D13: @IF(@ISNA(C13),0,+C13-C12)
E13: 72838
F13: @IF(@ISNA(E13),0,+E13-E12)
G13: 24866
H13: @IF(@ISNA(G13),0,+G13-G12)
I13: 20782
J13: @IF(@ISNA(I13),0,+I13-I12)
K13: 14644
L13: @IF(@ISNA(K13),0,+K13-K12)
M13: 217262
N13: @IF(@ISNA(M13),0,+M13-M12)
P13: 8
Q13: 'MAY
R13: (F0) +$M$43*R59
S13: (F0) +$M$43*S59
T13: (F0) +$M$43*T59

Table I-2. CFSDT Disbursements Cell Formulas
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```
U13  (F0) +$M$43*U59
V13  (F0) +$M$43*V59
W13  (F0) +$M$43*W59
A14  9
B14  'JUN
C14  99742
D14  @IF(@ISNA(C14),0,+C14-C13)
E14  87311
F14  @IF(@ISNA(E14),0,+E14-E13)
G14  32909
H14  @IF(@ISNA(G14),0,+G14-G13)
I14  26107
J14  @IF(@ISNA(I14),0,+I14-I13)
K14  14990
L14  @IF(@ISNA(K14),0,+K14-K13)
M14  260841
N14  @IF(@ISNA(M14),0,+M14-M13)
P14  9
Q14  'JUN
R14  (F0) +$M$43*R60
S14  (F0) +$M$43*S60
T14  (F0) +$M$43*T60
U14  (F0) +$M$43*U60
V14  (F0) +$M$43*V60
W14  (F0) +$M$43*W60
A15  10
B15  'JUL
C15  117071
D15  @IF(@ISNA(C15),0,+C15-C14)
E15  98824
F15  @IF(@ISNA(E15),0,+E15-E14)
G15  37939
H15  @IF(@ISNA(G15),0,+G15-G14)
I15  29902
J15  @IF(@ISNA(I15),0,+I15-I14)
K15  15054
L15  @IF(@ISNA(K15),0,+K15-K14)
M15  306149
N15  @IF(@ISNA(M15),0,+M15-M14)
P15  10
Q15  'JUL
R15  (F0) +$M$43*R61
S15  (F0) +$M$43*S61
T15  (F0) +$M$43*T61
U15  (F0) +$M$43*U61
V15  (F0) +$M$43*V61
W15  (F0) +$M$43*W61
A16  11
B16  'AUG
C16  131417
D16  @IF(@ISNA(C16),0,+C16-C15)
E16  102607
F16  @IF(@ISNA(E16),0,+E16-E15)
G16  45156
H16  @IF(@ISNA(G16),0,+G16-G15)
I16  34517
J16  @IF(@ISNA(I16),0,+I16-I15)
K16  17055
L16  @IF(@ISNA(K16),0,+K16-K15)
M16  335495
N16  @IF(@ISNA(M16),0,+M16-M15)
P16  11
Q16  'AUG
R16  (F0) +$M$43*R62
S16  (F0) +$M$43*S62
T16  (F0) +$M$43*T62
U16  (F0) +$M$43*U62
V16  (F0) +$M$43*V62
W16  (F0) +$M$43*W62
A17  12
B17  'SEP
C17  @NA
D17  @IF(@ISNA(C17),0,+C17-C16)
E17  @NA
F17  @IF(@ISNA(E17),0,+E17-E16)
G17  @NA
H17  @IF(@ISNA(G17),0,+G17-G16)
I17  @NA
J17  @IF(@ISNA(I17),0,+I17-I16)
K17  @NA
L17  @IF(@ISNA(K17),0,+K17-K16)
M17  @NA
N17  @IF(@ISNA(M17),0,+M17-M16)
P17  12
Q17  'SEP
R17  (F0) +$M$43*R63
S17  (F0) +$M$43*S63
T17  (F0) +$M$43*T63
U17  (F0) +$M$43*U63
V17  (F0) +$M$43*V63
W17  (F0) +$M$43*W63
A18  13
B18  'OCT
C18  @NA
D18  @IF(@ISNA(C18),0,+C18-C17)
E18  @NA
F18  @IF(@ISNA(E18),0,+E18-E17)
G18  @NA
H18  @IF(@ISNA(G18),0,+G18-G17)
I18  @NA
J18  @IF(@ISNA(I18),0,+I18-I17)
K18  @NA
L18  @IF(@ISNA(K18),0,+K18-K17)
M18  @NA
N18  @IF(@ISNA(M18),0,+M18-M17)
P18  13
Q18  'OCT
R18  (F0) +$M$43*R64
S18  (F0) +$M$43*S64
T18  (F0) +$M$43*T64
U18  (F0) +$M$43*U64
V18  (F0) +$M$43*V64
W18  (F0) +$M$43*W64
A19  14
B19  'NOV
C19  @NA
D19  @IF(@ISNA(C19),0,+C19-C18)
E19  @NA
F19  @IF(@ISNA(E19),0,+E19-E18)
G19  @NA
H19  @IF(@ISNA(G19),0,+G19-G18)
I19  @NA
J19  @IF(@ISNA(I19),0,+I19-I18)
K19  @NA
L19  @IF(@ISNA(K19),0,+K19-K18)
M19  @NA
N19  @IF(@ISNA(M19),0,+M19-M18)
P19  14
Q19  'NOV
R19  (F0) +$M$43*R65
S19  (F0) +$M$43*S65
T19  (F0) +$M$43*T65
U19  (F0) +$M$43*U65
V19  (F0) +$M$43*V65
W19  (F0) +$M$43*W65
A20  15
B20  'DEC
C20  @NA
D20  @IF(@ISNA(C20),0,+C20-C19)
E20  @NA
F20  @IF(@ISNA(E20),0,+E20-E19)
G20  @NA
H20  @IF(@ISNA(G20),0,+G20-G19)
I20  @NA
J20  @IF(@ISNA(I20),0,+I20-I19)
K20  @NA
L20  @IF(@ISNA(K20),0,+K20-K19)
M20  @NA
N20  @IF(@ISNA(M20),0,+M20-M19)
P20  15
Q20  'DEC
R20  (F0) +$M$43*R66
S20  (F0) +$M$43*S66
T20  (F0) +$M$43*T66
U20  (F0) +$M$43*U66
V20  (F0) +$M$43*V66
W20  (F0) +$M$43*W66
A21  16
B21  'JAN
C21  @NA
D21  @IF(@ISNA(C21),0,+C21-C20)
E21  @NA
F21  @IF(@ISNA(E21),0,+E21-E20)
G21  @NA
H21  @IF(@ISNA(G21),0,+G21-G20)
I21  @NA
J21  @IF(@ISNA(I21),0,+I21-I20)
K21  @NA
L21  @IF(@ISNA(K21),0,+K21-K20)
M21  @NA
N21  @IF(@ISNA(M21),0,+M21-M20)
P21  16
Q21  'JAN
R21  (F0) +$M$43*R67
S21  (F0) +$M$43*S67
T21  (F0) +$M$43*T67
U21  (F0) +$M$43*U67
V21  (F0) +$M$43*V67
W21  (F0) +$M$43*W67
A22  17
B22  'FEB
C22  @NA
D22  @IF(@ISNA(C22),0,+C22-C21)
E22  @NA
F22  @IF(@ISNA(E22),0,+E22-E21)
G22  @NA
H22  @IF(@ISNA(G22),0,+G22-G21)
I22  @NA
J22  @IF(@ISNA(I22),0,+I22-I21)
K22  @NA
L22  @IF(@ISNA(K22),0,+K22-K21)
M22  @NA
N22  @IF(@ISNA(M22),0,+M22-M21)
P22  17
Q22  'FEB
R22  (F0) +$M$43*R68
S22  (F0) +$M$43*S68
T22  (F0) +$M$43*T68
U22  (F0) +$M$43*U68
V22  (F0) +$M$43*V68
W22  (F0) +$M$43*W68
A23  18
B23  'MAR
C23  @NA
D23  @IF(@ISNA(C23),0,+C23-C22)
E23  @NA
F23  @IF(@ISNA(E23),0,+E23-E22)
G23  @NA
H23  @IF(@ISNA(G23),0,+G23-G22)
I23  @NA
J23  @IF(@ISNA(I23),0,+I23-I22)
K23  @NA
L23  @IF(@ISNA(K23),0,+K23-K22)
M23  @NA
N23  @IF(@ISNA(M23),0,+M23-M22)
P23  18
Q23  'MAR
R23  (F0) +$M$43*R69
S23  (F0) +$M$43*S69
T23  (F0) +$M$43*T69
U23  (F0) +$M$43*U69
V23  (F0) +$M$43*V69
W23  (F0) +$M$43*W69
A24  19
```

Table I-2. CFSDT Disbursements Cell Formulas
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```
B24  'APR
C24  @NA
D24  @IF(@ISNA(C24),0,+C24-C23)
E24  @NA
F24  @IF(@ISNA(E24),0,+E24 E23)
G24  @NA
H24  @IF(@ISNA(G24),0,+G24 G23)
I24  @NA
J24  @IF(@ISNA(I24),0,+I24-I23)
K24  @NA
L24  @IF(@ISNA(K24),0,+K24-K23)
M24  @NA
N24  @IF(@ISNA(M24),0,+M24-M23)
P24  19
D24  'APR
R24  (F0) +$M$43*R70
S24  (F0) +$M$43*S70
T24  (F0) +$M$43*T70
U24  (F0) +$M$43*U70
V24  (F0) +$M$43*V70
W24  (F0) +$M$43*W70
A25  20
B25  'MAY
C25  @NA
D25  @IF(@ISNA(C25),0,+C25-C24)
E25  @NA
F25  @IF(@ISNA(E25),0,+E25-E24)
G25  @NA
H25  @IF(@ISNA(G25),0,+G25-G24)
I25  @NA
J25  @IF(@ISNA(I25),0,+I25-I24)
K25  @NA
L25  @IF(@ISNA(K25),0,+K25-K24)
M25  @NA
N25  @IF(@ISNA(M25),0,+M25 M24)
P25  20
Q25  'MAY
R25  (F0) +$M$43*R71
S25  (F0) +$M$43*S71
T25  (F0) +$M$43*T71
U25  (F0) +$M$43*U71
V25  (F0) +$M$43*V71
W25  (F0) +$M$43*W71
A26  21
B26  'JUN
C26  @NA
D26  @IF(@ISNA(C26),0,+C26 C25)
E26  @NA
F26  @IF(@ISNA(E26),0,+E26 E25)
G26  @NA
H26  @IF(@ISNA(G26),0,+G26-G25)
I26  @NA
J26  @IF(@ISNA(I26),0,+I26-I25)
K26  @NA
L26  @IF(@ISNA(K26),0,+K26-K25)
M26  @NA
N26  @IF(@ISNA(M26),0,+M26-M25)
P26  21
Q26  'JUN
R26  (F0) +$M$43*R72
S26  (F0) +$M$43*S72
T26  (F0) +$M$43*T72
U26  (F0) +$M$43*U72
V26  (F0) +$M$43*V72
W26  (F0) +$M$43*W72
A27  22
B27  'JUL
C27  @NA
D27  @IF(@ISNA(C27),0,+C27-C26)
E27  @NA
F27  @IF(@ISNA(E27),0,+E27-E26)
G27  @NA
H27  @IF(@ISNA(G27),0,+G27-G26)
I27  @NA
J27  @IF(@ISNA(I27),0,+I27-I26)
K27  @NA
L27  @IF(@ISNA(K27),0,+K27-K26)
M27  @NA
N27  @IF(@ISNA(M27),0,+M27-M26)
P27  22
Q27  'JUL
R27  (F0) +$M$43*R73
S27  (F0) +$M$43*S73
T27  (F0) +$M$43*T73
U27  (F0) +$M$43*U73
V27  (F0) +$M$43*V73
W27  (F0) +$M$43*W73
A28  23
B28  'AUG
C28  @NA
D28  @IF(@ISNA(C28),0,+C28-C27)
E28  @NA
F28  @IF(@ISNA(E28),0,+E28-E27)
G28  @NA
H28  @IF(@ISNA(G28),0,+G28-G27)
I28  @NA
J28  @IF(@ISNA(I28),0,+I28-I27)
K28  @NA
L28  @IF(@ISNA(K28),0,+K28-K27)
M28  @NA
N28  @IF(@ISNA(M28),0,+M28-M27)
P28  23
Q28  'AUG
R28  (F0) +$M$43*R74
S28  (F0) +$M$43*S74
T28  (F0) +$M$43*T74
U28  (F0) +$M$43*U74
V28  (F0) +$M$43*V74
W28  (F0) +$M$43*W74
A29  24
B29  'SEP
C29  @NA
D29  @IF(@ISNA(C29),0,+C29-C28)
E29  @NA
F29  @IF(@ISNA(E29),0,+E29 E28)
G29  @NA
H29  @IF(@ISNA(G29),0,+G29-G28)
I29  @NA
J29  @IF(@ISNA(I29),0,+I29 I28)
K29  @NA
L29  @IF(@ISNA(K29),0,+K29-K28)
M29  @NA
N29  @IF(@ISNA(M29),0,+M29 M28)
P29  24
Q29  'SEP
R29  (F0) +$M$43*R75
S29  (F0) +$M$43*S75
T29  (F0) +$M$43*T75
U29  (F0) +$M$43*U75
V29  (F0) +$M$43*V75
W29  (F0) +$M$43*W75
A30  25
B30  'OCT
C30  @NA
D30  @IF(@ISNA(C30),0,+C30-C29)
E30  @NA
F30  @IF(@ISNA(E30),0,+E30-E29)
G30  @NA
H30  @IF(@ISNA(G30),0,+G30-G29)
I30  @NA
J30  @IF(@ISNA(I30),0,+I30-I29)
K30  @NA
L30  @IF(@ISNA(K30),0,+K30-K29)
M30  @NA
N30  @IF(@ISNA(M30),0,+M30-M29)
P30  25
Q30  'OCT
R30  (F0) +$M$43*R76
S30  (F0) +$M$43*S76
T30  (F0) +$M$43*T76
U30  (F0) +$M$43*U76
V30  (F0) +$M$43*V76
W30  (F0) +$M$43*W76
A31  26
B31  'NOV
C31  @NA
D31  @IF(@ISNA(C31),0,+C31 C30)
E31  @NA
F31  @IF(@ISNA(E31),0,+E31-E30)
G31  @NA
H31  @IF(@ISNA(G31),0,+G31-G30)
I31  @NA
J31  @IF(@ISNA(I31),0,+I31 I30)
K31  @NA
L31  @IF(@ISNA(K31),0,+K31-K30)
M31  @NA
N31  @IF(@ISNA(M31),0,+M31 M30)
P31  26
Q31  'NOV
R31  (F0) +$M$43*R77
S31  (F0) +$M$43*S77
T31  (F0) +$M$43*T77
U31  (F0) +$M$43*U77
V31  (F0) +$M$43*V77
W31  (F0) +$M$43*W77
A32  27
B32  'DEC
C32  @NA
D32  @IF(@ISNA(C32),0,+C32 C31)
E32  @NA
F32  @IF(@ISNA(E32),0,+E32-E31)
G32  @NA
H32  @IF(@ISNA(G32),0,+G32-G31)
I32  @NA
J32  @IF(@ISNA(I32),0,+I32-I31)
K32  @NA
L32  @IF(@ISNA(K32),0,+K32 K31)
M32  @NA
N32  @IF(@ISNA(M32),0,+M32 M31)
P32  27
Q32  'DEC
R32  (F0) +$M$43*R78
S32  (F0) +$M$43*S78
T32  (F0) +$M$43*T78
U32  (F0) +$M$43*U78
V32  (F0) +$M$43*V78
W32  (F0) +$M$43*W78
A33  28
B33  'JAN
C33  @NA
D33  @IF(@ISNA(C33),0,+C33 C32)
E33  @NA
F33  @IF(@ISNA(E33),0,+E33 E32)
G33  @NA
H33  @IF(@ISNA(G33),0,+G33-G32)
I33  @NA
J33  @IF(@ISNA(I33),0,+I33 I32)
K33  @NA
L33  @IF(@ISNA(K33),0,+K33-K32)
M33  @NA
N33  @IF(@ISNA(M33),0,+M33 M32)
P33  28
Q33  'JAN
R33  (F0) +$M$43*R79
S33  (F0) +$M$43*S79
T33  (F0) +$M$43*T79
U33  (F0) +$M$43*U79
V33  (F0) +$M$43*V79
W33  (F0) +$M$43*W79
A34  29
B34  'FEB
C34  @NA
D34  @IF(@ISNA(C34),0,+C34 C33)
E34  @NA
```

Table I-2. CFSDT Disbursements Cell Formulas
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```
F34:  @IF(@ISNA(E34),0,+E34-E33)
G34:  @NA
H34:  @IF(@ISNA(G34),0,+G34-G33)
I34:  @NA
J34:  @IF(@ISNA(I34),0,+I34-I33)
K34:  @NA
L34:  @IF(@ISNA(K34),0,+K34-K33)
M34:  @NA
N34:  @IF(@ISNA(M34),0,+M34-M33)
P34:  29
Q34:  'FEB
R34:  (F0) +$M$43*R80
S34:  (F0) +$M$43*S80
T34:  (F0) +$M$43*T80
U34:  (F0) +$M$43*U80
V34:  (F0) +$M$43*V80
W34:  (F0) +$M$43*W80
A35:  30
B35:  'MAR
C35:  @NA
D35:  @IF(@ISNA(C35),0,+C35-C34)
E35:  @NA
F35:  @IF(@ISNA(E35),0,+E35-E34)
G35:  @NA
H35:  @IF(@ISNA(G35),0,+G35-G34)
I35:  @NA
J35:  @IF(@ISNA(I35),0,+I35-I34)
K35:  @NA
L35:  @IF(@ISNA(K35),0,+K35-K34)
M35:  @NA
N35:  @IF(@ISNA(M35),0,+M35-M34)
P35:  30
Q35:  'MAR
R35:  (F0) +$M$43*R81
S35:  (F0) +$M$43*S81
T35:  (F0) +$M$43*T81
U35:  (F0) +$M$43*U81
V35:  (F0) +$M$43*V81
W35:  (F0) +$M$43*W81
A36:  31
B36:  'APR
C36:  @NA
D36:  @IF(@ISNA(C36),0,+C36-C35)
E36:  @NA
F36:  @IF(@ISNA(E36),0,+E36-E35)
G36:  @NA
H36:  @IF(@ISNA(G36),0,+G36-G35)
