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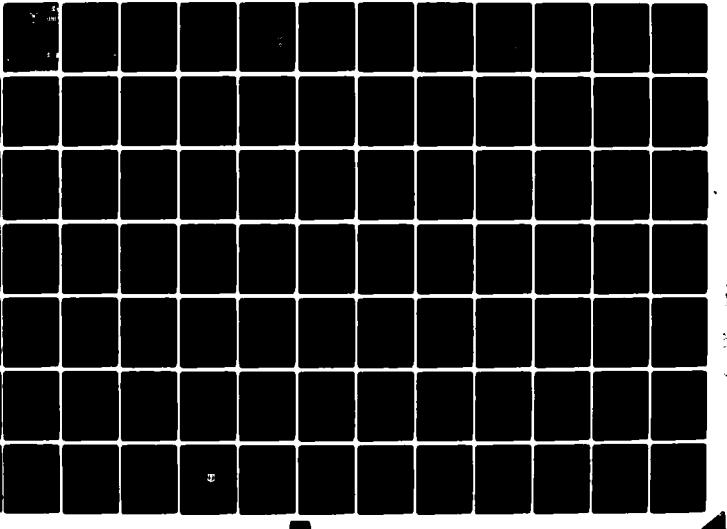

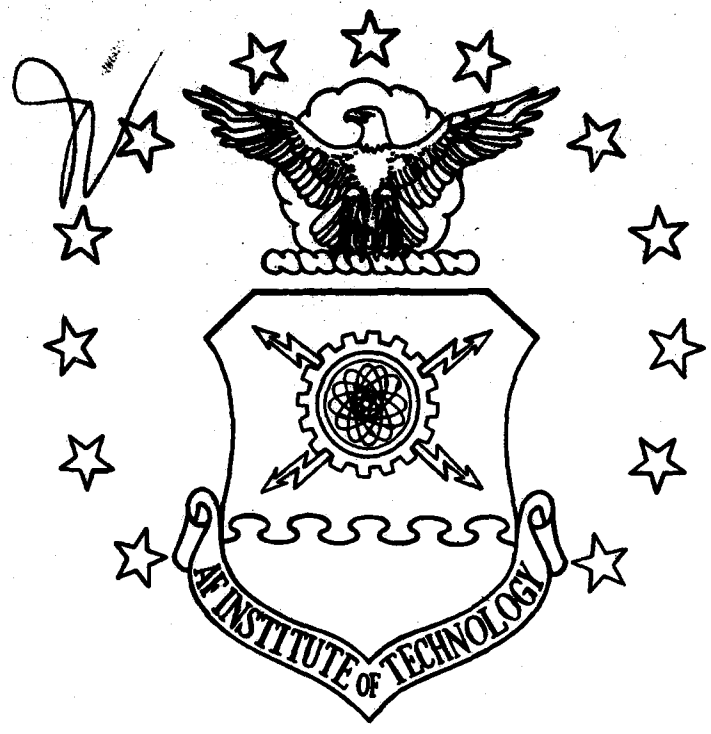

DEPARTMENT OF THE AIR FORCE

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CONUS-TO-COUNTRY PHYSICAL DISTRIBUTION SYSTEM FOR THE DANISH AND NORWEGIAN F-16 ASSETS

Captain Steven D. Kahne, USAF
Captain Lynn J. Willadsen, USAF

LSSR 29-80

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This study examined the physical distribution systems (PDS) established to transport Danish and Norwegian F-16 materiel from two CONUS locations through their respective freight forwarders. Emphasis was on the traceability of shipments within those PDSs. Each PDS was described in detail and analyzed with respect to identifiable problem areas, particularly those associated with the freight forwarders. Difficulties experienced by other freight forwarders, as reported in other US Government studies, were highlighted. Special attention went to assessing the traceability of shipments within the Danish and Norwegian PDSs. Different methods of establishing this traceability were examined. Suggested areas of further research were included.

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CONUS-TO-COUNTRY PHYSICAL DISTRIBUTION SYSTEM FOR THE DANISH AND NORWEGIAN F-16 ASSETS

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

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This thesis, written by

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TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Background

The subject of international arms trade has assumed importance in terms of both international affairs and US foreign policy. This importance is centered on the efforts of the US Government to limit and reduce the flow of weapons to foreign countries. The fact remains, however, that the level of US participation in international arms trade has grown tremendously in recent years to billions of dollars in total value. A recent report by the Comptroller General of the US indicates that despite the passage of the Arms Export Control Act (AECA), 1977 and President Carter's professed policy of unilateral limitation of conventional arms exports, the growth in sales of military materiel to foreign countries has continued relatively unabated (3:3).

Not all sales of military goods are subject to the limitations set forth in the AECA or President Carter's policy. The F-16 program, for example, involves the joint development and acquisition of the F-16 aircraft for the air forces of the US and four NATO allies. The total value of the project will run into the billions and, as such,

will be a major contributor to the growth in international arms trade.

In its role as a major world supplier of weapon systems, the US Government has found it necessary to formulate policies and guidelines which govern US Government involvement in the sales process. The sales process is generally referred to as Foreign Military Sales (FMS). One important aspect of this process is the building of a logistics base to support weapon systems once they have been put into operational use by the purchasing country. Several US Government agencies have published directives which provide guidance and procedures to be used in performing duties associated with FMS arrangements. Two such directives, Department of Defense Instruction (DODI) 2110.12 and Air Force Regulation (AFR) 75-43, deal with policies and guidelines affecting the materiel purchased under FMS arrangements and its movement from the US to the purchasing country. It is the transportation of FMS materiel from the US, and especially that relating to the F-16 program, that forms the basis of this study. Addressing the total subject of transportation of all F-16 assets to countries procuring the F-16, or even that dealing with all European countries involved, is beyond the reach of this analysis. Instead, the movements of Danish and Norwegian F-16 assets were examined. Since these two countries were the last two NATO allies originally scheduled to deploy the F-16

aircraft, an analysis of how their F-16 materiel was being transported would be helpful. Thus, if any problems, or potential problems were identified in this study, then resolution of those problems might be achieved before any serious impact on their F-16 deployment would be realized.

It is worth noting that earlier in the F-16 program, a serious problem was identified relating to the shipment of Belgian F-16 assets from the Continental United States (CONUS) to Belgium. A summary of the incident is adequate.

Early in 1977, the Belgian Government terminated contractual relations with their freight forwarder (see "Definitions"). A significant amount of their assets, however, continued to flow to this freight forwarder for a period of time after contract termination. Although the exact reason for this continued flow was not positively identified to the authors, discussions lead one to believe that notification of change of freight forwarders to all agencies who were shipping Belgian assets was less than timely. The net result was the accumulation of Belgian F-16 assets by their former freight forwarder.

Without a contract, this firm collected the Belgian shipments and stored them without further action. Investigations some time later identified this problem and the goods which had been "lost," were shipped to Belgium (42).

Although the Belgian Air Force apparently suffered little permanent adverse effects as a result of the delayed

shipment, it is not difficult to assume that this type of problem could appear again either for Belgium or any of the other F-16 procuring countries.

Problem Statement

Uncertainty exists regarding the adequacy of the Danish and Norwegian distribution systems established to transport their F-16 assets from the US to Europe. It is unknown whether these systems will provide sufficient intransit visibility and control to ensure timely delivery of F-16 materiel to Danish and Norwegian air forces. Reducing this uncertainty is paramount; the systems should be examined to determine their adequacy and identify problems, if any exist.

Definitions

It is necessary to define a number of terms prior to continuing any discussion.

AD1--output document from electrical communication system which serves as a "mechanical" notice of availability. Provides item information such as nomenclature, federal stock number (36:7-21; 37:39-1).

AD2--same as AD1 except shipping data is not included.

Assets--items of materiel such as spare parts.

Collect Commercial Bill of Lading (C/CBL)--a document endorsed by an agent of the shipper and carrier which

serves as a receipt for goods and a contract for carriage. In the latter role, the C/CBL "identifies the contracting parties (shipper and carrier) and prescribes the terms and conditions of the agreement [32:516]." This document is used for shipments which are transported in the commercial sector and transportation costs are paid from non-government funds by the agent receiving the shipment.

Consortium--the five-nation partnership (US and EPGs) acquiring the F-16.

DD Form 1348-1--DOD Single Line Item Requisition System Document. Contains requisition and shipping data for materiel purchased by customer country. Data include item nomenclature, stock number, destination, mode of transportation, carrier, and quantity.

Defense Contract Administration Services Materiel Area (DCASMA)--contract management office responsible for surveillance of DOD-related contracts within a specific geographical area.