I36:  @NA
J36:  @IF(@ISNA(I36),0,+I36-I35)
K36:  @NA
L36:  @IF(@ISNA(K36),0,+K36-K35)
M36:  @NA
N36:  @IF(@ISNA(M36),0,+M36-M35)
P36:  31
Q36:  'APR
R36:  (F0) +$M$43*R82
S36:  (F0) +$M$43*S82
T36:  (F0) +$M$43*T82
U36:  (F0) +$M$43*U82
V36:  (F0) +$M$43*V82
W36:  (F0) +$M$43*W82
A37:  32
B37:  'MAY
C37:  @NA
D37:  @IF(@ISNA(C37),0,+C37-C36)
E37:  @NA
F37:  @IF(@ISNA(E37),0,+E37-E36)
G37:  @NA
H37:  @IF(@ISNA(G37),0,+G37-G36)
I37:  @NA
J37:  @IF(@ISNA(I37),0,+I37-I36)
K37:  @NA
L37:  @IF(@ISNA(K37),0,+K37-K36)
M37:  @NA
N37:  @IF(@ISNA(M37),0,+M37-M36)
P37:  32
Q37:  'MAY
R37:  (F0) +$M$43*R83
S37:  (F0) +$M$43*S83
T37:  (F0) +$M$43*T83
U37:  (F0) +$M$43*U83
V37:  (F0) +$M$43*V83
W37:  (F0) +$M$43*W83
A38:  33
B38:  'JUN
C38:  @NA
D38:  @IF(@ISNA(C38),0,+C38-C37)
E38:  @NA
F38:  @IF(@ISNA(E38),0,+E38-E37)
G38:  @NA
H38:  @IF(@ISNA(G38),0,+G38-G37)
I38:  @NA
J38:  @IF(@ISNA(I38),0,+I38-I37)
K38:  @NA
L38:  @IF(@ISNA(K38),0,+K38-K37)
M38:  @NA
N38:  @IF(@ISNA(M38),0,+M38-M37)
P38:  33
Q38:  'JUN
R38:  (F0) +$M$43*R84
S38:  (F0) +$M$43*S84
T38:  (F0) +$M$43*T84
U38:  (F0) +$M$43*U84
V38:  (F0) +$M$43*V84
W38:  (F0) +$M$43*W84
A39:  34
B39:  'JUL
C39:  @NA
D39:  @IF(@ISNA(C39),0,+C39-C38)
E39:  @NA
F39:  @IF(@ISNA(E39),0,+E39-E38)
G39:  @NA
H39:  @IF(@ISNA(G39),0,+G39-G38)
I39:  @NA
J39:  @IF(@ISNA(I39),0,+I39-I38)
K39:  @NA
L39:  @IF(@ISNA(K39),0,+K39-K38)
M39:  @NA
N39:  @IF(@ISNA(M39),0,+M39-M38)
P39:  34
Q39:  'JUL
R39:  (F0) +$M$43*R85
S39:  (F0) +$M$43*S85
T39:  (F0) +$M$43*T85
U39:  (F0) +$M$43*U85
V39:  (F0) +$M$43*V85
W39:  (F0) +$M$43*W85
A40:  35
B40:  'AUG
C40:  @NA
D40:  @IF(@ISNA(C40),0,+C40-C39)
E40:  @NA
F40:  @IF(@ISNA(E40),0,+E40-E39)
G40:  @NA
H40:  @IF(@ISNA(G40),0,+G40-G39)
I40:  @NA
J40:  @IF(@ISNA(I40),0,+I40-I39)
K40:  @NA
L40:  @IF(@ISNA(K40),0,+K40-K39)
M40:  @NA
N40:  @IF(@ISNA(M40),0,+M40-M39)
P40:  35
Q40:  'AUG
R40:  (F0) +$M$43*R86
S40:  (F0) +$M$43*S86
T40:  (F0) +$M$43*T86
U40:  (F0) +$M$43*U86
V40:  (F0) +$M$43*V86
W40:  (F0) +$M$43*W86
A41:  36
B41:  'SEP
C41:  @NA
D41:  @IF(@ISNA(C41),0,+C41-C40)
E41:  @NA
F41:  @IF(@ISNA(F41),0,+E41-E40)
G41:  @NA
H41:  @IF(@ISNA(G41),0,+G41-G40)
I41:  @NA
J41:  @IF(@ISNA(I41),0,+I41-I40)
K41:  @NA
L41:  @IF(@ISNA(K41),0,+K41-K40)
M41:  @NA
N41:  @IF(@ISNA(M41),0,+M41-M40)
P41:  36
Q41:  'SEP
R41:  (F0) +$M$43*R87
S41:  (F0) +$M$43*S87
T41:  (F0) +$M$43*T87
U41:  (F0) +$M$43*U87
V41:  (F0) +$M$43*V87
W41:  (F0) +$M$43*W87
A42:  'TOTALS
D42:  @SUM(D6..D41)
E42:
F42:  @SUM(F6..F41)
G42:
H42:  @SUM(H6..H41)
I42:
J42:  @SUM(J6..J41)
K42:
L42:  @SUM(L6..L41)
M42:
N42:  @SUM(N6..N41)
D43:  '(TOTAL)
A43:  'ESTIMATE
C43:  197929
D43:  '(MSC)
E43:  148362
F43:  '(MAC)
G43:  66380
H43:  '(MTMC)
I43:  (F0) +C44/T88*V87
J43:  '(DLA)
K43:  (F0) +C44/T88*V87
L43:  '(OTHER)
M43:  (F0) +C43+E43+G43+I43+K43
N43:  '(TOTAL)
A44:  'TOA SUM
C44:  +C43+E43+G43
H44:
I44:
C47:
D47:  '                    CFSDT DISBURSEMENT RATES (%)
M47:  (D1) @TODAY
S47:  'DISTRIBUTION RATES FOR
U47:  'FY83A
V47:  (D1) @TODAY
W47:
C49:  ^    %
D49:  ^MSC %
E49:  ^MAC %
F49:  ^MAC %
G49:  ^MTMC %
H49:  ^MTMC %
I49:  ^DLA %
J49:  ^DLA %
K49:  ^OTHER %
L49:  ^OTHER %
N49:  ^% OF
R49:  ^PRIOR YEAR
S49:  ^PRIOR YEAR
T49:  ^PRIOR YEAR
U49:  ^PRIOR YEAR
V49:  ^PRIOR YEAR
```

Table I-2. CFSDT Disbursements Cell Formulas
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```
W49:  'PRIOR YEAR
C50:  'CUMULATIVE
D50:  'OF TOTAL
E50:  'CUMULATIVE
F50:  'OF TOTAL
G50:  'CUMULATIVE
H50:  'OF TOTAL
I50:  'CUMULATIVE
J50:  'OF TOTAL
K50:  'CUMULATIVE
L50:  'OF TOTAL
N50:  'TOTAL
R50:  'MSC %
S50:  'MAC %
T50:  'MIMC %
U50:  'DLA %
V50:  'OTHER %
W50:  '% OF
R51:  'OF TOTAL
S51:  'OF TOTAL
T51:  'OF TOTAL
U51:  'OF TOTAL
V51:  'OF TOTAL
W51:  'TOTAL
A52:  1
B52:  'OCT
C52:  (F4) +C6/$M6
D52:  (F4) +C52#$N52
E52:  (F4) +E6/$M6
F52:  (F4) +E52#$N52
G52:  (F4) +G6/$M6
H52:  (F4) +G52#$N52
I52:  (F4) +I6/$M6
J52:  (F4) +I52#$N52
K52:  (F4) +K6/$M6
L52:  (F4) +K52#$N52
N52:  (F4) +M6/$N$42
P52:  1
Q52:  'OCT
R52:  (F4) 0
S52:  (F4) 0
T52:  (F4) 0
U52:  (F4) 0
V52:  (F4) 0
W52:  (F4) 0
A53:  2
B53:  'NOV
C53:  (F4) +C7/$M7
D53:  (F4) +C53#$N53
E53:  (F4) +E7/$M7
F53:  (F4) +E53#$N53
G53:  (F4) +G7/$M7
H53:  (F4) +G53#$N53
I53:  (F4) +I7/$M7
J53:  (F4) +I53#$N53
K53:  (F4) +K7/$M7
L53:  (F4) +K53#$N53
N53:  (F4) +M7/$N$42
P53:  2
Q53:  'NOV
R53:  (F4) 0
S53:  (F4) 0
T33:  (F4) 0
U53:  (F4) 0
V53:  (F4) 0 000126
W53:  (F4) 0 000126
A54:  3
B54:  'DEC
C54:  (F4) +C8/$M8
D54:  (F4) +C54#$N54
E54:  (F4) +E8/$M8
F54:  (F4) +E54#$N54
G54:  (F4) +G8/$M8
H54:  (F4) +G54#$N54
I54:  (F4) +I8/$M8
J54:  (F4) +I54#$N54
K54:  (F4) +K8/$M8
L54:  (F4) +K54#$N54
N54:  (F4) +M8/$N$42
P54:  3
Q54:  'DEC
R54:  (F4) 0
S54:  (F4) 0
T54:  (F4) 0 010854
U54:  (F4) 0
V54:  (F4) 0 000954
W54:  (F4) 0 011809
A55:  4
B55:  'JAN
C55:  (F4) +C9/$M9
D55:  (F4) +C55#$N55
E55:  (F4) +E9/$M9
F55:  (F4) +E55#$N55
G55:  (F4) +G9/$M9
H55:  (F4) +G55#$N55
I55:  (F4) +I9/$M9
J55:  (F4) +I55#$N55
K55:  (F4) +K9/$M9
L55:  (F4) +K55#$N55
N55:  (F4) +M9/$N$42
P55:  4
Q55:  'JAN
R55:  (F4) 0 023823
S55:  (F4) 0
T55:  (F4) 0 010998
U55:  (F4) 0
V55:  (F4) 0 002647
W55:  (F4) 0 037469
A56:  5
B56:  'FEB
C56:  (F4) +C10/$M10
D56:  (F4) +C56#$N56
E56:  (F4) +E10/$M10
F56:  (F4) +E56#$N56
G56:  (F4) +G10/$M10
H56:  (F4) +G56#$N56
I56:  (F4) +I10/$M10
J56:  (F4) +I56#$N56
K56:  (F4) +K10/$M10
L56:  (F4) +K56#$N56
N56:  (F4) +M10/$N$42
P56:  5
Q56:  'FEB
R56:  (F4) 0 030236
S56:  (F4) 0 028984
T56:  (F4) 0 011058
U56:  (F4) 0 00865
V56:  (F4) 0 003771
W56:  (F4) 0 082905
A57:  6
B57:  'MAR
C57:  (F4) +C11/$M11
D57:  (F4) +C57#$N57
E57:  (F4) +E11/$M11
F57:  (F4) +E57#$N57
G57:  (F4) +G11/$M11
H57:  (F4) +G57#$N57
I57:  (F4) +I11/$M11
J57:  (F4) +I57#$N57
K57:  (F4) +K11/$M11
L57:  (F4) +K57#$N57
N57:  (F4) +M11/$N$42
P57:  6
Q57:  'MAR
R57:  (F4) 0 030439
S57:  (F4) 0 028997
T57:  (F4) 0 025636
U57:  (F4) 0 025636
V57:  (F4) 0 006875
W57:  (F4) 0 122675
A58:  7
B58:  'APR
C58:  (F4) +C12/$M12
D58:  (F4) +C58#$N58
E58:  (F4) +E12/$M12
F58:  (F4) +E58#$N58
G58:  (F4) +G12/$M12
H58:  (F4) +G58#$N58
I58:  (F4) +I12/$M12
J58:  (F4) +I58#$N58
K58:  (F4) +K12/$M12
L58:  (F4) +K58#$N58
N58:  (F4) +M12/$N$42
P58:  7
Q58:  'APR
R58:  (F4) 0 094086
S58:  (F4) 0 060618
I58:  (F4) 0 027719
U58:  (F4) 0 038344
V58:  (F4) 0 028574
W58:  (F4) 0 249344
A59:  8
B59:  'MAY
C59:  (F4) +C13/$M13
D59:  (F4) +C59#$N59
E59:  (F4) +E13/$M13
F59:  (F4) +E59#$N59
G59:  (F4) +G13/$M13
H59:  (F4) +G59#$N59
I59:  (F4) +I13/$M13
J59:  (F4) +I59#$N59
K59:  (F4) +K13/$M13
L59:  (F4) +K59#$N59
N59:  (F4) +M13/$N$42
P59:  8
Q59:  'MAY
R59:  (F4) 0 10471
S59:  (F4) 0 089308
T59:  (F4) 0 040067
U59:  (F4) 0 053764
V59:  (F4) 0 012494
W59:  (F4) 0 294341
A60:  9
B60:  'JUN
C60:  (F4) +C14/$M14
D60:  (F4) +C60#$N60
E60:  (F4) +E14/$M14
F60:  (F4) +E60#$N60
G60:  (F4) +G14/$M14
H60:  (F4) +G60#$N60
I60:  (F4) +I14/$M14
J60:  (F4) +I60#$N60
K60:  (F4) +K14/$M14
L60:  (F4) +K60#$N60
N60:  (F4) +M14/$N$42
P60:  9
Q60:  'JUN
R60:  (F4) 0 133906
S60:  (F4) 0 115625
T60:  (F4) 0 024121
U60:  (F4) 0 047438
V60:  (F4) 0 001627
W60:  (F4) 0 327698
A61:  10
B61:  'JUL
C61:  (F4) +C15/$M15
D61:  (F4) +C61#$N61
E61:  (F4) +E15/$M15
F61:  (F4) +E61#$N61
G61:  (F4) +G15/$M15
H61:  (F4) +G61#$N61
I61:  (F4) +I15/$M15
J61:  (F4) +I61#$N61
K61:  (F4) +K15/$M15
```

Table I-2. CFSDT Disbursements Cell Formulas
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L61 (F4) +K61*$N61
N61 (F4) +M15/$N$42
P61 10
Q61 'JUL
R61 (F4) 0 149151
S61 (F4) 0 120711
T61 (F4) 0 032417
U61 (F4) 0 052696
V61 (F4) 0 001811
W61 (F4) 0 364788
A62 11
B62 'AUG
C62 (F4) +C16/$M16
D62 (F4) +C62*$N62
E62 (F4) +E16/$M16
F62 (F4) +E62*$N62
G62 (F4) +G16/$M16
H62 (F4) +G62*$N62
I62 (F4) +I16/$M16
J62 (F4) +I62*$N62
K62 (F4) +K16/$M16
L62 (F4) +K62*$N62
N62 (F4) +M16/$N$42
P62 11
Q62 'AUG
R62 (F4) 0 201707
S62 (F4) 0 174065
T62 (F4) 0 043839
U62 (F4) 0 071264
V62 (F4) 0 002449
W62 (F4) 0 493328
A63 12
B63 'SEP
C63 (F4) +C17/$M17
D63 (F4) +C63*$N63
E63 (F4) +E17/$M17
F63 (F4) +E63*$N63
G63 (F4) +G17/$M17
H63 (F4) +G63*$N63
I63 (F4) +I17/$M17
J63 (F4) +I63*$N63
K63 (F4) +K17/$M17
L63 (F4) +K63*$N63
N63 (F4) +M17/$N$42
P63 12
Q63 'SEP
R63 (F4) 0 276757
S63 (F4) 0 23803
T63 (F4) 0 060151
U63 (F4) 0 097779
V63 (F4) 0 003367
W63 (F4) 0 477488
A64 13
B64 'OCT
C64 (F4) +C18/$M18
D64 (F4) +C64*$N64
E64 (F4) +E18/$M18
F64 (F4) +E64*$N64
G64 (F4) +G18/$M18
H64 (F4) +G64*$N64
I64 (F4) +I18/$M18
J64 (F4) +I64*$N64
K64 (F4) +K18/$M18
L64 (F4) +K64*$N64
N64 (F4) +M18/$N$42
P64 13
Q64 'OCT
R64 (F4) 0 277257
S64 (F4) 0 239262
T64 (F4) 0 06026
U64 (F4) 0 097956
V64 (F4) 0 003367
W64 (F4) 0 678104
A65 14
B65 'NOV
C65 (F4) +C19/$M19
D65 (F4) +C65*$N65
E65 (F4) +E19/$M19
F65 (F4) +E65*$N65
G65 (F4) +G19/$M19
H65 (F4) +G65*$N65
I65 (F4) +I19/$M19
J65 (F4) +I65*$N65
K65 (F4) +K19/$M19
L65 (F4) +K65*$N65
N65 (F4) +M19/$N$42
P65 14
Q65 'NOV
R65 (F4) 0.303949
S65 (F4) 0 268489
T65 (F4) 0 069103
U65 (F4) 0 097668
V65 (F4) 0 012069
W65 (F4) 0 751281
A66 15
B66 'DEC
C66 (F4) +C20/$M20
D66 (F4) +C66*$N66
E66 (F4) +E20/$M20
F66 (F4) +E66*$N66
G66 (F4) +G20/$M20
H66 (F4) +G66*$N66
I66 (F4) +I20/$M20
J66 (F4) +I66*$N66
K66 (F4) +K20/$M20
L66 (F4) +K66*$N66
N66 (F4) +M20/$N$42
P66 15
Q66 'DEC
R66 (F4) 0 355807
S66 (F4) 0 308426
T66 (F4) 0 071316
U66 (F4) 0 121022
V66 (F4) 0 013408
W66 (F4) 0 877739
A67 16
B67 'JAN
C67 (F4) +C21/$M21
D67 (F4) +C67*$N67
E67 (F4) +E21/$M21
F67 (F4) +E67*$N67
G67 (F4) +G21/$M21
H67 (F4) +G67*$N67
I67 (F4) +I21/$M21
J67 (F4) +I67*$N67
K67 (F4) +K21/$M21
L67 (F4) +K67*$N67
N67 (F4) +M21/$N$42
P67 16
Q67 'JAN
R67 (F4) 0 421115
S67 (F4) 0 303847
T67 (F4) 0 076512
U67 (F4) 0 120618
V67 (F4) 0 018954
W67 (F4) 0 946492
A68 17
B68 'FEB
C68 (F4) +C22/$M22
D68 (F4) +C68*$N68
E68 (F4) +E22/$M22
F68 (F4) +E68*$N68
G68 (F4) +G22/$M22
H68 (F4) +G68*$N68
I68 (F4) +I22/$M22
J68 (F4) +I68*$N68
K68 (F4) +K22/$M22
L68 (F4) +K68*$N68
N68 (F4) +M22/$N$42
P68 17
Q68 'FEB
R68 (F4) 0 423308
S68 (F4) 0 315633
T68 (F4) 0 077028
U68 (F4) 0 126894
V68 (F4) 0 019187
W68 (F4) 0 962592
A69 18
B69 'MAR
C69 (F4) +C23/$M23
D69 (F4) +C69*$N69
E69 (F4) +E23/$M23
F69 (F4) +E69*$N69
G69 (F4) +G23/$M23
H69 (F4) +G69*$N69
I69 (F4) +I23/$M23
J69 (F4) +I69*$N69
K69 (F4) +K23/$M23
L69 (F4) +K69*$N69
N69 (F4) +M23/$N$42
P69 18
Q69 'MAR
R69 (F4) 0 42459
S69 (F4) 0 314555
T69 (F4) 0 077247
U69 (F4) 0 12744
V69 (F4) 0 019289
W69 (F4) 0 963063
A70 19
B70 'APR
C70 (F4) +C24/$M24
D70 (F4) +C70*$N70
E70 (F4) +E24/$M24
F70 (F4) +E70*$N70
G70 (F4) +G24/$M24
H70 (F4) +G70*$N70
I70 (F4) +I24/$M24
J70 (F4) +I70*$N70
K70 (F4) +K24/$M24
L70 (F4) +K70*$N70
N70 (F4) +M24/$N$42
P70 19
Q70 'APR
R70 (F4) 0 442797
S70 (F4) 0 317755
T70 (F4) 0 07632
U70 (F4) 0 131537
V70 (F4) 0 018785
W70 (F4) 0 987406
A71 20
B71 'MAY
C71 (F4) +C25/$M25
D71 (F4) +C71*$N71
E71 (F4) +E25/$M25
F71 (F4) +E71*$N71
G71 (F4) +G25/$M25
H71 (F4) +G71*$N71
I71 (F4) +I25/$M25
J71 (F4) +I71*$N71
K71 (F4) +K25/$M25
L71 (F4) +K71*$N71
N71 (F4) +M25/$N$42
P71 20
Q71 'MAY
R71 (F4) 0 44466
S71 (F4) 0 319603
T71 (F4) 0 076779
U71 (F4) 0 131736
V71 (F4) 0 018938
W71 (F4) 0 991939
A72 21
B72 'JUN
C72 (F4) +C26/$M26
D72 (F4) +C72*$N72

Table I-2. CFSDT Disbursements Cell Formulas
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```
E72   (F4) +E25/$M25
F72   (F4) +E72*$N72
G72   (F4) +G26/$M26
H72   (F4) +G72*$N72
I72   (F4) +I26/$M26
J72   (F4) +I72*$N72
K72   (F4) +K26/$M26
L72   (F4) +K72*$N72
N72   (F4) +M26/$N$42
P72   21
Q72   'JUN
R72   (F4) 0 443960
S72   (F4) 0 31933
T72   (F4) 0 076739
U72   (F4) 0 131606
V72   (F4) 0 019891
W72   (F4) 0 991535
A73   22
B73   'JUL
C73   (F4) +C27/$M27
D73   (F4) +C73*$N73
E73   (F4) +E27/$M27
F73   (F4) +E73*$N73
G73   (F4) +G27/$M27
H73   (F4) +G73*$N73
I73   (F4) +I27/$M27
J73   (F4) +I73*$N73
K73   (F4) +K27/$M27
L73   (F4) +K73*$N73
N73   (F4) +M27/$N$42
P73   22
Q73   'JUL
R73   (F4) 0 447174
S73   (F4) 0 321132
T73   (F4) 0 077984
U73   (F4) 0 133017
V73   (F4) 0 018624
W73   (F4) 0 995654
A74   23
B74   'AUG
C74   (F4) +C28/$M28
D74   (F4) +C74*$N74
E74   (F4) +E28/$M28
F74   (F4) +E74*$N74
G74   (F4) +G28/$M28
H74   (F4) +G71*$N74
I74   (F4) +I23/$M28
J74   (F4) +I74*$N74
K74   (F4) +K28/$M28
L74   (F4) +K74*$N74
N74   (F4) +M28/$N$42
P74   23
Q74   'AUG
R74   (F4) 0 445444
S74   (F4) 0 32381
T74   (F4) 0 076116
U74   (F4) 0 130515
V74   (F4) 0 018418
W74   (F4) 0 999305
A75   24
B75   'SEP
C75   (F4) +C29/$M29
D75   (F4) +C75*$N75
E75   (F4) +E29/$M29
F75   (F4) +E75*$N75
G75   (F4) +G29/$M29
H75   (F4) +G75*$N75
I75   (F4) +I29/$M29
J75   (F4) +I75*$N75
K75   (F4) +K29/$M29
L75   (F4) +K75*$N75
N75   (F4) +M29/$N$42
P75   24
Q75   'SEP
R75   (F4) 0 44539
S75   (F4) 0 329114
T75   (F4) 0 076112
U75   (F4) 0 130495
V75   (F4) 0 018417
W75   (F4) 0 999531
A76   25
B76   'OCT
C76   (F4) +C30/$M30
D76   (F4) +C76*$N76
E76   (F4) +E30/$M30
F76   (F4) +E76*$N76
G76   (F4) +G30/$M30
H76   (F4) +G76*$N76
I76   (F4) +I30/$M30
J76   (F4) +I76*$N76
K76   (F4) +K30/$M30
L76   (F4) +K76*$N76
N76   (F4) +M30/$N$42
P76   25
Q76   'OCT
R76   (F4) 0 446001
S76   (F4) 0 329343
T76   (F4) 0 076117
U76   (F4) 0 130502
V76   (F4) 0 018422
W76   (F4) 1 000386
A77   26
B77   'NOV
C77   (F4) +C31/$M31
D77   (F4) +C77*$N77
E77   (F4) +E31/$M31
F77   (F4) +E77*$N77
G77   (F4) +C31/$M31
H77   (F4) +G77*$N77
I77   (F4) +I31/$M31
J77   (F4) +I77*$N77
K77   (F4) +E31/$M31
L77   (F4) +K77*$N77
N77   (F4) +M31/$N$42
P77   26
Q77   'NOV
R77   (F4) 0 426527
S77   (F4) 0 340363
T77   (F4) 0 079634
U77   (F4) 0 13186
V77   (F4) 0 020296
W77   (F4) 1 000683
A78   27
B78   'DEC
C78   (F4) +C32/$M32
D78   (F4) +C78*$N78
E78   (F4) +E32/$M32
F78   (F4) +E78*$N78
G78   (F4) +G32/$M32
H78   (F4) +G78*$N78
I78   (F4) +I32/$M32
J78   (F4) +I78*$N78
K78   (F4) +K32/$M32
L78   (F4) +K78*$N78
N78   (F4) +M32/$N$42
P78   27
Q78   'DEC
R78   (F4) 0 411706
S78   (F4) 0 344608
T78   (F4) 0 081689
U78   (F4) 0 141592
V78   (F4) 0 021191
W78   (F4) 1 000787
A79   28
B79   'JAN
C79   (F4) +C33/$M33
D79   (F4) +C79*$N79
E79   (F4) +E33/$M33
F79   (F4) +E79*$N79
G79   (F4) +G33/$M33
H79   (F4) +G79*$N79
I79   (F4) +I33/$M33
J79   (F4) +I79*$N79
K79   (F4) +K33/$M33
L79   (F4) +K79*$N79
N79   (F4) +M33/$N$42
P79   28
Q79   'JAN
R79   (F4) 0 425464
S79   (F4) 0 330857
T79   (F4) 0 082918
U79   (F4) 0 133638
V79   (F4) 0 020217
W79   (F4) 1 001026
A80   29
B80   'FEB
C80   (F4) +C31/$M34
D80   (F4) +C80*$N80
E80   (F4) +E34/$M34
F80   (F4) +E80*$N80
G80   (F4) +G34/$M34
H80   (F4) +G80*$N80
I80   (F4) +I34/$M34
J80   (F4) +I80*$P80
K80   (F4) +K34/$M34
L80   (F4) +K80*$N80
N80   (F4) +M34/$N$42
P80   29
Q80   'FEB
R80   (F4) 0 423353
S80   (F4) 0 33885
T80   (F4) 0 082916
U80   (F4) 0 133634
V80   (F4) 0 020656
W80   (F4) 1 001413
A81   30
B81   'MAR
C81   (F4) +C35/$M35
D81   (F4) +C81*$N81
E81   (F4) +E35/$M35
F81   (F4) +E81*$N81
G81   (F4) +G35/$M35
H81   (F4) +G81*$N81
I81   (F4) +I35/$M35
J81   (F4) +I81*$N81
K81   (F4) +K35/$M35
L81   (F4) +K81*$N81
N81   (F4) +M35/$N$42
P81   30
Q81   'MAR
R81   (F4) 0 424548
S81   (F4) 0 338453
T81   (F4) 0 082819
U81   (F4) 0 133477
V81   (F4) 0 019665
W81   (F4) 0 999273
A82   31
B82   'APR
C82   (F4) +C36/$M36
D82   (F4) +C82*$N82
F82   (F4) +E36/$M36
F82   (F4) +E82*$N32
G82   (F4) +G36/$M36
H82   (F4) +G32*$N82
I82   (F4) +I36/$M36
J82   (F4) +I82*$N82
K82   (F4) +K36/$M36
L82   (F4) +K82*$N82
N82   (F4) +M36/$N$42
P82   31
Q82   'APR
R82   (F4) 0 425106
S82   (F4) 0 338652
T82   (F4) 0 082868
```

Table I-2. CFSDT Disbursements Cell Formulas
(page 8 of 8 pages)

```
U82  (F4) 0 133556
V82  (F4) 0 01944
W82  (F4) 0 999609
A83  32
B83  'MAY
C83  (F4) +C37/$M37
D83  (F4) +C83**N83
E83  (F4) +E37/$M37
F83  (F4) +E83**N83
G83  (F4) +G37/$M37
H83  (F4) +G83**N83
I83  (F4) +I37/$M37
J83  (F4) +I83**N83
K83  (F4) +K37/$M37
L83  (F4) +K83**N83
N83  (F4) +M37/$N$42
P83  32
Q83  'MAY
R83  (F4) 0 424927
S83  (F4) 0 338644
T83  (F4) 0 082866
U83  (F4) 0 133552
V83  (F4) 0 01944
W83  (F4) 0 999601
A84  33
B84  'JUN
C84  (F4) +C38/$M38
D84  (F4) +C84**N84
E84  (F4) +E38/$M38
F84  (F4) +E84**N84
G84  (F4) +G38/$M38
H84  (F4) +G84**N84
I84  (F4) +I38/$M38
J84  (F4) +I84**N84
K84  (F4) +K38/$M38
L84  (F4) +K84**N84
N84  (F4) +M38/$N$42
P84  33
Q84  'JUN
R84  (F4) 0 425015
S84  (F4) 0 337842
T84  (F4) 0 08386
U84  (F4) 0 133235
V84  (F4) 0 019499
W84  (F4) 0 999453
A85  34
B85  'JUL
C85  (F4) +C39/$M39
D85  (F4) +C85**N85
E85  (F4) +E39/$M39
F85  (F4) +E85**N85
G85  (F4) +G39/$M39
H85  (F4) +G85**N85
I85  (F4) +I39/$M39
J85  (F4) +I85**N85
K85  (F4) +K39/$M39
L85  (F4) +K85**N85
N85  (F4) +M39/$N$42
P85  34
Q85  'JUL
R85  (F4) 0 425255
S85  (F4) 0 338033
T85  (F4) 0 083907
U85  (F4) 0 133311
V85  (F4) 0.01951
W85  (F4) 1.000002
A86  35
B86  'AUG
C86  (F4) +C40/$M40
D86  (F4) +C86**N86
E86  (F4) +E40/$M40
F86  (F4) +E86**N86
G86  (F4) +G40/$M40
H86  (F4) +G86**N86
I86  (F4) +I40/$M40
J86  (F4) +I86**N86
K86  (F4) +K40/$M40
L86  (F4) +K86**N86
N86  (F4) +M40/$N$42
P86  35
Q86  'AUG
R86  (F4) 0 425255
S86  (F4) 0 338032
T86  (F4) 0 083907
U86  (F4) 0.13331
V86  (F4) 0 01951
W86  (F4) 1
A87  36
B87  'SEP
C87  (F4) +C41/$M41
D87  (F4) +C87**N87
E87  (F4) +E41/$M41
F87  (F4) +E87**N87
G87  (F4) +G41/$M41
H87  (F4) +G87**N87
I87  (F4) +I41/$M41
J87  (F4) +I87**N87
K87  (F4) +K41/$M41
L87  (F4) +K87**N87
N87  (F4) +M41/$N$42
P87  36
Q87  'SEP
R87  (F4) 0 425255
S87  (F4) 0 338032
T87  (F4) 0 083907
U87  (F4) 0 13331
V87  (F4) 0 019104
W87  (F4) 1
```

ANNEX I TO APPENDIX I

INPUT DATA

I-I-1. **PURPOSE.** The purpose of this annex is to document the main program and runstreams used to capture the TOA billing data from the TOA billing tapes for input into the Monthly Billing Estimates Model. Detailed program coding of the program used to capture TOA billing data appears in Annex II to Appendix I.

I-I-2. **MAIN PROGRAM**

a. Overview

(1) Name of Program. 99BILLING.PROCESS

(2) Type of Program. MAIN PROGRAM

(3) Purpose. The program aggregates monthly billing costs (in dollars) by month of service rendered. The program audits this cost matrix by accumulating the total number of records that correspond to the cost sums by billing and service month. Each TOA was processed separately over the 18-month billing period from October 1983 to March 1985.

b. Calls, Input, and Output Files

(1) Calls. NTRAN$, LSTAT, PARAM

(2) Input Files. Unclassified * 99INPUT10
Magnetic tape

(3) Output Files. Printer

(4) Temporary Files. UNITs 5, 6, 10

I-I-3. **PROGRAM LOGIC.** The 99BILLING.PROCESS program consists of a main routine plus two internal subroutines. The internal subroutine PARAM stores data from the input file 99INPUT10. for use by the main routine. The other internal subroutine, LSTAT, checks the status of the external subroutine, NTRAN$, after one block of data (30 records) has been read from the billing tape.

a. PARAM stores data from 99INPUT10. for later use by the main routine. The first record of 99INPUT10. consists of a list of TACs that will be loaded into the array ACCEPT, sorted by TOA. Those TACs that are accepted are subsequently used in the main routine to test the TAC of the current record before processing. TACs that match those in ACCEPT or that match the form: 'AP**' or 'AH**', with * indicating any character, are accepted.

b. The second record of 99INPUT10. consists of the list of 18 billing dates to be used in the main routine to match against the billing files

used for the study. The third data segment of 99INPUT10. consists of the year and month of the 42 service dates considered in the study. Any date earlier than 81/10 is entered as "(m)".