European Participating Governments (EPG)--the four European governments originally involved in the acquisition management effort of the F-16 (Belgium, Denmark, The Netherlands, and Norway).

F-16--the multirole fighter aircraft developed by General Dynamics Corporation for sale to the US Air Force (USAF), Belgian Air Force (BAF), Royal Danish Air Force (RDAF), Royal Netherlands Air Force (RNLAF), and the

Royal Norwegian Air Force (RNAF) and other non-US air forces.

Foreign Military Sales (FMS)-- refers to the sale of military goods and services to non-US customers. This includes weapon systems and/or associated support equipment, spare parts and technical data.

Freight Forwarder--any person or firm which holds itself out to the general public as a common carrier to transport property for compensation. Services include assemblage, consolidation, and distribution of property from point of receipt to point of destination (19:258).

Military Standard Requisitioning and Issue Procedures (MILSTRIP)--DOD published procedures for use by FMS countries in preparing transactions for input to all US military logistics systems (MILSTRIP, Sup 2 DOD 4140.17-M).

Notice of Availability (NOA)--documentation provided by the supply source to notify the country representative or freight forwarder that materiel is ready for shipment and/or shipping instructions are needed (38:5-4).

Offer or Release Option Code--a code determined and used by the purchasing country to identify those items of materiel which must not be shipped by the supplying agency until that agency receives specific shipping instructions from the country's representative or freight forwarder (38:5-3).

Physical Distribution System (PDS)--for the purpose of this study, the term PDS is employed to describe the broad range of activities which include transportation, warehousing, inventory control, materiel handling, and customer service.

Priority Designator Code--code associated with an item requisition which dictates the precedence of internal (federal supply system) supply processing actions and delivery time standards. Code is a function of Urgency of Need and Force Activity Designator.

Project Manager Office--US Army organization responsible for managing the development, production, and acquisition of US Army related weapon systems. Includes an international division, if applicable. This organization performs a function similar to that of the USAF system program office.

Senior National Representative (SNR)--senior military officer representing the foreign government in the F-16 System Program Office (SPO). Represents the respective governments in program management activities carried out under the auspices of the F-16 SPO.

Statement of Work (SOW)--document used to identify general and specific requirements of a contractual agreement; outlines scope of effort and assigns responsibilities of parties concerned.

Support Equipment (SE)--equipment used to maintain weapon system components or provide other types of logistical support such as servicing and testing. Includes materiel previously identified as aerospace ground equipment (AGE).

System Program Office (SPO)--USAF organization established to manage the development, testing, production, acquisition, and deployment of a weapon system.

Traceability--traceability is the ability to locate an asset anywhere within the physical distribution system at any time.

Justification

As a participant in international arms trade, the United States bears a genuine interest in the success of major weapon system acquisition programs which involve the US as an active partner and procuring government. For example, the F-16 program is essentially a joint US-European venture promoting the development and acquisition of the F-16 for each national air force. An integral part of this effort is the establishment of a PDS to initially deploy and support the program for each country, as well as to form the basis for a PDS which provides follow-on support. A PDS which is inadequate to meet the needs of any of the participating countries would seriously impact the success of the F-16 program for that country. In the case

of the F-16, because the failure of any one of the five F-16 programs would reflect on the total effort, all of the partners have an interest in the success of the other F-16 programs.

Although not formulated exclusively for the F-16 program, Department of Defense Instruction (DODI) 2110.12 Shipment of Military Assistance Program and Foreign Military Sales Materiel, demonstrates that US Government desire to insure that FMS programs such as the F-16 meet with success. It also recognizes, however, that each participating country possesses inherent responsibilities to insure the workability of the F-16 program, and specifically to insure that each government establishes an adequate PDS to transport their F-16 assets from CONUS to in-country locations:

> Purchasing Country Self-Sufficiency. Basic DOD policy with respect to deliveries of Foreign Military Sales (FMS) materiel is that each procuring government shall be completely responsible for transportation and delivery of its own materiel. In application of this policy, each foreign government shall utilize its own contract or in-house agency to manage all aspects of transportation and delivery, from in-place source to ultimate in-country destination, and in accordance with U.S. laws, regulations and policy [40:7].

This policy attempts to preclude incidents such as the Belgian F-16 problem mentioned earlier and clearly delineates to DOD agencies and foreign governments alike their respective responsibilities. It is not difficult to recognize that problems can occur in other programs despite the best efforts of both governments. This analysis is a means

to identify any potential problems in this area for the Danish and Norwegian F-16 program so as to permit their timely resolution. This will help the US and each country to determine the degree of self-sufficiency in their F-16 PDS as referred to in DODI 2110.12.

During interviews with the Senior National Representatives (SNRs) for Denmark and Norway, the SNRs expressed interest in the basic objectives of this study and offered their support in reaching these objectives (5:24). Additionally, the Netherlands has recently expressed a desire to examine the possibility of establishing some type of asset-tracking system for their F-16 materiel (8). USAF personnel assigned to the F-16 System Program Office (SPO) are actively researching the possibility of finding a system appropriate to the needs of the RNLAF.

Research Objectives

Objective 1--analyze the distribution systems used by Denmark and Norway to transport F-16 program assets from the United States to the in-country debarkation point.

Objective 2--highlight the traceability of assets, or lack thereof, within these systems.

Objective 3--identify means of improving this traceability, if required.

Research Questions

1. What is the essential makeup of Denmark's and Norway's F-16 physical distribution systems?

   a. What are the primary modes of shipment used by each country?

   b. What function do freight forwarders perform in the management of the distribution systems?

2. What procedures exist in each country's distribution system which provide for tracking assets?

3. Are there potential tracking systems which could be applied to the Danish and Norwegian PDSs, if required?

   a. How do these various systems function?

   b. How do existing capabilities within the transportation industry itself provide for shipment traceability?

   c. Are there any innovative concepts which would provide for tracking shipments?

Literature Review

Despite the magnitude of the F-16 program, it appears that until recently little significant progress had been made in the area of systematizing movement of EPG F-16 assets from the CONUS to the European countries buying the F-16 aircraft. In fact, there has been essentially no effort to establish a control and tracking system for the transport of the majority of spares to any of the EPG

countries, at least through late 1979 (42). Since that time, official actions have been taken to investigate the feasibility and method of establishing a tracking system for the RNLAF F-16 physical distribution system. Consideration has been given, and in some cases action taken, to formally include requirements for such a system in future F-16 Letters of Offer and Acceptance (LOAs) (8). In previous investigations of asset-tracking systems relating to other programs, F-16 SPO personnel uncovered a system concept which applied to the Japanese P-3 Orion aircraft program. This system, as identified in an unsolicited proposal by Dynamics Research Corporation to the Aviation Supply Office in June 1979, outlined a system for tracking repair-and-return items by US commercial vendors. The proposal laid out general concepts whereby a system called GOLIATH (Generalized On-Line Logistics Inventory and Tracking Handling System) applied computer technology to the management of serialized repair items being transported to and from Japan and the United States. The proposal stated that

> The DRC (Dynamics Research Corporation) system incorporates direct communications, on-line, real-time data entry, retrieval and file update, and automatic dissemination of management information. This ensures total visibility and accountability for the location, movement, and status of foreign military assets returned to the U.S. for repair [31:iii].

The GOLIATH system, or a variation thereof, was eventually adopted for use for selected items in the Japanese P-3

Orion program. Although this proposed system is specifically designed for control of repair items, its applicability to management of EPG F-16 assets is obvious.

Another more generalized study, made by the US Air Force Logistics Command, provided concept design and requirements for a system establishing visibility/traceability for any FMS assets being transported to a purchasing country. The Shipment Control and Intransit Visibility System (SC&IVS), as it is called, utilizes electrical communication instead of computer-based technology for transmittal of vital shipping information between major nodes of the PDS (18:1). An important aspect of the SC&IVS is the minimal US Government involvement in the system: "[The SC&IVS] . . . is designed to be a stand-alone country operated or commercially contracted self-help system [18:1]." The GOLIATH and SC&IVS system will be examined in greater detail later in this analysis. Several other systems, including the Reporting Analysis Planning System (RAPS) by Northrop Corporation and the Support Equipment Acquisition Management Information System (SEAMIS) by Veda Incorporated, will also be addressed later.

Analyses by other groups, primarily US Government (USG) agencies, have examined the movement of FMS assets in other ways. A number of these studies were performed by organizations within the US Department of the Army and, as such, focused their efforts on the definition of problems

in Army-related FMS transactions and the associated transportation of assets thereto. Most of these studies found problems relating to freight forwarder operations. One such analysis, based on data collected by the USA Freight Forwarder Assistance Office, found that most problems were caused either by a lack of lines of communication or by the lack of direct communication with the US Army Security Assistance Center (30:1).