c. The number of files to be read from a given billing tape is loaded into the variable NFILES from INPUT UNIT 5; also, the variable NOLAB is set to 1 if the billing tape has no labels, in which case the appropriate billing dates for that tape follow in the runstream and are read from UNIT 5. If NOLAB is set to 0, the billing dates are read from the header before each billing file. In order to address a format error found on some billing tapes, the program converts the three month characters to the correct date.

d. Blocks of 30 records are then read from the billing tape and decoded from EBCDIC to ASCII with a conversion of the character variable AMOUNT to the signed real variable FAMT.

e. The processing of each record entails the following:

(1) Test the TAC of the record and accept if appropriate.

(2) Build the "COST" and "AUDIT" matrices.

(3) Sum all costs accepted into the variable SUM.

(4) Count all accepted records into the variable ACPTNO.

(5) Total the number of all accepted records, by billing date, into the variable TOTAL.

I-I-4. INPUT FILE

a. **General**

(1) **File Name.** 99INPUT10.

(2) **Type.** Formatted SDF ASCII disk file.

(3) **Description.** The file is used to input the following different types of data used by 99BILLING.PROCESS:

(a) Accept TACs.

(b) Billing dates.

(c) Service dates.

(4) **Edit.** Data is edited into the file by the analyst.

(5) **Usage.** File used by 99BILLING.PROCESS.

b. File Description

(1) Accepted TACs

Accept Col. 1-4	Character	TACs to be loaded into the array ACCEPT
Keep Col. 7 (MAC) or Col. 10 (MSC) or Col. 13 (MTMC)	Character	If any character in the appropriate field for the agency is being processed, then do not store the TAC in ACCEPT array

(2) Billing Dates

BDATA Col. 1-5	Character	18 Billing dates that range from Oct 83 to Mar 85 (Oct 85 to Mar 85)

(3) Service Dates

SDATA Col. 1-4	Character	42 Service dates that range from Oct 81 to Mar 85 (8110 to 8503)

I-I-5. RUNSTREAMS FOR 99BILLING.PROCESS. The main program 99BILLING.PROCESS is set to read up to three standard transportation billing tapes consecutively in one execution. However, the current runstreams only read one billing tape per execution. Therefore, the variable NREELS is set to 1 to disable the loop to handle a multireeled execution. In order to execute this loop, first assign extra reels to the run using UNITs 7, 8, and 9, then change the 1 to a 3 on the line just below the @XQT statement. Finally, add two more lines to the runstream listing the number of data files per reel followed by a zero for labeled reels or a one for unlabeled reels. The parameter file 99INPUT10. may need to be edited to update the service and billing dates. A row of 9s marks the end of each record in 99INPUT10.

ANNEX II TO APPENDIX I

COMPUTER PROGRAM TO EXTRACT TOA BILLING DATA

Table I-II-1. Computer Program to Extract TOA Billing Data (page 1 of 4 pages)

```
UNCLASSIFIED*LEBILLING(1),PROCESS(5)
      1       C          PROGRAM TO READ THE STANDARD TRANSPORTATION BILLING TAPES
      2       C          RECEIVED FROM USAMSSA FOR MAC,MIMC & MSC SERVICES
      3       C          WRITTEN BY ROSE A. BROWN AND KIRK REED,  FSL  AUG 15, 1985
      4       C
      5       C           CFSDT STUDY ANALYSIS
      6       C
      7             DIMENSION
      8            +    DATAIN(900),    HDR(30)
      9             CHARACTER
     10            +    ACCEPT(170)*4,  AGENCY*4,       ALPHA1(11)*1,   ALPHA2(11)*1,
     11            +    ALPHA3(11)*1,   AMOUNT(30)*8,   BDATA(18)*5,    BDATE*5,
     12            +    CUBE(30)*4,     ERROR(30)*5,    PCD(30)*3,      POE(30)*3,
     13            +    RATE(30)*5,     SDATA(43)*4,    SDATE(30)*6,    TAC(30)*4,
     14            +    TCN(30)*17,     WT(30)*5
     15             REAL
     16            +    COST(18,43),    FAMT(30),       SUM
     17             INTEGER
     18            +    ACPTNO,         ALL,            AUDIT(18,43),   B,
     19            +    COUNT,          IN,             INDEX,          IUNIT,
     20            +    L,              NFILES,         NOLAB,          NREELS,
     21            +    S,              SIGN,           TOTALL(18)
     22             DATA ALPHA1 /'?','A','B','C','D','E','F','G','H','I',' '/
     23             DATA ALPHA2 /'-','J','K','L','M','N','O','P','Q','R',' '/
     24             DATA ALPHA3 /'0','1','2','3','4','5','6','7','8','9','0'/
     25       C
     26       C       LOAD ALL PARAMETER ARRAYS
     27       C
     28             CALL PARAM
     29       C
     30       C       MULTI-REEL LOOP (DISREGARD IF ONLY PROCESSING ONE REEL: NREELS=1)
     31       C       ********************************************************************
     32       C
     33             DO 2300 LOOP=1,NREELS
     34       C
     35               READ (5,100) NFILES,NOLAB
     36         100   FORMAT (I2,2X,I1)
     37       C
     38       C       REWIND REEL AND WRITE HEADINGS
     39       C
     40               CALL NTRANS (IUNIT,10,22)
     41               WRITE (6,200) AGENCY
     42         200   FORMAT ('1',T40,'CFSDT - STANDARD TRANSPORTATION BILLING PROGRAM
     43            +   FOR ',A4,//)
     44       C
     45       C       MAIN PROCESSING LOOP ***************************************
     46       C
     47               DO 2200 COUNT=1,NFILES
     48       C
     49       C       READ HEADER FOR BILLING DATE
     50       C
     51                  IF (NOLAB.EQ.1)  THEN
     52                    READ (5,300) BDATE
     53         300        FORMAT (A5)
     54                  ELSE
     55                    IF (COUNT.EQ.1) CALL NTRANS (IUNIT,2,30,HDR,L,22)
     56                    CALL NTRANS (IUNIT,2,30,HDR,L,22)
     57                    DECODE (21,400,HDR) BDATE
     58         400        FORMAT (16X,A5)
     59                  ENDIF
     60                  IF (BDATE.EQ.'UNE84') BDATE='JUN84'
     61                  IF (BDATE.EQ.'ULY84') BDATE='JUL84'
     62                  IF (BDATE.EQ.'EPT84') BDATE='SEP84'
     63       C
     64                  WRITE (6,500) BDATE,COUNT
     65         500      FORMAT (/,' BILLING DATE = ',A5,' FOR DATA FILE #',I2,/)
     66       C
     67       C       TRANSLATE BILLING DATE INTO INTEGER SUBSCRIPT
     68       C
     69                  DO 600 N=1,18
     70                    IF (BDATE.EQ.BDATA(N)) B=N
     71         600      CONTINUE
     72       C
     73       C       PRINT HEADING FOR RECORDS (DELETE IF PROCESSING WHOLE REEL)
     74       C
     75       C       WRITE(6,650)
     76       C 650   FORMAT(' TAC',T7,'TRANS CONTROL #',T26,'SDATE',T36,
     77       C    +   'POE',T44,'POD',T50,'WEIGHT',T58,'CUBE',T66,'RATE',
     78       C    +   T75,'AMOUNT',T82,'ERROR',/)
     79       C
     80       C       POSITION TAPE PAST HEADER EOF MARK
     81       C
```

Table I-II-1. Computer Program to Extract TOA Billing Data (page 2 of 4 pages)

```
82                IF (NOLAB.NE.1) CALL NTRANS (IUNIT,8,1,22)
83          C
84          C       LOOP TO READ AND PROCESS EACH BLOCK OF DATA ****************
85          C
86            700     CALL NTRANS (IUNIT,2,900,DATAIN,L,22)
87                    IF (L.LT.0)  THEN
88          C
89                      CALL LSTAT (L,IUNIT)
90                      GO TO 2100
91                    ELSE
92                      IN=IN+1
93          C
94          C       PRINT ALL BLOCKS OF DATA (DELETE IF PROCESSING WHOLE REEL)
95          C
96          C         WRITE(6,750) ALL,DATAIN
97          C 750     FORMAT(1X,I10,/,1X, 3(A4))
98          C
99                      DECODE (3600,800,DATAIN,LCHAR,ERR=1900) (TAC(J),TCN(J),
100               *      SDATE(J),POE(J),POD(J),WT(J),CUBE(J),RATE(J),AMOUNT(J),
101               *      ERROR(J),J=1,30)
102           800       FORMAT (30(A4,A17,3X,A6,12X,2(3,3X,A5,A4,A5,A8,A5,42X))
103         C
104           900       DO 1000 J=1,30
105                       IF (TAC(J)(1:1).EQ.' ')  THEN
106                         GO TO 2100
107                       ELSE
108                         ALL=ALL+1
109                       ENDIF
110           1000      CONTINUE
111         C
112         C       CONVERT RIGHTMOST CHARACTER OF AMOUNT (IBM SIGN BIT POSITION)
113         C       TO NUMERIC
114         C
115                     DO 1400 M=1,30
116                       SIGN=0
117                       DO 1100 N=1,11
118                         IF (AMOUNT(M)(8:8).EQ.ALPHA1(N))  THEN
119                           SIGN=0
120                           AMOUNT(M)(8:8)=ALPHA3(N)
121                         ENDIF
122                         IF (AMOUNT(M)(8:8).EQ.ALPHA2(N))  THEN
123                           SIGN=1
124                           AMOUNT(M)(8:8)=ALPHA3(N)
125                         ENDIF
126           1100          CONTINUE
127                         IF (AMOUNT(M)(8:8).LT.'0'.OR.AMOUNT(M)(8:8).GT.'9')  THEN
128                           WRITE (6,1200) AMOUNT(M),TAC(M),TCN(M)
129           1200            FORMAT ('  --WARNING AMOUNT = ',A8,' RIGHTMOST CHARACTER
130                *            SET = 0  FOR TAC = ',A4,'  AND TRANS CONTROL # = ',A17)
131                           AMOUNT(M)(8:8)='0'
132                         ENDIF
133                         DECODE (8,1300,AMOUNT(M)) FAMT(M)
134           1300          FORMAT (F8.2)
135                         IF (SIGN.EQ.1) FAMT(M)=-FAMT(M)
136           1400        CONTINUE
137         C
138         C         PRINT ALL RECORDS (DELETE IF PROCESSING WHOLE REEL)
139         C
140         C         WRITE(6,1450)(TAC(J),TCN(J),SDATE(J),POE(J),POD(J),
141         C    *          WT(J),CUBE(J),RATE(J),FAMT(J),ERROR(J),J=1,30)
142         C1450     FORMAT(30(1X,A4,2X,A17,2X,A6,  2(2X,A3,3X),2X,A5,2X,
143         C    *          A4,2X,A5,2X,F8.2,2X,A5,/))
144         C
145         C       LOOP TO PROCESS ONE RECORD AT A TIME ***************************
146         C
147                     DO 1800 J=1,30
148                       IF (((TAC(J)(1:2).EQ.'A3').AND.(AGENCY.NE.'MTMC')).OR.(TAC
149                *        (J)(1:2).EQ.'A5').OR.(TAC(J)(1:2).EQ.'A6'))  THEN
150                         GO TO 1600