The study report summarized other findings in this manner:

> Transportation personnel at DCASMAs [see "Definitions"] often found incorrect or incomplete data had been inserted in contracts. This condition created the necessity for time-consuming and costly research with a variety of sources before essential information could be obtained. This, in turn, caused delay in shipment which, due to the high visibility factor of FMS, caused embarrassment to the U.S. government [30:1].

A report formulated by the New Cumberland Army Depot found significant difficulties in the area of freight forwarder management of incoming FMS assets. Particularly troublesome was the widespread lack of freight forwarder systems for documenting and controlling incoming shipments (12:1). The net effect of this was found to be an adverse impact on a purchasing country's ability to submit claims for loss and the inability of the freight forwarder to locate the country assets. The report pointed out that the additional administrative burden on the freight forwarder of property controlling incoming shipments would, if taken

by the freight forwarder, be realized by the FMS customer as an additional expense. Most FMS customers do not desire to incure this additional expense (12:2).

The General Accounting Office (GAO) also examined the idea of US Government involvement in the movement of FMS materiel and a paper showing its findings was published in the September 1979 issue of Chilton's Distribution Worldwide. This report, written by GAO Analyst John Cramsey, pointed out that the

> Department of Defense requested each foreign government to manage all aspects of transportation from source to ultimate destination in accordance with U.S. laws, regulations, and policy. In early 1976 DOD recognized that some foreign government delivery systems had not been operating satisfactorily and exceptions were granted [9:51].

Despite the provision for these exceptions, Cramsey pointed out that about 81 percent of some two million transactions analyzed, were delivery coded 4 (9:51). This essentially means that it is the responsibility of the purchasing country for the CONUS inland transportation cost and to establish subsequent transportation management.

The management of assets in FMS transactions entails many responsibilities, both on the part of the purchasing country and the US Government. It is not hard to understand, then, why the government seeks ways to delineate and separate those responsibilities. The Department of the Air Force, in its effort to clarify organizational responsibilities in FMS case management, establishes

policies and guidelines through publication of Air Force Regulation (AFR) 75-43, Transportation of Foreign Military Sales (FMS) Materiel. This regulation

> . . . establishes transportation policy and procedures for US military members who manage the FMS program of the US Air Force . . . and . . . tells how to transport FMS materiel through freight forwarders in the standard way, and also through the Defense Transportation System [38:i].

Before discussing policies and directives at the DOD level of government, several portions of this regulation merit further consideration.

The first chapter of AFR 75-43 very clearly defines and limits the scope of USG responsibilities and highlights the following points:

1. Each FMS recipient country must identify a freight forwarder to receive, process, and tranship their materiel.

2. Title and liability for FMS materiel become the responsibility of the purchasing country at the point of origin (US depot, contractor load facility, or location of sale if excess materiel) as well as responsibility for transportation costs from that point.

3. CONUS inland transportation is provided via commercial common carrier on a collect commercial bill of lading (except for Parcel Post, United Parcel Service, or Federal Express Corporation shipments (38:1-1).

The standard exceptions to this policy deal with classified, hazardous, or outsize cargo which necessitate special handling/transportation requirements.

Chapter II spells out the responsibilities of the purchasing country and those of the freight forwarder it chooses to manage the movement of its assets. Such items as export declaration and customs clearance, receipt and transhipment requirements, and purchasing country and freight forwarder responsibilities relative to follow-up on shipping status (tracer action) are specified. The latter responsibility forms the basis behind this analysis.

Two other subjects, offer or release codes and notices of availability (NOA), are important in the analysis and are addressed in Chapter 5 of AFR 75-43.

Many other subjects are covered by this regulation, but have little direct application to this analysis.

United States Government participation in the FMS process is certainly not limited to USAF-related weapon systems, but encompasses everything from tanks and shoulder-fired Dragon anti-tank missiles to naval patrol frigates and F-16 aircraft (41:1). Given that vast array of weapon systems and the associated physical distribution systems needed for their logistical support, DOD level guidance on US Government responsibilities is imperative. This guidance is provided in DOD Instruction (DODI) 2110.12, Shipment of Military Assistance Program and Foreign Military Sales

Materiel. For all practical purposes, DODI 2110.12 is the basic document from which AFR 75-43 stems and, as such, addresses the same major subjects in a more general manner. Although this regulation is not binding on any FMS customer, the purpose for which it is established is in the interest of both the US and the purchasing country.

The primary objective of these types of guidelines or regulations is twofold: first, clear definition of responsibilities is necessary to insure that the parties involved in the FMS physical distribution systems fully comprehend the scope and requirements of their tasks. Secondly, once the responsibilities have been identified, it is imperative that procedures be published which provide for adequate management visibility and control over the elements which make up the FMS physical distribution systems.

How an organization establishes this visibility and control can be answered in a number of ways, one of which is to formulate and use a management information system (MIS).

Gordon B. Davis, in his book Management Information Systems: Conceptual Foundations, Structure, and Development, defines an MIS as

> . . . an integrated, man/machine system for providing information to support the operations, management, and decision making functions in an organization . . . utilizes computer hardware and software, manual procedures, management and decision models, and a data base [10:5].

The MIS needed to meet the visibility requirement, or traceability as referred to in the research objectives, may not require sophisticated computer hardware and software or complex manual procedures and decision models. Nevertheless, analyzing the Danish and Norwegian F-16 physical distribution systems as they relate to asset traceability deals with the application of the concepts of management information systems to the matter of system management and control.

CHAPTER II

NORWEGIAN AND DANISH F-16 PHYSICAL DISTRIBUTION SYSTEMS

In initial discussions with the senior national representatives (SNRs) from Denmark and Norway, the limitations of the study to be undertaken were explained. The two primary constraints which governed the scope of the study were: (1) a desire by the SNRs and the researchers to minimize the cost of such an effort to their respective governments, and (2) a desire to minimize loss of academic time.

For these reasons, the research was limited to the physical distribution systems established from two major supply points in the US through the transhipment of assets by the freight forwarder (see Appendix A).

Adequate collection of data from all domestic F-16 suppliers/subcontractors who direct-ship to the Danish and Norwegian freight forwarders was considered virtually impossible and not worth the additional expense. Accordingly, the two locations chosen to represent the initial points of both the Danish and Norwegian F-16 PDSs were the General Dynamics Corporation in Ft. Worth, Texas (GD-FW) and the Ogden Air Logistics Center in Ogden, Utah (OO-ALC).

General Dynamics Corporation (Ft. Worth Division, Ft. Worth, Texas) and Ogden Air Logistics Center in Ogden, Utah were selected primarily for their roles in the F-16 program. General Dynamics (GD-FW) was the general contractor for the weapon system. In this role as prime contractor, GD-FW was responsible for coordinating and integrating the development, production, and deployment of the F-16 weapon system. This included materiel and support services provided by subcontractors and suppliers which were not contracted directly by any federal agency to support the F-16 program. Materiel of this type is commonly referred to as contractor-furnished equipment (CFE).

The management of F-16 CFE by GD-FW included the overall management of the shipment of CFE to the Consortium countries. Although GD-FW did not physically supervise all contractor or supplier shipments of CFE, it was responsible for insuring that these were accomplished in an appropriate manner. This was the key to the selection of General Dynamics-Ft. Worth as one initial element of the physical distribution systems.

Ogden Air Logistics Center (OO-ALC) was chosen as the other initial element of the Danish and Norwegian F-16 PDSs. As the prime ALC, it had the responsibility for the management of a majority of the government-furnished materiel used in support of the F-16 weapon system. This materiel is known as government-furnished equipment (GFE).

The OO-ALC not only managed these assets, but also was a major supply agency for F-16 materiel. For these reasons, OO-ALC was chosen as the other initial element of the physical distribution systems.

The other major entities of the Danish and Norwegian PDSs were the freight forwarders designated by each country. The Danish freight forwarder, C. J. Hanlon Co., Inc., was located in Brooklyn, New York and had represented Denmark for over twenty-five years (5). Norway, on the other hand, maintained three freight forwarders; one in San Pedro, California, one in New Orleans, Louisiana and one in Jersey City, New Jersey. The latter organization was Wilson's American Co., Inc. which represented two other organizations, Wilson American and Wilson Air Freight.

Since both countries use essentially the same PDS structure between GD-FW and freight forwarder and OO-ALC and the freight forwarder, these were addressed jointly. Freight forwarder operations were detailed separately.

General Dynamics-Ft. Worth and Subcontractors

Conversations with Mr. J. T. Jones, Chief of Traffic at General Dynamics-Ft. Worth (GD-FW) indicated that the shipment of goods for Denmark and Norway were essentially handled in the same manner as those for any other program (23). Items were packaged in accordance with US Government specifications and DD Forms 250 were prepared

for the items. Following inspection of the items, the US Government representative (AFPRO/QA) endorsed the DD Forms 250 indicating formal transferral of accountability and title to the US Government. It is important to understand that GD-FW maintained a contract with the US Government which, in turn, had legal arrangements with the Consortium countries through Letters of Offer and Acceptance for the F-16 program. Thus, the endorsement of the DD Forms 250 signified US Government acceptance on behalf of the particular foreign government. Actual title and accountability transfer, however, occurred when GD-FW had a signed DD Form 250 and released the item for shipment. It should be noted that US and Danish or Norwegian custom documents were generally made up by the freight forwarder, not GD-FW, except in the situation where direct in-country shipment was planned for the contractor facility. In this instance, GD-FW received authority from the country's embassy to use existing export license/s to prepare appropriate export documents.

Once items had been individually packaged, they were marshalled to holding areas where a pre-consolidation process grouped items according to contract number and destination. For example, Danish items procured under the F33657-76-C-0191 F-16 spares contract were consolidated in one area while the same items procured for Norway under the F33657-76-C-0191 contract were placed in a different holding

area. These items were further arranged to facilitate additional packaging into larger containers called multi-packs. This arranging had to consider the MILSTRIP priorities assigned to individual items to insure that a mixture of high priorities (MILSTRIP priority designators 01-08) and low priorities (09-17) did not occur within the multi-pack. Such a situation would have abrogated the purpose of the MILSTRIP priority system and violated AFM 67-1 (36:7-19). DD Forms 250 for these items were placed within the multi-pack and on the exterior of the shipping container. In addition, a color-coded label indicating the appropriate country, "Denmark," "Norway," etc. and a General Dynamics' reference number was used as a means to identify the multi-pack. This reference number could have been correlated with a listing of the items in the multi-pack, the latter of which is maintained in Traffic Department documentation files. The importance of this GD cross-referencing system will become more apparent when discussion turns to tracking shipments from the contractor in later chapters.

When the appropriate packaging and documentation were completed, the multi-packs were accumulated in holding areas identified by destination (i.e., Denmark or Norway) and awaited pickup by a representative from the carrier.

A majority of the items that were processed for the Danish and Norwegian F-16 programs were transported to the respective freight forwarders by motor carrier in

less-than-truckload quantities. The General Dynamics policy for selecting the carrier, whether air or motor, for non-US programs was as follows: if the country, through its freight forwarder, designated a carrier for any or all of its shipments, then that carrier would be used. Otherwise, GD-FW used past experience to select the most reliable and economical carrier. Some effort was made, however, to not always choose the same carrier so as to promote competition through variation. In both the Danish and Norwegian F-16 programs, the countries had not requested unitary carrier handling of their shipments.

GD-FW personnel prepared a collect commercial bill of lading (C/CBL) for the total shipment and presented this to the carrier representative. The carrier representative received the C/CBL and signed one copy of the packing sheet, as proof of receipt. This process also transferred liability for the assets to the carrier (32:516). Once the C/CBL was issued, information pertaining to the CBL was input to the GD Traffic Department documentation files and coordinated with other information pertaining to the items in the shipment.

The GD-FW Traffic Department also prepared items for shipment by other means, i.e., parcel post and by expedited delivery methods. Essentially, the packaging and documentation procedures for these items were the same as above, with minor exceptions. In the case of parcel post,

only the mode of shipment differed since these were also sent to the freight forwarder and only DD Forms 250 were prepared. For the expedited shipments, documentation procedures included GD-FW efforts to obtain export, licensing, and customs declarations for the US, Denmark, and/or Norway. These types of shipments were transported via the GD-FW Convair 880 aircraft directly from the contracting facility or through the freight forwarder. Mr. Jones stated that the present volume of expedited shipments for Denmark and Norway was low but that it was anticipated to increase dramatically after these countries deploy the F-16 (21).

Numerous suppliers and subcontractors make shipments directly to the freight forwarders. According to both Mr. Jones (GD-FW) and Mr. Guardia (AFPRO/QA at GD-FW), no suppliers or subcontractors were permitted to make direct shipments without GD-FW and AFPRO/QA authorization. This authorization was not given unless a review by GD-FW and AFPRO/QA personnel showed that the subcontractor met certain performance standards. These standards reflected government specifications for product quality, item packaging, and documentation. The GD-FW Traffic Department also required the subcontractor to conform to additional materiel handling and shipping procedures. If the subcontractor adequately met the government specifications and GD-FW requirements, it received authorization from GD-FW and AFPRO/QA to ship directly to the freight forwarder.

AFPRO/QA delegated its inspection and acceptance authority to the appropriate Defense Contract Administrative Service (DCAS) office (15).

Notices of Availability

Before describing the other elements of the Danish and Norwegian F-16 PDSs, it is necessary to discuss the use of notices of availability in those systems. As defined earlier in this analysis, a notice of availability serves to notify a recipient country's freight forwarder (or other addressee specified in the Military Assistance Program Address Directory--MAPAD DOD 5105.38D, section B) that an item is ready for shipment. The MAPAD addressee is required to provide immediate response to the shipping activity "to preclude extra storage and delays in movement," by giving shipping instructions (38:5-4). The NOA can be of two forms: a manual NOA on a DD Form 1348-5 and accompanying DD Forms 1348-1 or a mechanized NOA consisting of AD1 and AD2 cards (38:5-4). The key to the use of the NOA rests with the following three offer or release codes and the response time of the MAPAD addressee which the code signifies: Option Code "A"--no NOA is required and item is automatically shipped when ready; Option Code "Y"--an NOA is sent and item will be shipped on the fifteenth day following the date of the NOA unless alternate shipping instructions are received; Option Code "Z"-- an NOA is sent and shipment will be held pending receipt of instructions (38:A-15).

The Air Force Acquisition Logistics Division issued directives establishing offer or release codes for Denmark and Norway (Harvest Partner II dated 23 June 1977 and Harvest Partner IV dated 5 July 1977, respectively). The codes were "Option "Y" for Denmark and Option "A" for Norway (6). These codes, however, only applied to items shipped from government supply centers and not to the prime or subcontractors. In late 1979 or early 1980 the use of NOAs for Denmark items changed. The OO-ALC policy then required an NOA, dependent upon the shipment size and offer or release code (14). For example, given the following facts regarding an item which had been prepared for shipment by OO-ALC: the item was requisitioned on a routine priority; the weight of the item and dimensions of the shipping container prohibited carriage by Federal Express or United Parcel Service (UPS); the shipment offer or release code is "Y" or "Z". An NOA was issued. Under the new policy, if the item was small enough to be handled by small-shipment carriers such as UPS, it would have been shipped automatically (without issuance of an NOA) regardless of the offer or release code (25).

Ogden Air Logistics Center

The OO-ALC procedures provide for NOAs, if required. If a requisition is filled from inventory, OO-ALC Shipping Planning Branch (DSTRP) personnel receive two sets of the

DD Forms 1348-1, the second set of which indicates the national stock number, requisition number, supplementary address, and priority. This set is used by DSTRP as a suspense document until the item is shipped. The DSTRP personnel determine the mode of shipment based upon weight and cube of the item package.

If the shipment requires an NOA, the following procedure is followed: A "hold" label and the first set of DD Forms 1348-1 are sent to the packaging activity (DSTE) where the label is affixed to the packing container. The item is sent to the hold bay of the surface terminal (DSTS) and copies 1, 5, and 6 of the first set of DD Forms 1348-1 are returned to DSTRP. Upon receipt of these DD Forms 1348-1, DSTRP personnel complete a DD Form 1348-5. The second set of DD Forms 1348-1, the DD Form 1348-5, and copy 5 of the first set of DD Forms 1348-1 are sent to the freight forwarder (or MAPAD addressee) as an NOA. Upon receipt of shipping instructions DSTRP personnel annotate copies #1 and #6 of the first set of DD Forms 1348-1 with the mode of shipment, type of shipping container, priority and date of shipment and make a new shipping label. These documents are sent to DSTS; the shipment is re-labeled and released for shipment. The #6 copy is kept in DSTS with the C/CBL and the #1 copy is returned to DSTRP. Information from the latter copy is input to the computer-based requisitioning system to indicate a filled requisition.

The #1 copy is then filed in DSTRC. It is significant that this copy indicates the name of the carrier and C/CBL number. See Appendix B.