151                       ELSE
152                         DO 1500 N=1,INDEX
153                           IF (TAC(J).EQ.ACCEPT(N)) GO TO 1600
154           1500          CONTINUE
155                       ENDIF
156                       GO TO 1800
157           1600        ACPTNO=ACPTNO+1
158         C
159         C       PRINT ALL ACCEPTED RECORDS (DELETE IF PROCESSING WHOLL REEL)
160         C
161         C         WRITE(6,1650)TAC(J),TCN(J),SDATE(J),POE(J),POD(J),
162         C    *          WT(J),CUBE(J),RATE(J),FAMT(J),ERROR(J)
163         C1650     FORMAT(1X,A4,2X,A17,2X,A6,  2(2X,A3,3X),2X,A5,2X,A4,
```

Table I-II-1. Computer Program to Extract TOA Billing Data (page 3 of 4 pages)

```
      C     *          2X,A5,2X,F8.2,2X,A5)
      C
                       DO 1700 I=1,42
                         IF (SDATE(J)(1:4).EQ.SDATA(I)) S=I
                         IF (SDATE(J)(1:4).LT.'811(*) S=43
       1700            CONTINUE
                       COST(B,S)=COST(B,S)+FAMT(J)
                       AUDIT(B,S)=AUDIT(B,S)+1
                       TOTAL(B)=TOTAL(B)+1
                       SUM=SUM+FAMT(J)
        1800         CONTINUE
                   ENDIF
      C
      C        DELETE NEXT LINE IF PROCESSING WHOLE REEL
      C           IF(IN.GE.25) GO TO 999
      C
                  GO TO 700
      C        END OF FILE: LAST DATA BLOCK FOR THIS BILLING MONTH
      C        ***************************************
      C
      C        DECODING ERROR MESSAGE
      C
        1900      WRITE (6,2000) IN,DATAIN
        2000      FORMAT (' ERROR IN DECODE OF DATA BLOCK #: ',I6,/,1X,30A4)
                  GO TO 900
      C        RETURN TO POINT OF ERROR AND CONTINUE
      C
        2100      IF (NOLAB.EQ.1) GO TO 2200
      C
      C        POSITION TAPE PAST TRAILER EOF MARK
      C
                  CALL NTRANS (IUNIT,8,1,22)
      C
      C        DELETE NEXT LINE IF PROCESSING WHOLE REEL
      C           CALL NTRANS(IUNIT,8,1,22)
      C
        2200    CONTINUE
      C        END MAIN PROCESSING LOOP
      C        ************************
      C
      C        DISREGARD NEXT TWO LINES IF ONLY PROCESSING ONE REEL
                IUNIT=IUNIT+1
        2300  CONTINUE
      C        END MULTI-REEL LOOP
      C        *******************
      C
                CALL OUTPUT
      C
                WRITE (6,2400)
        2400  FORMAT (' === END OF JOB ====')
      C
                STOP
      C         END MAIN ROUTINE **********************************************
      C         ***************************************************************
      C
      C         SUBROUTINES
      C
                SUBROUTINE PARAM
      C
                CHARACTER
               *    FMT(3)*10,     KEEP*1,        OK*4
                DATA FMT /'(A4,2X,A1)','(A4,5X,A1)','(A4,8X,A1)'/
      C
                IUNIT=7
                READ (5,100) AGENCY,NREELS
          100   FORMAT (A4,I1)
      C
                IF (AGENCY.EQ.'MAC ') N=1
                IF (AGENCY.EQ.'MSC ') N=2
                IF (AGENCY.EQ.'MTMC') N=3
      C
                INDEX=1
          200   READ (10,FMT(N),END=300) OK,KEEP
                IF (OK.EQ.'9999') GO TO 300
                IF (KEEP.EQ.' ')  THEN
                  ACCEPT(INDEX)=OK
                  INDEX=INDEX+1
                END IF
                GO TO 200
      C
          300   I=1
          400   READ (10,500,END=600) BDATA(I)
```

Table I-II-1. Computer Program to Extract TOA Billing Data (page 4 of 4 pages)

```
246          500 FORMAT (A5)
247              IF (BDATA(I).EQ.'99999') GO TO 600
248              I=I+1
249              GO TO 400
250        C
251          600 I=1
252              SDATA(43)=' (M)'
253          700 READ (10,800,END=900) SDATA(I)
254          800 FORMAT (A4)
255              I=I+1
256              GO TO 700
257          900 RETURN
258        C      END SUBROUTINE PARAM
259        C      **********
260        C
261              SUBROUTINE LSTAT (L,IUNIT)
262        C
263              CHARACTER
264             *    LMES(4)*20
265              DATA LMES/' TRANS NOT COMPLETE ',' END OF FILE ',
266             *' DEVICE ERROR ',' TRANS ABORTED '/
267        C
268              M=ABS(L)
269              WRITE (6,100) LMES(M),L,IUNIT
270          100 FORMAT (' === ',A20,I3,' ON UNIT ',I3)
271              RETURN
272        C      END SUBROUTINE LSTAT
273        C      **********
274        C
275              SUBROUTINE OUTPUT
276        C
277              WRITE (6,100) IN
278          100 FORMAT (' TOTAL # BLOCKS READ = ',I5)
279              WRITE (6,200) ALL
280          200 FORMAT (' TOTAL # RECORDS READ = ',I15)
281              WRITE (6,300) ACPTNO
282          300 FORMAT (' TOTAL # OF RECORDS ACCEPTED = ',I14)
283              WRITE (6,400)
284          400 FORMAT (' TOTAL # OF RECORDS ACCEPTED PER BILLING DATE:')
285              WRITE (6,500) (BDATA(I),I=1,18)
286          500 FORMAT (18(2X,A5))
287              WRITE (6,600) (TOTAL(J),J=1,18)
288          600 FORMAT (18(1X,I6))
289              N=1
290              DO 1200 J=1,3
291                WRITE (6,700)
292          700   FORMAT ('1',////,T50,'COST MATRIX (IN DOLLAR AMOUNTS)',//)
293                WRITE (6,800)
294          800   FORMAT (' \   MO.',//,' MO.\  OF'.//,' OF  \BILL',//,' SERV.\')
295                WRITE (6,900) (BDATA(I),I=N,N+5)
296          900   FORMAT (5X,6(5X,A5,5X))
297                DO 1100 II=1,43
298                  WRITE (6,1000) SDATA(II),(COST(K,II),K=N,N+5)
299         1000     FORMAT (1X,A4,6(1X,F14.0))
300         1100   CONTINUE
301                N=N+6
302         1200 CONTINUE
303              WRITE (6,1300) SUM
304         1300 FORMAT (//,'  SUM OF ALL MATRIX COSTS = ',F15.0)
305              N=1
306              DO 1700 J=1,3
307                WRITE (6,1400)
308         1400   FORMAT ('1',////,T50,'AUDIT MATRIX (IN NUMBER OF RECORDS)',//)
309                WRITE (6,800)
310                WRITE (6,900) (BDATA(I),I=N,N+5)
311                DO 1600 II=1,43
312                  WRITE (6,1500) SDATA(II),(AUDIT(K,II),K=N,N+5)
313         1500     FORMAT (1X,A4,6(1X,I14))
314         1600   CONTINUE
315                N=N+6
316         1700 CONTINUE
317              RETURN
318              END

@BK2,E
```

APPENDIX J

US ARMY MATERIEL COMMAND (AMC) LOGISTIC CONTROL ACTIVITY (LCA)

J-1. INTRODUCTION. The purpose of this appendix is to discuss the mission, functions, and organization of the Logistic Control Activity with respect to the long-term alternative discussed in Chapter 5 which would account for transportation costs on a transaction-by-transaction basis. LCA is considered the most promising organization for maintaining the data base necessary to implement the transaction-by-transaction accounting system because of the current data collection capabilities of LCA. Acronyms displayed in the figures and tables to this appendix but not defined in the narrative are defined in the Logistic Control Activity Regulation (LCAR) 700-2.

J-2. MISSION. The mission of LCA is to serve DA as the sole source in providing visibility of the total logistics pipeline, including supply, transportation, and retrograde of materiel in support of US Army forces worldwide.

a. LCA designs and provides recurring, exception, and prototype logistics performance reports and evaluations to all levels of Army management. It also provides independent management analysis support to HQDA, identifying actual or potential pipeline performance problems and submitting appropriate recommendations.

b. LCA performs supply requisition status reconciliation between the Standard Army Intermediate Level Supply System (SAILS), the Army Logistics Intelligence File (LIF), and the wholesale supply managers. In addition it can provide individual supply and movement status in a real-time query/response mode.

d. LCA has a mission to act as the DA Shipper Service Control Office. This includes the following tasks:

(1) Serve as the Army Airlift Clearance Authority.

(2) Serve as the Army focal point for processing mass cancellation requests.

(3) Provide for expediting, frustrating, or diverting Army-sponsored shipments when requested by a DA-approved source.

(4) Provide documentation for the reconstitution of lost, damaged, or destroyed Army sponsored shipments.

e. LCA develops and staffs procedures for DA and AMC cargo tonnage forecasts.

f. LCA also develops, maintains, and executes plans for support of DA-directed mobilization, emergency, and worldwide contingency operations management, to include AMC crisis plans.

J-3. ORGANIZATION. The Logistic Control Activity is organized along functional lines of responsibility. Figure J-1 illustrates the organizational structure. LCA is commanded by a senior Army logistician, and the command group includes a civilian Deputy Director.

a. The Logistics Readiness Division monitors movement of materiel and provides recurring reports to all levels of the Army as to the efficiency of the logistic system. This division also develops forecasts of overseas surface and airlift requirements, validates and clears air-eligible shipments into the military airlift system, validates special assignment airlift missions, and assists in maintaining the LIF. In addition, the Logistics Readiness Division conducts supply reconciliations with Army customers worldwide.

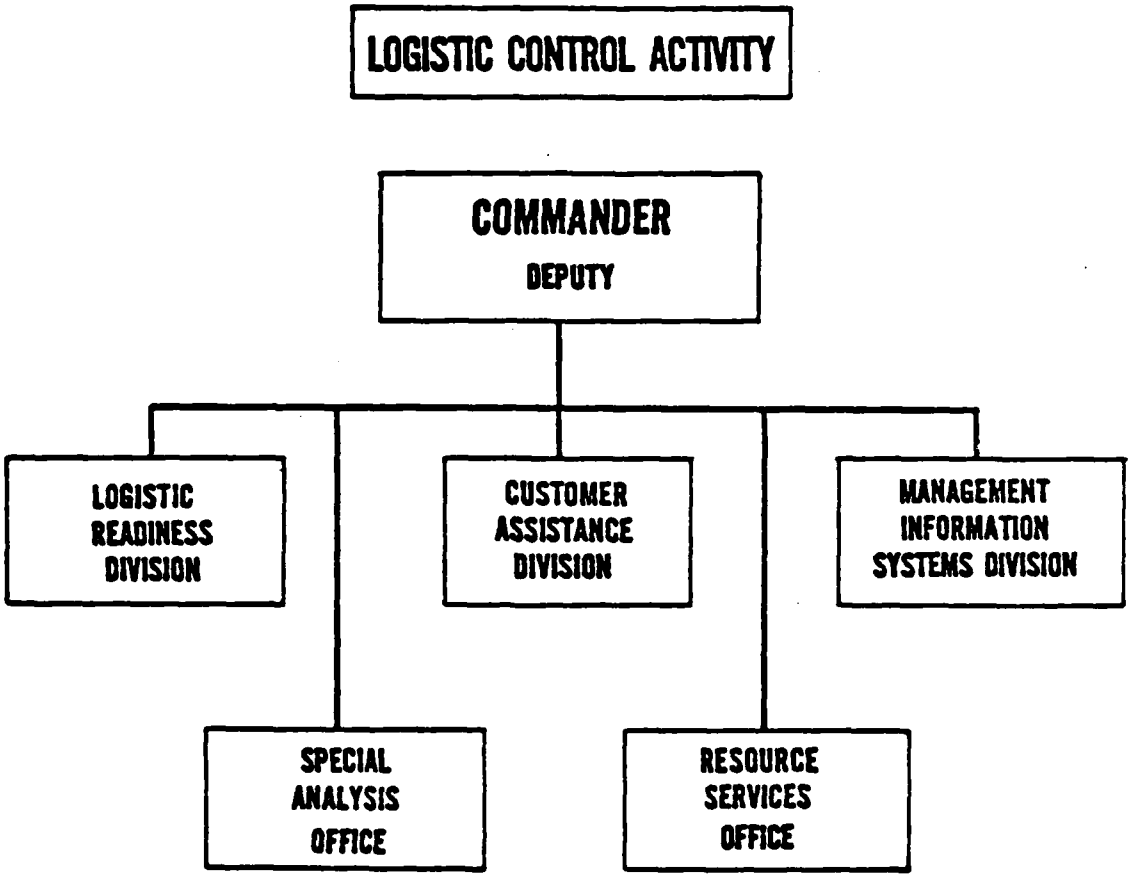


Figure J-1. Structural Organization of the LCA

b. The Customer Assistance Division functions as the point of contact for customers seeking information from the LCA. This division also has the responsibility of initiating frustration actions that result from cancellation requests on materiel moving in the Defense Transportation System (DTS), initiating mass cancellation actions upon request and monitoring supply actions relating to contingency support actions.