If an NOA is not required, the procedure is not as complex. DSTRP personnel prepare a shipping label and this and DD Forms 1348-1 are sent to the packaging activity. The item and documentation are sent to the surface terminal where the shipment is released. Copy #6 of the DD Form 1348-1 is kept at DSTS with a copy of the C/CBL and copies #1 and #5 are returned to DSTRP. Copy #5 and the second set of DD Forms 1348-1 are sent to the freight forwarder or other MAPAD addressee. The #5 copy indicates the carrier and C/CBL number and ideally is sent on the day of shipment release. Copy #1 is filed as before (25). See Appendix C.

This detailed description of the GD-FW and OO-ALC procedures provides a necessary foundation for later discussions relative to tracking or tracing systems.

Movement from GD-FW and OO-ALC

Several modes of shipment were identified earlier and can be summarized here. The vast majority of items released from GD-FW were moved on a collect commercial bill of lading via surface transportation (motor carriers) or C/CBL via air transportation, generally scheduled airlines. Some parcel post shipments and expedited shipments were made but did not represent a large

volume of traffic. GD-FW makes little use of the services of carriers such as Federal Express or Emery Air Freight for transporting F-16 assets (22).

Item transportation from OO-ALC was accomplished via C/CBL on motor carriers for surface movement. Federal Express services, however, were used in moving some small shipments to the freight forwarders (13). Some parcel post shipments were made.

Not all items in the Danish and Norwegian F-16 programs were shipped using the commercial sector. "Certain materiel cannot be moved by a freight forwarder or a common carrier because its nature requires that it be moved under US control [38:1-2]." This materiel includes "classified materiel, forearms, explosives, lethal chemicals, hazardous materiel, and air cargo that is too large for commercial airlift [38:1-2]." In such cases, the materiel can be moved via the Defense Transportation System (DTS) or by surface or air transportation owned, generated, or controlled by Denmark or Norway (35:3-1).

The DTS includes CONUS logistics airlift (LOGAIR), Military Airlift Command (MAC) airlift, Military Sealift Command (MSC) sealift, and commercial transportation arranged by the military service managing the materiel movement. Documentation requirements are different than those of the commercial sector; no CBL or government bill-of-lading (GBL) is prepared and notices of availability are not

required. Moreover, in accordance with AFR 75-43, the recipient country "must agree to accept Air Force delivery listings as the basis for billing and proof of delivery [38:1-3]." This is an important fact relative to inclusion of those Danish and Norwegian items moved in the DTS in any proposed PDS tracking system.

Freight Forwarders

Undoubtedly, the greatest control which Denmark and Norway had over their respective F-16 physical distribution systems was through the selection of their freight forwarders. As previously stated, Denmark's freight forwarder was C. J. Hanlon, Inc. located in Brooklyn, New York. Although Norway had three freight forwarders, the primary freight forwarder was Wilson's American Co., Inc. located in Jersey City, New Jersey.

C. J. Hanlon, Inc.

The procedures used by this freight forwarder were fairly straightforward. The following example describes how the operation was conducted.

Two shipments arrived at the Hanlon facility via motor carrier and were received by the freight forwarder by rendering payment to the carrier agent and exchanging a dock receipt for the C/CBL. Data from the documentation for the shipment (DD Forms 250 or DD Forms 1348-1) were used to annotate (manually) a receipt log. One of the shipments

was a single item shipped on a priority designator code 06 while the other was a consolidated shipment or multi-pack with a priority designator code of 09 (see "Definitions"). Hanlon Co. handled the former as a high priority item shipped to Denmark via air carrier. It was not held for consolidation, but was transhipped immediately. The multi-pack was broken down into the individual items which were subsequently repacked into twenty-two-cubic-foot containers. These containers were held in the warehouse and later were consolidated for shipment in a twenty-foot or forty-foot (linear dimension) surface transport container. One of these containers left Hanlon Co. for Denmark approximately once every two weeks (3). Hanlon Co. normally expedited shipment (usually air carrier) of items having a MILSTRIP priority of 06 or less and did not hold them for consolidation. Those above 06 were consolidated and transhipped bi-monthly. AFR 75-43 states that

> . . . material with . . . priority designators 01-08 [is to be shipped] by modes of transportation offering high speed and prompt service . . . [while that with] priority designators 09-15 [is to be shipped] by the most economical and satisfactory means available [38:5-2].

Wilson's American Company, Inc.--
Wilson American

Although Norwegian shipments were handled by three freight forwarders, only one freight forwarder was considered to be the primary. That company was Wilson's

American Co., Inc. The company was divided into two major subdivisions, one of which handled surface freight (Wilson American) and the other air freight (Wilson Air Freight).

Procedures used by Wilson American are illustrated below. A shipment arrived at the Wilson American warehouse. It was signed for by the warehouseman, and noted on a warehouse receipt and associated documentation were sent to a division office. A receipt file was established for the shipment. When sufficient items were on-hand to fill a twenty-foot container (ocean-going cargo containers), the warehouseman packed the container and sent a manifest to the office. Data in the associated files was used to prepare export documents. Having prepared a dock receipt, the warehouseman transported the container and documentation to the port facility. At port, an agent of the carrier endorsed the dock receipt and returned a copy of the same to Wilson American, where it was retained.

RNAF surface freight volume was large enough to require two or three twenty-foot containers each week. Although Wilson American normally managed surface shipments to Norway, it also handled the shipment of air freight items which were inadvertently sent to its division instead of to Wilson Air Freight. This did not happen frequently (2).

Wilson's American Company, Inc.--
Wilson Air Freight

Located in Jamaica, New York, this division managed the shipment of air freight to Norway. Its procedures are described below. An item was received from a carrier and signed for by the warehouseman. The warehouseman completed a warehouse receipt and forwarded this and copies of the accompanying documentation to the division office. The shipment was held for further instructions. Note that in the case of multi-packs, the multi-pack container was broken down to insure that the shipment documentation correctly reflected the contents of the multi-pack. This inspection was limited to matching individual package documents and the multi-pack documentation, but fell short of physically opening item packages.

Meanwhile, office personnel prepared a manifest and export documentation for those items to be included in the weekly shipment and sent these to the warehouseman. The items were pulled from the warehouse and placed in an air freight container with the documentation. The container was delivered to the airline where an agent of the carrier endorsed the dock receipt and retained at least one copy. This copy was annotated with the flight number, waybill number, scheduled arrival time, etc. and returned to Wilson Air Freight. This information was sent to the Norwegian Air Materiel Command Transportation Division (44).

An important variation to this procedure was applied when urgently needed items had to be expedited. In this case, the individual items were pulled from the warehouse and immediately shipped.

Wilson Air Freight procedures appeared to emphasize direction from the division office to the warehouseman. Thus, the warehouseman was reactive to the instructions provided by management via the weekly shipment manifest. This was in direct contrast to Wilson American operations which required the warehouseman to provide a shipping manifest to the division office, the opposite procedure.

It was also significant that the management procedures of Wilson American, Wilson Air Freight, and C. J. Hanlon were totally manual. These manual systems could be inadequate if the workload and/or number of shipments increased significantly. This is especially true relative to tracking systems established to locate country F-16 assets in the respective F-16 PDS.

Other Freight Forwarders

Inter-maritime Forwarding Co., Inc. and Jasper, Inc., both located in New York City, represented both ends of the spectrum demonstrating sophistication in operating procedures. Inter-Maritime managed Italian and Israeli FMS accounts and was heavily reliant upon automated documentation and management procedures. Jasper, Inc. handled an

Ecuadorian forwarding account and was totally devoid of any form of mechanized management information system. In fact, numerous shipping containers were held for shipment in the office area itself and all documentation was maintained in desk drawers with little, if any, recognizable organization. It was not surprising to find out that normal processing time for items being forwarded to Ecuador averaged about two months--from the time shipment was received by Jasper until it was released for shipment to Ecuador (20).

CHAPTER III

ANALYSIS OF THE PHYSICAL DISTRIBUTION SYSTEMS

Limitations

Failure to meet program objectives of the USAF or EPG F-16 programs would likely have serious impact on the entire program. Timely and effective movement of the Danish and Norwegian F-16 assets is one of these objectives.

As described in Chapter II, there are several elements which make up the physical distribution systems to achieve this objective. These elements include the supply sources, the freight forwarders, and the transportation systems used to move items between them. Improper or inadequate performance of any of these three parts would adversely affect the functioning of the physical distribution systems as a whole.

A rigorous assessment of each of these elements would be ideal. One assessment would critically evaluate contractor/subcontractor and air logistics center shipping management and documentation procedures, and highlight those areas which are deficient. Additionally, the surface and air transportation systems between the contractor or air logistics center and the freight forwarder would have to be studied in depth, and problems identified.

Such efforts, however, were beyond the scope of this analysis. Each of these assessments would have entailed far more temporal and financial resources than were available. Therefore, the third element of the physical distribution systems, the freight forwarder, was examined in detail. Mr. Felipe M. Quadrini of Inter-Maritime Forwarding Company noted the importance of this when he stated that a freight forwarder "can make a mess of the business very easily and can generate ill-feelings between the foreign government and the US Government [28]." The difficulties experienced by C. J. Hanlon, Inc. and Wilson's America Co. and other freight forwarders follow.

C. J. Hanlon, Inc.

Agents of the Danish and Norwegian freight forwarders were asked to specify any serious problems they were experiencing with F-16 shipments. Mr. Mike Boscia of C. J. Hanlon stated that they were having no serious problems with Danish F-16 shipments (4). He did, however, express a concern regarding the adequacy of documentation he was receiving for some non-F-16 shipments. The items involved had been shipped predominantly from government supply sources. Some of the deficiencies he noted were: the illegibility of the documents; information either incorrect or not annotated on the appropriate forms, i.e., requisition, document number, or FMS case number not shown

as required; and some shipments were delivered with shipping documents missing.

Wilson's American Co.

Ms. Maureen Agaman, Wilson American, and Mr. Alan Wood, Wilson Air Freight, similarly denied the existence of any serious problems with Norwegian F-16 assets (1; 43). Mr. Wood reiterated the Danish freight forwarder's concern regarding the adequacy of shipping documentation from some government supply agencies (43). He also noted another difficulty, that being the increased management attention necessitated by receipt of single shipments of very small size, i.e., envelope-sized items. He stated that without more care in handling, shipments of this size were easily lost.

Other Freight Forwarders

Investigations of freight forwarder operations in general have been made by other government agencies, notably the Defense Institute for Security Assistance Management (DISAM) and some US Army agencies. The findings of one such investigation were published in the DISAM newsletter (Winter 1978-79) and indicated several important problems which surfaced during DISAM visits to ten freight forwarders.

One major problem addressed by this study revealed the inadequacies of shipment documentation received by the freight forwarder. Specifically, the study found that most

carriers

> . . . receive and sign for FMS shipments on USG forms; but type basic information (such as weight, cube and charges) on their own forms and file the USG paperwork in their offices. When the shipment is delivered to a freight forwarder, there is no document number, case number, etc., provided [11:6].

As a result, there usually was no indication that the item was FMS materiel.

A second problem was identified relative to the handling of small package shipments which are shipped individually to the freight forwarder. It was found that shipping documentation was frequently missing and the near-simultaneous delivery of large numbers of the small package shipments created untenable situations.

The last DISAM finding to be discussed related directly to the question of tracking shipments. The DISAM comment is provided in its entirety:

> A few freight forwarders had some type of suspense systems for incoming documentation. Documents would be received, held and matched with cargo as received. The freight forwarder could follow-up, if cargo did not come in. However, very few initiated any follow-up action. One freight forwarder (who had a very large account) was "trash-canning" most in-coming documentation. Approximately 100 documents were over-flowing a cardboard box. The forwarder stated it would take two clerks full-time to sort and suspense documents and he was not required or paid to perform this function. An associated problem was often items arrived before the "advanced documentation" because of the slowness of mail [11:4].

In another study report, the May 1973 US Army Security Assistance Bulletin pointed out that this lack of control could preclude the FMS customer country from

filing a claim against a carrier within the nine month period provided by Interstate Commerce Commission regulation (39). Other US Army sources indicated that freight forwarder suspense systems of this nature become an item of additional expense to the customer country. Because of the additional expense, many countries do not require the freight forwarder to maintain this type of control (7). The Danish and Norwegian freight forwarders did not use a suspense system to monitor incoming shipments.

Danish/Norwegian System-wide Shipment Tracking

A review of the Danish and Norwegian F-16 PDSs showed that there were no integrated efforts to monitor shipments throughout the systems. General Dynamics-Fort Worth and the Ogden Air Logistics Center both had procedures to control and monitor shipments before release to the carriers. These procedures ended when the shipment was released to the carrier. The carriers had methods of tracking the shipments once they were within their system but these, too, ended when the shipment was delivered to the freight forwarder. The freight forwarders used receipt logs and files to maintain visibility of the shipments within their control.

Each of the three elements had methods for monitoring shipments within their control, but no overall integration existed which spanned the entire PDSs. The results

were two physical distribution systems which provided for segmented shipment control and visibility--not systems which provided continuous control and management information over the length of the PDSs. The latter type of tracking capability would have enhanced the operations of the Danish and Norwegian F-16 physical distribution systems and given added insurance to the success of their programs.

CHAPTER IV

POTENTIAL TRACKING SYSTEMS, RECOMMENDATIONS AND CONCLUSIONS

Potential Tracking Systems

A number of tracking system concepts were reviewed with the thought that they might be applied to the tracking of Danish and Norwegian F-16 assets. Some of those systems actually existed, but were used in other programs. As a reminder, the primary concern of this analysis was the tracking of these two country's F-16 assets once they were in the delivery phase of the requisition cycle. This did not include the determination of requirements (i.e., spares requirements) or the acquisition policies and procedures used to obtain those items. It also was not the intention of the authors to describe each potential tracking system in the most minute detail. Descriptions of the potential tracking system concepts follow.

Support Equipment Acquisition Tracking System (SEATS)

A statement of work (see "Definitions") for this system was presented to personnel of the F-16 SPO on 11 April 1980 by representatives of Technology Incorporated of Dayton, Ohio. This system tracks only contractor-furnished, F-16 peculiar support equipment (see

"Definitions"). It does not address other F-16 support equipment or spares.

There are two phases to SEATS:

Phase I--an interim system to provide transit status information to the F-16 SPO from the CONUS vendor to the Port of Entry. This phase implements the tracking system within a short time after contract award (33:1).

Phase II--a follow-on FMS SE acquisition tracking system with greater sophistication and capabilities. It provides more detailed information regarding shipment of the item from the CONUS manufacturer to the point of acceptance in-country (33:2). Beyond these general objectives, the procedures, methodology, software, and hardware of the SEATS are not specifically defined. Two key points of SEATS must be recognized: the concept does not address applicability to any government-furnished equipment, such as might be shipped from OO-ALC, and it deals only with support equipment. These are important concerns which must be addressed if the SEATS is to be applied to the F-16 PDSs of Denmark and Norway.

Support Equipment Acquisition Management Information System (SEAMIS)

This system was developed by Veda Incorporated of Arlington, Virginia and has been applied to FMS cases ranging from the Israeli E-2C aircraft program to the Iranian F-14 program (34).

This system also deals only with the support equipment aspect of an FMS aircraft acquisition program. The foundation of the SEAMIS is a point of central control for all support equipment matters. This central control point is to be, in the case of the F-16, in the F-16 SPO. Personnel in this office would literally control all matters concerning SE acquisition, from initial requirements determination through acquisition and delivery to operational sites for activation.

The capabilities of SEAMIS go far beyond the scope of this analysis and, as such, further discussion will be limited to that portion dealing with tracking item delivery. Basically, this system requires that documentation such as copies of DD Forms 250 and commercial bills of lading be mailed to the central control point. Data from these documents would be input to the computer-based SEAMIS to record initial shipping status of the item. Further tracking of the item beyond this point, at least relative to the physical distribution systems described for Denmark and Norway, is essentially lacking. In its present form, then, SEAMIS does not provide for in-transit tracking capability.

Generalized On-line Logistics, Inventory and Tracking Handling System (GOLIATH)

Dynamics Research Corporation of Wilmington, Massachusetts presented an unsolicited proposal explaining the concepts of GOLIATH to the Aviation Supply Office of

Philadelphia, Pennsylvania. Specifically, the proposal demonstrated the application of the system to the Japanese support program for the P-3 aircraft. Unlike the previous two systems, the GOLIATH system:

> . . . consists of a combination of hardware, software, and procedures by which data and information on repairable asset transactions are entered and stored, transmitted to and from geographically scattered operational sites, freight forwarders, and US Navy and commercial depots, and reported to logistic managers on a regular basis [31:2-1].

Thus, the system tracks repairable items such as aircraft spares as they move through a remove-repair-reinstall cycle. However, the GOLIATH concept treats much more than the tracking capability addressed in this research. The following discussion is limited to the tracking aspect.