c. The Management Information Systems Division maintains the data base and develops, tests, and operates the various programs used by LCA.

d. The Special Analysis Office is comprised of operations research/systems analysts who conduct special logistic analyses and make recommendations to improve operations, increase efficiency, and optimize performance of Army logistic systems.

e. The Resource Services Office administers the budget and various special management programs in support of the functional elements and is responsible for internal supply and administration.

J-4. FUNCTIONS AND OPERATIONS. The primary mission of LCA is to analyze supply and transportation actions involving Army-sponsored requisitions placed on the wholesale supply system and reparables being returned to the wholesale system. This analysis is conducted within the operational framework and under the standards established by the Military Standard Logistics Systems. LCA operates 24 hours a day to accumulate data, post it to the data base, and provide access for customers. Close coordination is required with ODCSLOG, AMC commodity commands, DLA, General Services Administration (GSA), MTMC, MAC, other DOD agencies, commercial suppliers and carriers, and supply and transportation managers throughout the world.

a. Logistics Intelligence File (LIF). The LIF contains supply status, shipment status, and other information on requisitions. As Military Standard Requistion and Issue Procedures (MILSTRIP) documents flow through the Defense Automatic Addressing System (DAAS), image copies are routed to the LCA for establishment and or updating of LIF records. In addition, transportation receipt and lift data are transmitted daily to the LCA from Eastern and Western area MTMC headquarters, and MAC. This automated interface of supply and transportation data is used to update the LIF.

(1) The LIF is the only file that contains correlated supply and transportation data elements. Each record on the file consists of a basic portion that is an image of the transaction used to build the record plus additional management data extracted from ancillary files, i.e., the Activity Identification File and the Army Master Data File. LCA-computed coding and an additional portion of each record reflect key data elements reported on supply/transportation events that occur while the requirement is in the logistics pipeline. There are up to 15 of these additional portions (i.e., segments) that can be stored as partial supply or transportation actions taken against the shipment.

(2) The LIF Record Structure by data element is displayed in Tables J-2 and J-3. These figures are from LCA Regulation 700-2. The record consists of a "basic portion," data elements a(1) through (39) shown in Table J-1, and a variable number of "segments" (data elements b(1) through (28) and c(1) through (14) shown in Table J-2). The segments are one of two different lengths, depending upon the geographic location of the ultimate receiver, CONUS or overseas. Because fewer events are reported against a CONUS record than against an overseas record, the CONUS segment is the shorter of the two. Within this context, the segments themselves are fixed in length and variable in number up to a maximum of 15. The number of segments corresponds to the number of supply/transportation actions reported. Thus, if a requisition for a quantity of 25 were submitted and the supply action occurred in two increments, one for 10 and one for 15, there would be a basic portion containing an image of the requisition data elements (Table J-1(a) (1) through (29)). Then there would be one segment for the quantity of 10 and another segment for the quantity of 15. If the record were CONUS, each segment would consist of data elements from (1) through (28). If the record were overseas, each segment would consist of the same common data elements from (1) through (14). In this example there would be one LIF record in three parts (basic and two segments), each of fixed length. If the supply action had been in three increments, one for 8, one for 7 and one for 10, then there would be one LIF record in four parts (basic and three segments).

(3) When partial supply actions are first reported, they establish segments and, normally, subsequent events are reported against those same partials through receipt takeup by the receiver. The LIF can still monitor and record actions when this "normal" chain of events is disrupted. If, in the example of 25 items being supplied in two increments of 10 and 15 each, there had been notification that one of the increments had been reduced from 10 to 7, then a third segment would automatically be generated to cover the remaining 3. An example of this would be a Materiel Release Order for 10 being followed by a Materiel Release Confirmation for 7. A "dummy" segment would be built for the three and would wait for subsequent documentation.

(4) Shipment and consolidation actions act on the segments in a similar manner. To continue the example of the record for 25 items with three segments for 7, 3, and 15, if shipment status for 7 or 3 or 15 were received, it would post against the appropriate matching segment. The same is true for consolidation notification whether it posts before or after the shipment. If, however, the shipment status were for 10 (representing shipment of the 7 that were confirmed released plus the 3 that had initially been denied), then the shipment would post against the segment for 7 and the segment for 3. Again, consolidation notification would do the same. To complete the example of this record, if shipment status were received for 15, then it would post to the segment for 15. Then, if the subsequent consolidation represented a split of the shipment by the consolidation and containerization point (CCP), 10 going into one container with one TCN and 5 into another, the two transactions reporting this would cause the segment for 15 to split into two, one for 10 and one for 5. This is true regardless of whether the shipment were reported before or after the consolidation.

Table J-1. LIF Data Elements (basic record)

(a)	1.	DIC from transaction that built record
	2.	RIC from transaction that built record
	3.	Media and Status Code from transaction that built record
	4.	Stock Number from transaction that built record
	5.	Unit of Issue from transaction that built record
	6.	Quantity from transaction that built record
	7.	Requisition Number from transaction that built record
	8.	Demand Code from transaction that built record
	9.	Supplementary Address from transaction that built record
	10.	Signal Code from transaction that built record
	11.	Fund Code from transaction that built record
	12.	Distribution Code from transaction that built record
	13.	Weapons/Equipment Systems Designator Code or Type Requirement Code from transaction that built record
	14.	Project Code from transaction that built record
	15.	Priority Designator Code from transaction that built record
	16.	RDD from transaction that built record
	17.	Advice Code from transaction that built record
	18.	First Position of Supply Category of Materiel Code - class of supply (SMC) for the NSN that built record
	19.	Air Eligibility Code (AEC) for the NSN that built record
	20.	First three positions of MCSC Materiel Category Structure Code - MATCAT (MCSC) for the NSN that built record
	21.	Reportable Item Control Code (RICC) for NSN that built record
	22.	Unit Price
	23.	Geographic Area Code of DODAAC that built record
	24.	Overseas Corps Code or CONUS Command Code of DODAAC that built record
	25.	Overseas Corps Code (2 pos) or CONUS Installation Code of DODAAC that built record
	26.	DSS Indicator
	27.	ALOC Code
	28.	Date record established on LIF
	29.	Date of last update
	30.	First backorder date
	31.	First cancallation request date
	32.	Recoverability Code
	33.	Unit of Issue/NSN Change Indicator
	34.	Automatic Inquiry, Requestor Code
	35.	Date record completed (retired)
	36.	Effective date of area change of DODAAC that built record
	37.	New Geographic Area Code of DODAAC that built record
	38.	New Overseas Corps Code/New CONUS Installation Code of DODAAC that built record
	39.	Reconciliation Indicator

Table J-2. LIF Data Elements (segment)

Segment (CONUS and overseas)

(b)

1. Segment number
2. Posting date of latest transaction
3. Quantity
4. Suffix Code
5. Shipment Stock Number
6. Unit of Issue
7. Class of Supply (SCMC)
8. Air Eligibility Code (AEC)
9. Cancellation Request Indicator
10. Backorder Indicator
11. Confirmed Cancellation Indicator
12. Reject Indicator
13. Frustration Indicator
14. Status Code
15. Supply Status transaction date
16. Estimated ship date
17. Last Known Source (current) (LKS)
18. Last Known Source (prior) (ORI)
19. Materiel Release Order Date
20. Shipping Depot RIC
21. Denial Date
22. Depot Shipment Date
23. Mode of Shipment
24. Shipment TCN or GBL
25. POD/CRP Receipt Date
26. SSAR (DSU) Receipt Date
27. Master Inventory Record Posting (MIRP) Date
28. Shipment Status Indicator (elapsed days, depot ship date to LCA receipt date)

Segment Continuation, Overseas LIF

(c)

1. Segment number
2. Unit Materiel Fielding Point (UMFP)
3. PPP Ship Date
4. Consolidation/Containerization Point (CCP) Receipt Date
5. CCP Ship Date
6. ALOC Code
7. Intermediate TCN
8. Consolidated TCN
9. POE
10. POE Receipt Date
11. POE Lift Date
12. Voyage or Flight Number
13. POD
14. POD Forward Date

(5) The LIF record thus has one basic portion with appropriate segments providing visibililty of supply/transportation actions taken in varying combinations. These segments are fixed in length and allow space for the full sets of data elements. The data elements on the record reflect key events and event dates and codes from the reporting transactions. When transactions are matched to the file, only these key data elements are posted. Each segment tracks a partial supply action from inception to completion as a separate entity. When there is a complete supply action (all 25 in one increment), then there is only one segment.

b. Management Information System. The Management Information System at LCA is central to all other operations. The LCA currently operates 2 computer systems. LCA maintains an IBM 4341 with 12 megabytes of main storage and an IBM 370/158 with 7 megabytes of main storage. Each system shares 13 IBM 3380 high-density disk units and 16 magnetic tape drives. Presently, 12 of these tape drives are being upgraded to 6250 BPI for faster processing and greater storage capacity. Additionally, each system has one dedicated high-speed printer and the 370/158 has a card punch assigned. The LCA is currently processing at 85 percent CPU utilization, which is recognized as saturation within the data processing industry. In addition, the LCA will exceed its present disk storage capacity during the second quarter of FY 86. Planned upgrades in LCA data processing capabilities are required to maintain pace with current requirements and accomplish its new missions, such as the development and extension of Total Package/Unit Materiel Fielding and the Central Demand Data Base. Additionally, such key programs as the extension of the Bottoms-up Reconciliation Program worldwide; the development of a Centralized Materiel Obligation Validation process; the expansion of management reports for the Force Modernization Program; providing analysis of turn-ins for reparable items; and improvements of Materiel Returns Program will be greatly delayed or completely deleted if the LCA does not upgrade its present automatic data processing equipment (ADPE). Another visible area impacted is the improvement of Shipper Service Control, which coordinates the movement of Army-sponsored cargo, provides supply and shipment status, and reconstitutes shipments lost or destroyed in transit. This combination of ADPE maintains the LIF and Materiel Returns Data Base (MRDB) which consist of approximately 14,000,000 online master records, of which 5,000,000 are considered active. Additionally, there are 9,000,000 transportation type records of which 2,000,000 are maintained online. Transaction input to the LCA approximates 12,000,000 documents each month. The 370/158 provides direct support as a communications terminal receiving all MILSTRIP/MILSTAMP documents direct from the AUTODIN switch. LCA is the Army's largest AUTODIN user and continues to lead in the interface of ADP and telecommunications technology. This equipment supports all in-house program development; over 100 recurring production reporting systems; 600 remote terminals querying the LIF via the Defense Data Network (DDN), direct dial (commercial and AUTOVON), and AUTODIN Q/R with a monthly volume of 400,000 inquiries.

c. Movement and Transportation Services. Movement and transportation services include actions necessary to monitor and selectively coordinate, expedite, and report on the movement of Army-sponsored cargo from the wholesale system to destination. LCA personnel analyze transportation performance which could impact the distribution of suppliers through the logistic pipeline. In addition, LCA is authorized to communicate directly with the DA, ODCSLOG, USAMC, overseas commands, CONUS commands, and other commands concerning those matters which affect the movement of cargo. LCA maintains liaison with HQ Eastern Area and HQ Western Area MTMC. In-transit visibility of Army cargo is maintained and technical guidance, or assistance, is provided in correcting unsatisfactory conditions in shipment preparation, documentation, and identification.

(1) Transportation documentation is used to update the LIF. This makes it possible for LCA to arrange for, coordinate, monitor, control, or trace materiel movements. The LCA reports on the flow of Army-sponsored cargo into and through the DTS and can influence the volume of materiel that is shipped via premium transportation modes.

(2) The Cross-reference File (CRF) is the file that captures cargo movement information and, if possible, passes the information to a record in the LIF or the MRDB. The CRF is actually made up of two files: the Movements Master File (MMF), which was discussed in Chapter 5, and the TCN Requisition File (TRF). Both of these files are keyed to the TCN, unlike the LIF or MRDB which are keyed to document numbers (DON). The MMF records store cargo movement information and the TRF records perform the cross-reference function of the CRF by establishing a link between a TCN and a DON. Table J-3 lists the record data elements and definitions for the MMF and Figure J-2 displays the record layout. It is the MMF which would provide the most logical starting point in developing a file against which the TOA billing records could be matched. There are several considerations in using the MMF as it now exists. The records lack depth because they are purged after approximately 6 months and retired to a historical file. The MMF lacks breadth because it does not contain information on OCONUS shipments, i.e., shipments originating and ending outside the Continential United States. Finally, the MMF currently contains no cost data. As the bills for shipments between CONUS and overseas ports materialize, and the theater movement control agencies (MCA) overseas document their shipments using the Military Standard Logistics System, the current lack of breadth is correctable. By storing the files to a permanent memory source, perhaps for up to 3 years, the depth problem can be overcome, and finally the TOA rate tables are in an automated format and can provide the necessary costs to the MMF.

Table J-3. Movements Master File Data Definitions
(1 of 2 pages)

1. INQUIRY TCN. The Transportation Control Number to which the MMF record is keyed.

2. LATEST RQN. The last DON posted in the TRF that is associated with the inquiry TCN.

3. DIC. The Document Identifier Code of the transaction that built the MMF record.

4. I. Unprogrammed one position field.

5. M. The code for the transportation mode used to ship the materiel from the storage site.

6. P. Unprogrammed one position field.

7. A. Unprogrammed one position field.

8. CNSNEE. DODAAC of the consignee.

9. SHP POE. Port of Embarkation code from a shipment status transaction.

10. DATE SHPD. The date the materiel was shipped from the storage site. Posted from a shipment status transaction or an MRP shipment status transaction.