The GOLIATH system requires data inputs by personnel at various interface points in the transportation system. These inputs, shipping or receipt data, etc., are made through input/output modules by such organizations as the shipping activity (i.e., Air Logistics Center) and freight forwarders. These data are transmitted via several modes: CONUS TWX network, International dial-up Telex, dedicated international tie-lines, Bell System direct distance dialing (31:2-1). Data collection is made at Dynamics Research Corporation, where the input data is used to update a Master Data File. This Master Data File serves as a source of information for report formulation and for inquiries made through the Management Data Query System

(MDQS). The MDQS ". . . allows a user, at a remote site or depot to access information contained in the Master Data Files [31:2-8]." Additionally, a capability of GOLIATH, called the "Basic Foreign Military Sales/Repair of Repairables (FMS/ROR) Tracking System," provides the following:

> Once an asset has been entered into the computerized tracking system under a document, federal stock number/ part number and serial number, the location and status of that asset is continuously monitored [31:2-11].

Although the detailed aspects of the system do not presently fit the exact needs of the Danish and Norwegian F-16 PDSs, it is apparent that this system is relatively close to the problem identified in this study. There are, however, other potential systems which could be used to track these two country's F-16 assets.

Reporting Analysis Planning System (RAPS) or Reporting Analysis Management Information System (RAMIS)

Originally called RAPS, the system proposed by the Northrop Worldwide Aircraft Services, Inc. (NWASI) was renamed RAMIS in a statement of work (SOW) provided to NWASI on 30 November 1979 in support of the Royal Saudi Air Force (RSAF).

The RAMIS, as described in the SOW, incorporates considerably more information requirements than are anticipated to address the problem identified in this analysis. For example, one major feature of RAMIS is the MILSTRIP and Procurement Analysis (MPA).

> The MPA system will track . . . FMS acquisitions from time of input into the AFLC Integrated Logistics Management Information System (ILMIS) until the materiel is released from the freight forwarder [26: para.4.1].

Since this analysis deals only with that portion of the requisition cycle from the initial point of shipment (contractor or government loading facility) through freight forwarder release, only this portion of RAMIS will be examined. It is also important to note that RAMIS does not provide for shipment-tracking from any contractor or supplier facilities, thus limiting its scope to government-managed shipments.

RAMIS would establish five primary data interface points in the physical distribution system for RSAF assets: HQ USAF; the International Logistics Center (ILS) at Wright-Patterson AFB, Ohio; San Antonio Air Logistics Center (SA-ALC); Warner Robins Air Logistics Center (WR-ALC); and the freight forwarder. These interfaces utilize "a keyboard Cathode Ray Tube (CRT) for visual display and a printer for hardcopy retention of information [26:para.2.3]." Additionally, card reader equipment would be located at HQ USAF, the ILC, and the freight forwarder facility. The equipment at HQ USAF and ILC would be used to monitor operations. The following example demonstrates how this system would provide traceability of assets:

In response to a requisition, WR-ALC releases an item for shipment to the freight forwarder and inputs data

to the system indicating item identification, quantity, mode of shipment, date of shipment, etc. Within twenty-four hours of receipt, the freight forwarder inputs data indicating receipt of the shipment. When the freight forwarder is ready to ship the materiel, data entry is made showing item identification, quantity, etc. and data indicating the actual materiel release and departure date to the carrier (26:para.4.4).

The SOW requires that the system provide: a summary of current status of a requisition; ". . . a sequential status history for active requisitions and; a limited historical file on completed requisitions [26:para.4.6]."

Since the SOW only establishes requirements of the RAMIS, it does not address how a contractor such as NWASI would meet those requirements. RAMIS appears to be similar to the SEATS, SEAMIS, and GOLIATH systems, at least in concept. It is significant that shipments from contractor supplier facilities are not provided for, although provision for such capability probably would not be unachievable.

The source document for RAMIS, as discussed here, was a statement of work formulated by the US Government and provided to NWASI to outline system requirements. US HQ Air Force Logistics Command/International Transportation Office (HQ AFLC/LOTI), published design description and operational procedures for another potential tracking system.

Shipment Control and Intransit Visibility System for Foreign Military Sales Customers (SC & IVS)

The SC & IVS, as described in the AFLC/LOTI publication of the same name, is a system designed to be operated by the recipient country or a commercial firm contracted by the country itself (see Appendix D). Unlike the other systems described before, the SC & IVS can integrate shipment tracking from government-operated supply points and contractor facilities with minor change to the system. The system layout does not require sophisticated computer hardware and software but instead relies on electrical communication links with a central data base maintained by the country or system contractor (18:1). The SC & IVS encompasses item tracking beyond the CONUS freight forwarder to the in-country consignee. This aspect is beyond the scope of this paper.

Data input points for the SC & IVS, if contractor sources are incorporated, are DOD supply/contractor sources, ILC offices for the recipient country, and the freight forwarder. The input mode, electrical communication, consists of card transmittal capability between these data input agencies and the central data base.

Shipment and documentation procedures under the SC & IVS are the same as those used by OO-ALC personnel described earlier, up to the point of issuance of the NOA.

to the system indicating item identification, quantity, mode of shipment, date of shipment, etc. Within twenty-four hours of receipt, the freight forwarder inputs data indicating receipt of the shipment. When the freight forwarder is ready to ship the materiel, data entry is made showing item identification, quantity, etc. and data indicating the actual materiel release and departure date to the carrier (26:para.4.4).

The SOW requires that the system provide: a summary of current status of a requisition; ". . . a sequential status history for active requisitions and; a limited historical file on completed requisitions [26:para.4.6]."

Since the SOW only establishes requirements of the RAMIS, it does not address how a contractor such as NWASI would meet those requirements. RAMIS appears to be similar to the SEATS, SEAMIS, and GOLIATH systems, at least in concept. It is significant that shipments from contractor supplier facilities are not provided for, although provision for such capability probably would not be unachievable.

The source document for RAMIS, as discussed here, was a statement of work formulated by the US Government and provided to NWASI to outline system requirements. US HQ Air Force Logistics Command/International Transportation Office (HQ AFLC/LOTI), published design description and operational procedures for another potential tracking system.

Shipment Control and Intransit Visibility System for Foreign Military Sales Customers (SC & IVS)

The SC & IVS, as described in the AFLC/LOTI publication of the same name, is a system designed to be operated by the recipient country or a commercial firm contracted by the country itself (see Appendix D). Unlike the other systems described before, the SC & IVS can integrate shipment tracking from government-operated supply points and contractor facilities with minor change to the system. The system layout does not require sophisticated computer hardware and software but instead relies on electrical communication links with a central data base maintained by the country or system contractor (18:1). The SC & IVS encompasses item tracking beyond the CONUS freight forwarder to the in-country consignee. This aspect is beyond the scope of this paper.

Data input points for the SC & IVS, if contractor sources are incorporated, are DOD supply/contractor sources, ILC offices for the recipient country, and the freight forwarder. The input mode, electrical communication, consists of card transmittal capability between these data input agencies and the central data base.

Shipment and documentation procedures under the SC & IVS are the same as those used by OO-ALC personnel described earlier, up to the point of issuance of the NOA.

Since procedures are slightly different when an NOA is required, this situation will be examined first.

OO-ALC procedures require the shipment to be ready for release to the carrier pending the issuance of a manual NOA (DD Form 1348-5) to the freight forwarder. Under SC & IVS, a "mechanical NOA (AD2)" is transmitted to the central data base as well. Thus, both the freight forwarder and the central data base (CDB) are notified when an item is ready for shipment.

If the freight forwarder fails to respond to the NOA in a timely manner, a control function of the SC & IVS provides follow-up to the freight forwarder and in-country manager. The freight forwarder responds to the manual NOA and also makes a similar response to the CDB. When the supply activity releases the item for shipment, it mails the advance copies of the DD Form 1348-1 to the freight forwarder and inputs shipment data to the central data base. When the freight forwarder receives the advance documentation, an input showing this receipt is made to the SC & IVS. A second control function of the SC & IVS monitors the shipment by transmitting a follow-up to the in-country manager and freight forwarder if the latter fails to input receipt data for the shipment within twenty-one days. The freight forwarder will acknowledge receipt of the materiel after identifying the shipment and determining its condition.

If the condition is satisfactory, he will ship the cargo and update the CDB.

SC & IVS procedures for shipments not requiring NOAs are different. The following procedural steps are not performed: no manual NOA is issued and no mechanical NOA is input to the system. Other than these variations, non-NOA shipment procedures in the SC & IVS are essentially the same as those requiring an NOA.