11. DATE PPPS. The date the materiel was shipped from the Materiel Fielding Point. (MFP was called Packaging Processing Point.)

12. CRPR/CCPS. Dual field. Either the date a CONUS shipment was received at the Central Receiving Point (CRP) or the date outbound materiel was received at the Consolidation and Containerization Point (CCP).

13. DATE FSTB. The LCA cycle date when the record was established on the MMF.

14. DATE LUPD. The LCA cycle date of the most recent event that updated the record.

15. NBR RQNS. The number of TRF records that are keyed to the inquiry TCN.

16. SEG CNT. The number of segments on the MMF record.

17. MNIFST. The identifying number of the air lift manifest.

18. CNSGNOR/CARRIER. Dual field. Either the consignor DODAAC or the carrier code.

19. AIRCRAFT/CNTAINER. Dual field. Either the aircraft number or the surface container number.

Table J-3. Movements Master File Data Definitions
(page 2 of 2 pages)

20. I. Segment number indicator. (Always a "1.")

21. POE. Port of Embarkation code.

22. POD. Port of Debarkation code.

23. POER. The date the shipment was received at the POE.

24. POEL. The date the shipment was lifted from the POE.

25. PCS. The number of pieces lifted under the inquiry TCN.

26. WT. The weight of the shipment lifted under the inquiry TCN.

27. CU. The cubic measurement of the materiel lifted under the inquiry TCN.

28. TAC. Transportation Account Code.

29. VOY/FLT. Dual field. Either the voyage number of a surface shipment or the flight number of an air shipment.

30. PODR. The date the shipment was received at the POD.

31. PODF. The date the shipment was forwarded from the POD.

32. TCN. A TCN that is related to the inquiry TCN: either the second TCN from a BBC, a TCN that ends in other than "X," or the new TCN from a ZWA.

33. I. This code indicates whether the related TCN is an intermediate TCN (I), a consolidated TCN (C), a new TCN (N) which has taken the place of the inquiry TCN, or a TCN with other than "X" in the seventeenth position (S).

34. CMDY. The commodity code of the materiel.

35. RES. Two position reserved field.

36. M. Lift mode

37. LUPD. The most recent date that information was posted to the segment (the LCA cycle date).

C7, LCAR 700-2
Chapter 4
31 March 1985

MOVEMENTS MASTER FILE STORAGE RECORD

INQUIRY TCN ①	LATEST RQN ②	DIC ③	I ④	M ⑤	P ⑥	A ⑦	CNSNEE ⑧	SHP POE ⑨	DATE SHPD ⑩	DATE PPPS ⑪	CRPR CCPS ⑫	DATE ESTB ⑬	DATE LUPD ⑭	NBR RQNS ⑮	SEG CNT ⑯	
SEG 01	MNIFST ⑰	CNSGNOR CARRIER ⑱	AIRCRAFT CNTAINER ⑲	I ⑳	POE ㉑	POD ㉒	POER ㉓	POEL ㉔								
SEG 02	PCS ㉕	MT ㉖	CU ㉗	TAC ㉘	VOY/FLT ㉙		POOR ㉚	POOF ㉛								
SEG 03	TCN ㉜		I ㉝	CNDY ㉞	RES ㉟	M ㊱	LUPD ㊲									
SEG 04 ↓ SEG 27																

This layout corresponds to the layout by card column at Figure 4.2(1a). This figure depicts the MMF storage record layout as it appears in functional test and as a response to a card inquiry (DIC ZMC, ZMD, or ZME) to the MMF. This format is not the format of the response to a CRT, AUTODIN, or dial-up TCN inquiry. Query/Response formats for the MMF are in Chapter 7.

Figure 4.02(1b)

* Refer to LCAR 700-2 for Figure 4.2(1a) and Chapter 7

Figure J-2. Movements Master File Storage Record

(3) LCA personnel perform the following wide range of movement/transportation services using these files.

(a) Arrange for the movement of special or high-priority cargo from CONUS supply sources through the DTS to overseas requisitioners. LCA personnel monitor and report on these shipments to ensure that the lift is accomplished expeditiously.

(b) Accomplish diversion of shipments, as directed, on Army cargo moving for export or retrograde.

(c) Compile and report transaction status and lift data on project coded materiel and other special projects as required.

(d) Develop procedures to ensure immediate and efficient response to frustrated or cancelled shipments and diversions to other modes of transportation.

(e) Establish responsibility for shipments and prescribe methods for identifying, scheduling, and clearing those shipments at CONUS air/surface terminals which are frustrated or unidentified because of documentation, erroneous information, or improper packaging or marking.

(4) The LCA serves as the Army Airlift Clearance Authority for all Army-sponsored shipments originating in CONUS and offered to MAC. After receipt of advanced TCMDs, LCA personnel evaluate and determine airlift eligibility of each shipment based on DOD and DA policy, and JCS guidance for control of premium transportation and airlift capabilities. LCA also coordinates with designated shipping activities and MAC to arrange for priority air movement by SAAM in order to expedite the shipment of materiel that is identified by the JCS, DA, AMC, or major commands.

d. Cargo Forecasting. LCA develops, in coordination with other Army activities, shipment tonnage forecasts of all Army-sponsored cargo movements worldwide. These forecasts are provided to AMC and DA for budgetary purposes and adjustments in obligations that have been programed for expenses incurred during cargo movement. Shipment tonnage forecasts are also used by the different TOAs to ensure that adequate air and surface resources will be available. A description of the long- and short-range forecast is found in Chapter 3, and a discussion of forecasting policy and guidance appears in Appendix D. The following paragraphs discuss LCA procedures and methodology for developing the consolidated short-range cargo forecast and providing feedback to the forecasting commands.

(1) LCA is responsible for developing the AMC short- and long-range air and surface overocean cargo forecast. LCA develops the DA short-range air and surface cargo forecast, and then monitors and provides feedback on actual versus forecasted tonnage. The AMC long-range forecasts are developed from input provided from the AMC commodity commands, consolidated at AMC, and forwarded to DA for inclusion with other MACOM long-range forecasts which are developed by LCA from input provided by the commodity commands. However, this AMC short-range forecast, along with the other reporting AMCOM forecasts (Figures J-3 and J-4), are consolidated at LCA to form the DA short-range forecast. The consolidated DA short-range forecast is then sent to the TOAs for the establishment of space requirements and to DA for the establishment of obligations. LCA then monitors and provides DA forecast/feedback reports to the reporting MACOMs.

(2) The formatted output of the short-range airlift forecast is shown in Figure J-5. This is the airlift forecast for the Dover to Frankfurt channel (DDV-FRF), troop support (TSP) cargo, FY 85. Depicted in row 3 of the center section are the August forecast of 1550 short tons and September 1500 short tons. Forecasts are made for October 1640 STON and November 1395 STON in the first row of the bottom section.

(3) Based on the rates established by the TOAs, the LCA then produces an aggregated estimate of the obligation by cargo program from the tonnage forecast. This is displayed in Figure J-6, the Sealift Obligation Report (SEALOB).

(4) The final task is to prepare feedback reports to the reporting commands and DA. This is accomplished by extracting the actual tons billed to the Army from the billing tapes and comparing those tons with the tons forecast. Figure J-7 displays the variances under the column headings "Forecast", "Lift", "Over/Under", by cargo program and by traffic area. The report is by air channel for airlift feedback. The feedback reports provide the reporting command a basis for adjusting their current forecasts.

e. Summary. The LCA currently has the most extensive data base on in-transit shipments of Army-sponsored cargo. By widening this data base to include OCONUS intra/intertheater shipments and expanding the data base to encompass a 3-year history, the data base should be extensive enough to cover shipments billed by the TOAs. The current hardware existing at LCA precludes the performance of additional tasks requiring CPU time. However, permanent memory is available for the storage of the expanded data base. Once the data base is established, many of the current report formats could be expanded to handle the additional channels or traffic areas. The procedures at LCA are aimed at tracking and reporting on the status or efficiency of the transportation system rather than the cost. Programs would require alteration to include cost factors. Some work has been done in this area already, as evidenced in the Sealift Obligation Report. In other areas, data links would be required between overseas commands and LCA to provide OCONUS shipment data. USAFAC would be required to report billings which are submitted directly and do not appear in the monthly billing tapes. While these problems are difficult, they are not insurmountable. The manpower requirement necessary to operate the system effectively is a major consideration. The number of transactions handled monthly demands a high degree of accuracy in the automated handling of data. If the bills must be reconciled manually, a great deal of time and coordination would be required between the accounting office and the shipper, TOA, and the recipient of the cargo.

REPORTING MAJOR ARMY COMMANDS AND STAFF AGENCIES

FORECAST MONTH

_____19____

AIR

			Date Rec'd	Cards	S/Tons
A231	BMC	Ballistic Missile Defense Systems Command			
A3C2	AFC	Armed Forces Courier Service			
A3C4	APS	Army Postal Service Agency			
A3H0	COE	Chief of Engineers			
A420	AMC	US Army Materiel Command, LCA			
A430	FRC	US Army Forces Command			
A440	SCC	US Army Communications Command			
A470	ASA	US Army Intelligence & Security Command			
A510	EUR	US Army Europe (4th Trans Bde)			
A522	JAP	US Army Japan			
A523	KOR	US Army Korea			
A526	HAW	US Army Support Command Hawaii			
A530	ALS	US Army 172d INF BDE (ALASKA)			
A540	CZC	US Army 193d INF BDE (CANAL ZONE)			
AX00	AFE	Army & Air Force Exchange Service			
			TOTALS		

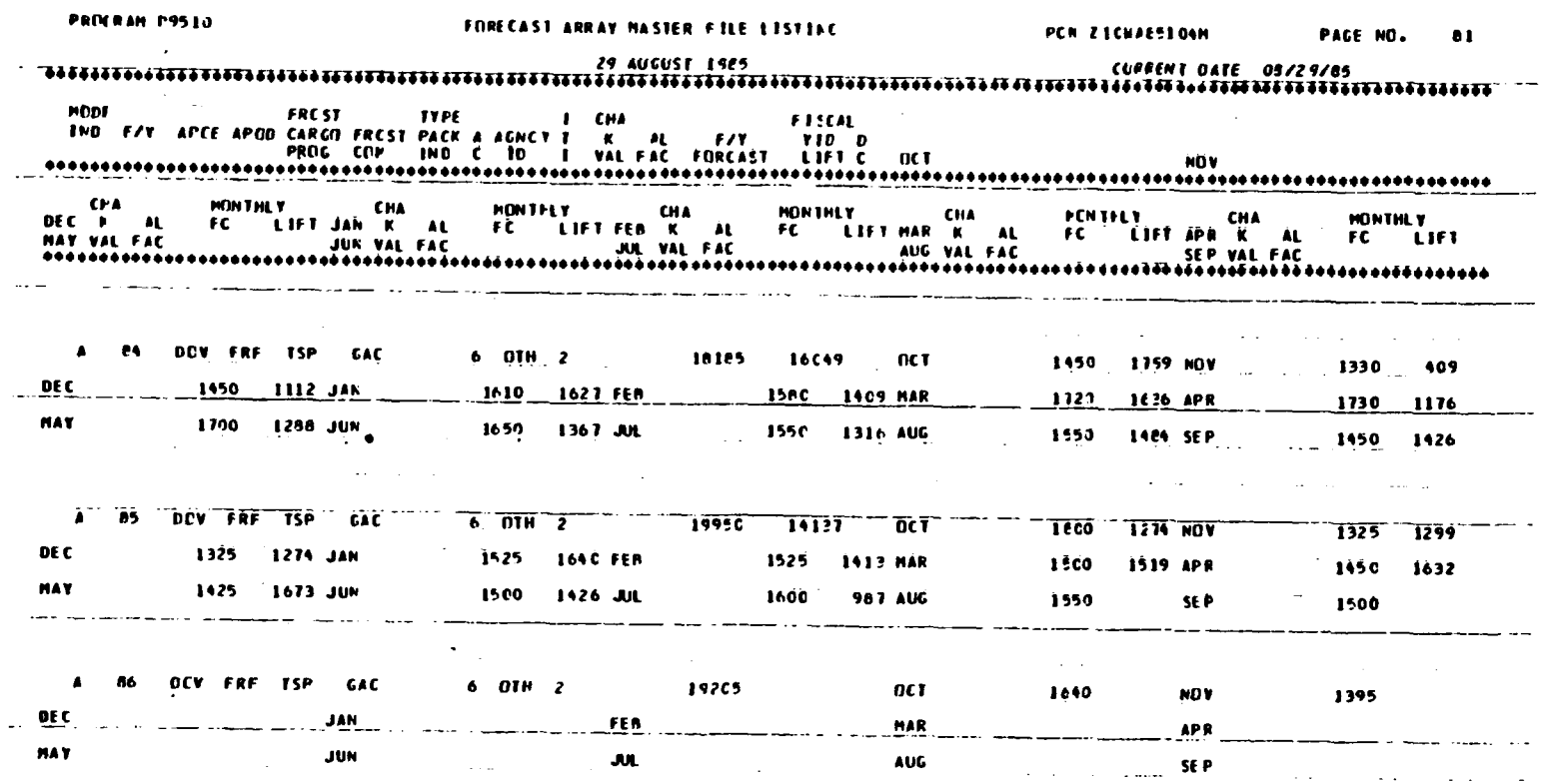
Figure J-3. Army Short-range Air Cargo Transportation Requirement Forecasts

REPORTING MAJOR ARMY COMMANDS AND STAFF AGENCIES

_____19_____

			DATE REC'D	CARDS	M/TONS
A231	BMC	BALLISTIC MISSILE DEFENSE SYSTEMS COMMAND			
A3C4	APS	ARMY POSTAL SERVICE AGENCY			
A3HO	COE	CHIEF OF ENGINEERS			
A420	AMC	US ARMY MATERIEL COMMAND, LCA			
A430	FRC	US ARMY FORCES COMMAND			
A510	EUR	US ARMY EUROPE (4TH TRANS BDE)			
A510	EUR	US ARMY EUROPE (INSTL SPT ACTV-ENERGY CEN)			
A522	JAP	US ARMY JAPAN			
A523	KOR	US ARMY KOREA			
A526	HAW	US ARMY SUPPORT COMMAND HAWAII			
A530	ALS	US ARMY 172d INF BDE (ALASKA)			
A540	CZC	US ARMY 193d INF BDE (CANAL ZONE)			
AX00	AFE	ARMY & AIR FORCE EXCHANGE SERVICE			
		/TOTAL/			

Figure J-4. Army Short-range Surface Cargo Transportation Requirements Forecast



PROGRAM P9510 FORECAST ARRAY MASTER FILE LISTING PCN Z1CHAE5104M PAGE NO. 81

29 AUGUST 1985 CURRENT DATE 09/29/85

MODF IND	F/Y	APCE	APOD	FRCST CARGO PROG	FRCST COM	TYPE PACK IND	A C	AGNCY ID	I T I	CHA K VAL	AL FAC	F/Y FORECAST	FISCAL VID LIFT	D C	OCT	NOV	DEC	CHA P VAL	AL FAC	MONTHLY FC	LIFT	JAN	CHA K VAL	AL FAC	MONTHLY FC	LIFT	FEB	CHA K VAL	AL FAC	MONTHLY FC	LIFT	MAR	CHA K VAL	AL FAC	MONTHLY FC	LIFT	APR	CHA K VAL	AL FAC	MONTHLY FC	LIFT	MAY	JUN	JUL	AUG	SEP
A	84	DCV	FRF	TSP	GAC	6	OTH	2				18185		16049	OCT																																			
																1450	1759	NOV																															
DEC			1450	1112	JAN		1610	1627	FEB				1580	1409	MAR																																		
																1320	1636	APR																															
MAY			1700	1288	JUN		1650	1367	JUL				1550	1316	AUG																																		
																1550	1484	SEP																															
A	85	DCV	FRF	TSP	GAC	6	OTH	2				19950		14137	OCT																																			
																1600	1274	NOV																															
DEC			1325	1274	JAN		1525	1640	FEB				1525	1413	MAR																																		
																1500	1519	APR																															
MAY			1425	1673	JUN		1500	1426	JUL				1600	987	AUG																																		
																1550		SEP																															
A	86	DCV	FRF	TSP	GAC	6	OTH	2				19205			OCT																																			
																1640		NOV																															
DEC					JAN				FEB						MAR																																		
																		APR																															
MAY					JUN				JUL						AUG																																		
																		SEP																															

Figure J-5. Forecast Array Master File Listing

PROG 9593
REPORT DATE 13 AUG 85

SEALOB
OAT MONTHLY MSC OBLIGATION REPORT

RIN 275MA80034M PAGE 1
FORECAST MONTH SEPTEMBER

PE 728010 (CONUS OUT/IN/INTER/INTRA)

	M/TONS	DOLLARS
TSP	252928	48,449,837
PPC	164517	30,992,398
ERS	553	55,311
APO	82565	16,281,445
OGA	5113	1,074,056
SAS	130	43,577
MCP		
CAP	50	3,050

MAP - - 1000.001

	OTHER CARGO		AND UNLY		TOTAL	
	M/TONS	DOLLARS	M/TONS	DOLLARS	M/TONS	DOLLARS
CONUS OUTBOUND	58	21,692			58	21,692
IN1						
R21	58	21,692			58	21,692
R31						
R41						
R51						
R61						
INTER / INTRA						
IN1						
R21						
R31						
R41						
R51						
R61						

Figure J-6. Sealift Obligation Report (SEALOB)

PROGRAM 9963 DA SURFACE CARGO FEEDBACK REPORT PCN Z10MA89630M 28 FEB 85 PAGE 162

AGENCY CODE: A920
AGENCY NAME: DARCOM
TRAFFIC AREA: 01 TO 17
CARGO PROG: TSP

MEASUREMENT-TONS
AS OF FEBRUARY
1985

MOVEMENT LEG: CONUS-OUTBOUND

COMM	TP PK	ACCUMULATIVE YEAR-TO-DATE FORECAST	LIFT	OVER/ UNDER	FEBRUARY (CURR) FORECAST	LIFT	%	OVER/ UNDER	JANUARY (PREV) FORECAST	LIFT	%	OVER/ UNDER	DECEMBER (PRIOR) FORECAST	LIFT	%	OVER/ UNDER
GEN	B	17222	16614	-608	1930			-1930	1890	469	2	-1930	846	1372	5	526
GEN	C	312316	85089	-227227	27870	5359	100	-22511	28957	20242	98	-8715	29579	27831	95	-2543
GEN	M		1723	1723						37		37		32		32
TOTAL		329538	103426	-226112	29800	5359	100	-24449	30855	20743	100	-10112	30979	28439	100	-1985
NHG	B															
NHG	C		104	104												
NHG	M															
TOTAL			104	104												
POV	B		11	11												
POV	C		99	99												
POV	M															
TOTAL			110	110												
SPC	B	240103	117237	-122866	28147			-28147	30359	8877	97	-21982	23945	9762	36	-19183
SPC	C	408	32014	31606		151	100	151		280	3	280		8560	64	8560
SPC	M															
TOTAL		240511	149251	-91260	28147	151	100	-27996	30359	9157	100	-21202	23945	18322	100	-10623

TRAFFIC AREA: 01 TO 17 MOVEMENT LEG: CONUS-OUTBOUND

Figure J-7. Surface Cargo Feedback Report

APPENDIX K

SPONSOR'S COMMENTS

DALO-RMB 1st End MAJ Giordano/phm/73224
SUBJECT: Centrally Funded Second Destination Transportation (CFSDT) Study

HQDA ODCSLOG (DALO-RMB) Wash, D.C. 20310-0505 25 MAR 1986

TO: Department of the Army US Army Concepts Analysis Agency, ATTN: CSCA-FSL
8120 Woodmont Avenue, Bethesda, Maryland 20814-2797

The requested study critique is attached.

FOR THE DEPUTY CHIEF OF STAFF FOR LOGISTICS:

1 Encl

JAMES T. BROWN
Deputy Director of
Resources and Management

STUDY CRITIQUE

(This document may be modified to add more space for responses to questions.)

1. Are there any editorial comments? Yes If so, please list on a separate page and attach to the critique sheet.

2. Identify any key issues planned for analysis that are not adequately addressed in the report. Indicate the scope of the additional analysis needed.

None

3. How can the methodology used to conduct the study be improved?

No comment

4. What additional information should be included in the study report to more clearly demonstrate the bases for the study findings?

None

5. How can the study findings be better presented to support the needs of both action officers and decisionmakers?

No comment

6. How can the written material in the report be improved in terms of clarity of presentation, completeness, and style?

See attached comments

STUDY CRITIQUE (continued)

7. How can figures and tables in the report be made more clear and helpful?

No comment

8. In what way does the report satisfy the expectations that were present when the work was directed?

It gives DALO-RMB a analytical tool for making more accurate estimates of fund obligations.

In what ways does the report fail to satisfy the expectations?

No comment. Satisfied all expectations.

9. How will the findings in this report be helpful to the organization which directed that the work be done?

Assist in removing the uncertainty in the forcasting of CFSDT obligations which will result in more efficient use of appropriated funds. Will assist in avoiding over/under-obligation of funds.

If they will not be helpful, please explain why not.

N/A

10. Judged overall, how do you rate the study? (circle one)

Poor Fair Average Good (Excellent)

No. 6 Comment.

1.	PAGE	PARAGRAPH
	V	3
	3-19	3-7 h
	3-20	3-8

These pages all refer to second destination transportation (SDT) funds not being separately identified in the Program 7 OMA program. This is not true. SDT funds are identified specifically by PE 728010, what is not identified is the overocean portion of 728010 (see AR 37-100-87, PE 728010).

2.	PAGE	PARAGRAPH
	3-7	3-5 b

DALO-DRM should read DALO-RMB.

NOTE: Errata changes listed above have been incorporated into report.

APPENDIX L

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GLOSSARY

ADP	automatic data processing
ADPE	automatic data processing equipment
AF	Air Force
AFB	Air Force base
AFLC	Air Force Logistics Command
AFP	Annual Funding Program
AMC	US Army Materiel Command
AMS	Army management structure
APOD	aerial port of debarkation
APOE	aerial port of embarkation
AR	Army regulation
ARB	Analytical Review Board
ASD(C)	Assistant Secretary of Defense (Comptroller)
ASIF	Airlift Service Industrial Fund
ATCMD	Advance Transportation Control and Movement Document
AUTODIN	automatic digital network
CAA	US Army Concepts Analysis Agency
CCP	consolidation and containerization point
CDCP	central data collection point
CFSDT	Centrally Funded Second Destination Transportation (study)
CGO	cargo
CHAN	channel
CIC	customer identification code
CMA	Centrally Managed Allotment

COMSC	Commander, Military Sealift Command
CONUS	Continental United States
CPU	central processing unit
CRF	Cross-reference File
DA	Department of the Army
DAAS	Defense Automatic Addressing System
DALO-RMB	Deputy Chief of Staff for Logistics, Resources and Management Directorate
DALO-TSP	Transportation, Energy, and Troop Support Directorate
DDN	Defense Data Network
DEST	destination
DLA	Defense Logistic Agency
DLSIE	Defense Logistics Studies Information Exchange
DOD	Department of Defense
DODAAC	Department of Defense activity address code
DOMA	Director of Operations and Management
DON	document number(s)
DRM	Director for Resources and Management
DSSN	disbursing station symbol number
DTIC	Defense Technical Information Center
DTS	Defense Transportation System
EEA	essential element(s) of analysis
ETADS	Enhanced Transportation Automated Data System (Air Force)
F&A	finance and accounting
FAD	funding authorization document
FDT	first destination transportation

FS	Fiscal Station
FY	fiscal year
GBL	Government bill of lading
GSA	General Services Administration
HQ	headquarters
HQDA	Headquarters, Department of the Army
ITMIS	Integrated Transportation Management Information System
ITO/DTO	installation transportation officer/depot transportation officer
JCS	Joint Chiefs of Staff
LCA	Logistic Control Activity
LCAR	Logistic Control Activity Regulation
LIF	Logistics Intelligence File
LOGAIR	Logistics Airlift Service
MAC	Military Airlift Command
MACOM	major Army command
MCA	movement control agency
MECHTRAM	Mechanization of Selected Transportation Movement Reports
MILSTAMP	Military Standard Transportation and Movement Procedures
MILSTRIP	Military Standard Requisition and Issue Procedures
MIPR	Military Interdepartmental Purchase Request
MMF	Movement Master File
MOD	miscellaneous obligation document
MRDB	Materiel Returns Data Base
MSC	Military Sealift Command
MSN	mission

MT, M/TON	measurement ton(s)
MTMC	Military Traffic Management Command
NAVSUPSYSCOM	Navy Supply Systems Command
OA	operating agency
OCOA	Office of the Comptroller of the Army
OCONUS	outside Continental United States
ODCSLOG	Office of the Deputy Chief of Staff for Logistics
OMA	operation and maintenance, Army
OMB	Office of Management and Budget
ORIG	origin
OSD	Office of the Secretary of Defense
PAD	Program Action Directive
PBD	Program Budget Decision
PE7D	Program element 7 direct funded
PE7G	Program element 7 gross or total
PE7R	Program element 7 reimbursable
POD	point of debarkation
POE	point of embarkation
PRB	Product Review Board
QUICKTRANS	Navy Cargo Airlift System
RTDPC	revenue traffic data processing center(s)
SAAM	special assignment airlift mission
SAILS	Standard Army Intermediate Level Supply Subsystem
SECDEF	Secretary of Defense
SDT	second destination transportation
SEALOB	Sealift Obligation Report

STS	scheduled truck service
TAC	transportation account code
TCMD	transportation control and movement document
TCN	transportation control number
TOA	transportation operating agency
TOLS	terminals of line system
TOT	total
TRF	TCN Requisition File
TSP	troop support
TWFS-I	Transportation Workload Forecasting Study - Implementation
UC	unit cost, or cost per short ton
USAFAC	US Army Finance and Accounting Center
USAMSSA	US Army Management Systems Support Agency
YTD	year to date

CENTRALLY FUNDED SECOND DESTINATION TRANSPORTATION (CFSDT) STUDY	STUDY SUMMARY CAA-SR-86-2

THE REASON FOR PERFORMING THE STUDY was to review and analyze the current transportation accounting systems for second destination transportation (SDT) and identify modifications to the current financial management process or develop new management tools that could enhance the ability to manage SDT.

THE PRINCIPAL FINDINGS of the work reported herein are as follows:

(1) There is little correlation between total dollars budgeted for overocean cargo and total tons of overocean cargo shipped. Budget estimates are based on fixed rates, but the actual charge may vary significantly from the fixed rate.

(2) The transportation operating agencies (TOA) may make changes to the initial routing or mode of transportation, causing variances in the cost of individual shipments. Also, the type of commodity affects charges.

(3) Overocean SDT funds are not identified specifically in the Operation and Maintenance, Army (P7) appropriation, thus tracking of overocean SDT funds is difficult since other funds are included in P7.

(4) Official billings lag shipments by about 4 months.

(5) Nonshipment charges amounting to approximately 2 percent of the SDT budget are not budgeted.

(6) A complete audit trail is not possible due to missing historical records and inconsistent financial accounting records.

(7) The Navy and Air Force SDT financial management systems have reduced the error rate in obligating SDT funds to a reported rate of less than 1 percent.

THE MAIN ASSUMPTIONS of this work are:

(1) Cargo rates derived for the current system will be applicable to the alternative system.

(2) Current SDT accounting systems for overocean SDT will be maintained.

(3) Department of Defense (DOD) Regulation 4500.32R, Military Standard Transportation and Movement Procedures (MILSTAMP), will remain in effect during the timeframe of the study.

THE PRINCIPAL LIMITATIONS of this work which may affect the findings are:

(1) Only overocean SDT cargo transactions were reviewed.

(2) Only data which reflect the current procedures in estimating obligations for overocean cargo shipments were used.

THE SCOPE OF THE STUDY included a review of Army and other service current transportation accounting systems and considered modifications and improvements to the Army system.

THE STUDY OBJECTIVES were:

(1) Determine problems associated with the current procedure for estimating obligations based on historical data, forecasted shipments, and bills received.

(2) Examine alternative solutions to the problem, evaluate these solutions, and provide recommended changes to the current Army SDT management information and reporting systems.

THE BASIC APPROACHES used in this study were to:

(1) Review the current Army SDT accounting system including the forecasting function, budget function, order initiation, preparation of shipment, shipment from depot, receipt at port, ship loading, billing, and reimbursement accounting.

(2) Review the other services' SDT accounting systems for possible application to the Army.

(3) Identify system improvements or alternatives.

(4) Develop a model which could be implemented in the near term to aid program managers at the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) to make more accurate forecasts of overocean SDT billings and disbursements throughout the fiscal year.

(5) Provide a methodology for an automated system to account for the obligation and liquidation of overocean SDT costs on a transaction-by-transaction basis.

THE STUDY SPONSOR was the Deputy Chief of Staff for Logistics, who established the objectives and monitored study activities.

THE STUDY EFFORT was directed by Kenneth R. Simmons, Force Systems Directorate.

COMMENTS AND QUESTIONS may be sent to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-FS, 8120 Woodmont Avenue, Bethesda, Maryland, 20814-2797.