With the SC & IVS, the physical condition of the materiel is known as it progresses through the physical distribution system. If the item is found to be damaged upon receipt by the freight forwarder, the in-country manager can direct a delivery cancellation and preclude delivery of a non-serviceable item. The in-country manager can also use this opportunity to expedite the shipment.

In summary, SC & IVS requires the following inputs to the CDB: input is made when the item is shipped (also when an NOA is issued as a suspense mechanism to insure prompt freight forwarder response); input is made when the freight forwarder receives the advance DD Forms 1348-1; input is made showing freight forwarder receipt and condition of shipment; alternate shipping instructions are input by the in-country manager and received by the freight forwarder, if applicable; freight forwarder inputs data showing item shipment.

Assuming that the SC & IVS data are input accurately and as designed, this system provides "visibility" of the shipment at key points within the total program PDS.

The five tracking systems described in this chapter provide various degrees of tracking capability for an asset within the requisition, repair, or delivery cycle. None of these conceptual systems is usable to track Danish and Norwegian F-16 assets without some modification. Such modification can be made without drastically altering the basic tracking systems.

Other Asset-Tracking Concepts

Research into the many facets of the problem of tracking FMS items from the supply source to the recipient country shows that there are many potential methods to solve the problem. The systems discussed in the last chapter are all characterized by one common idea: a management effort is necessary to assure item traceability from the supply source through the freight forwarder. Each of the systems incorporated various means of collecting the data needed to track shipments and make it accessible. If the physical distribution systems can be changed, other alternatives might apply.

Total-Integrated-System

One possible alternative can be described as a total-integrated (physical distribution)-system or TIS. The

foundation of a TIS requires that the recipient country establish contractual arrangements with a firm in the transportation industry to be responsible for moving all shipments from the supply source to a point of debarkation in the recipient country. Two matters must be addressed here: (1) why must only one firm be hired to perform this task, and (2) what criteria must be used to select the firm for this task?

The selection of only one firm to transport Danish or Norwegian F-16 shipments stems from a need to simplify the PDS to its most basic form. Simplifying here means eliminating as many of the interface points as possible to reduce the amount of handling and transhipment activities. Thus, if one carrier is responsible for delivering shipments from GD-FW or OO-ALC to Denmark or Norway, this could conceivably eliminate the need for any freight forwarder--at least for movement of F-16 assets. Selection of one firm is the ideal choice since all shipments would be under the control of one management function. It would be possible to select one surface carrier (probably motor carrier) and one air carrier to manage all F-16 surface and air shipments respectively. This would permit movement by either mode, without entirely losing the advantage of near-single management responsibility. The basic objective is to minimize the number of changes of management control over shipments.

Criteria for selecting the managing transportation firms must consider several important factors. First, the firm must be able to provide the capability to control shipments from the CONUS supply source to the US port and from there to the port of debarkation in Denmark or Norway. The firm must be capable of moving all of the Danish or Norwegian F-16 goods in a timely manner to meet the needs of the respective country.

The second major criterion which the selection process must consider is that the firm must have some in-house means for tracking shipments under its control. Without this capability, the original goal of establishing a tracking system for the shipments would be little closer to fruition than the present systems. Under these circumstances, one of the tracking systems examined in the last chapter, or one similar, would need to be incorporated anyway.

The basic premise of this concept, then, is to select a transportation firm which can handle the volume of traffic, can control the movement of shipments from CONUS locations to the recipient country, and has an existing tracking system providing the desired visibility.

There are certainly a number of firms which could meet the first criteria. For example, the Edison N.J. based Sea-Land Service, Inc. might be an example of a firm that maintains both inland and shipborn operations. Provided that the volume of Danish or Norwegian F-16 shipments

were within the capability of Sea-Land Service, Inc., the firm's ability to manage the shipments from GD-FW or OO-ALC to the receiving country would be considerably enhanced as a result of its bi-modal operations. In a recent letter, Mr. Robert S. Ingram of Sea-Land Service, Inc., indicated that inland consolidation and direct shipment in the manner described is feasible. He stated that "building container loads at inland points (possibly even in Fort Worth and Ogden) would more than likely increase control while decreasing damage and cost [16]."

Research showed that most major motor carriers maintain an in-house tracking system which is capable of locating a shipment within their system. One such system, called Total Responsibility and Control (TRAC) is used by Pacific Intermountain Express (PIE). TRAC can provide visibility of any shipment within the PIE system simply through input-output equipment stationed at PIE terminals. Put another way,

> . . . every shipment picked up by P.I.E. anywhere in the United States or Canada will show up the next morning on the consignee manifest . . . this gives the shipper's and consignee's names as well as pieces, weight, and outbound trailer number. With this manifest P.I.E. can expedite, trace and notify consignees of incoming shipments . . . every known fact is stored in the computer and available to any P.I.E.terminal in seconds. Progress of a shipment's movement through the P.I.E. system is also stored and available as it moved to final distribution [27].

If a company exists which maintains multi-modal control and also establishes the degree of visibility that

the PIE's TRAC system provides, the concept of a total-integrated-system (TIS) would be possible.

An example of this concept, though perhaps on a smaller scale, is the system established by one domestic motor carrier (IML Freight, Inc.) for moving shipments to Hawaii. Referred to by the IML General Sales Manager, Mr. Don Kranendonk, as NVOCC service, IML assumes total management responsibility for the shipment:

> The customer tenders the shipment to IML for line-haul from original to port. IML then leases space on the ocean carrier for the water movement. Upon arrival at the port in Hawaii, IML picks up the container at the steamship dock and delivers the shipment to the consignee on IML trucks [23].

The one significant difference between this system and TIS is the lease arrangement between IML and the ocean carrier. Mr. Kranendonk felt that "single carrier responsibility origin to destination, one invoice with a breakdown of overland charges, water charges, and delivery charges, and tracking capabilities" were advantages of this type of service. The essence of the system was described as ". . . we have removed the middle-man and assumed total control of the movement from origin to destination [23]."

In December 1977 the Interagency Committee on Intermodal Cargo published the results of a survey dealing with the use of an intermodal through bill of lading. As a document which could serve as a single control and data document in a tracking system, this through bill of lading is

conceptually similar to the IML NVOCC single invoice. According to this report an intermodal through bill of lading is

> . . . a single document receipt for goods and a contract of carriage, under which common carriers accept and transport goods between specified points of origin and destination via more than one mode of transport, identifying the terms and conditions of carriage [17:3].

One survey finding indicated that "respondents chose improved through-service and simplified documentation as their primary concerns when seeking more efficient intermodal transportation [17:4]." Another finding, however, showed that the

> . . . major advantages afforded by a single document through bill system were a reduction in billing and collection costs and the certainty provided to the shipper as to the exact total cost of the intermodal movement [17:5].

There was no indication that the matter of tracking shipments was addressed in the survey or by those participating. Nevertheless, the advantage of having a single document (and associated document number) for intermodal transport is apparent when consideration is given to establishing a tracking system which is relatively non-complex. The reduced costs referred to earlier would be an additional benefit.

So far this analysis has dealt with the formulation and implementation of some type of tracking system on the Danish and Norwegian F-16 physical distribution systems.

Most likely, the imposition of any one of the concepts put forth earlier would represent some increased cost to each government. Assuming this, is there yet not another option, aside from doing nothing at all?

Increased Freight Forwarder Control

Instead of defining, acquiring, and implementing an "externally imposed" tracking system on the Danish or Norwegian PDSs, the option of changing the contractual obligations of the respective freight forwarder must be considered. As described earlier, the freight forwarders exert little control over any of the shipments until such time as they are delivered to the freight forwarder. This situation could be changed if Denmark or Norway require the freight forwarder to extend its management control to include the portion of the PDS starting at the point of change of title and accountability, i.e., the contractor facility at GD-FW or the load facility at OO-ALC. This change can be accomplished by specific agreements between the freight forwarder and these two supply resources. Another possibility and one suggested by Mr. J. T. Jones of GD-FW, would entail stationing a representative of the freight forwarder at GD-FW (the same would apply at OO-ALC) to accept responsibility for and establish immediate freight forwarder control over the shipments (21). This representative would control selection of transportation modes, initial shipment configuration (single or consolidated)

and carrier pickup date, etc. Thus, visibility for the shipments would be established early.

The freight forwarder can, as the Danish or Norwegian in-country representative, specify certain carriers to handle all F-16 shipments. Given the existing tracking systems maintained by most carriers, interface arrangements could be established between the carrier and freight forwarder to sustain the latter's visibility and control over the shipments throughout the movement. Note the general reference to carriers: certain air freight management firms such as Emery Air Freight, Inc., also have shipment tracking systems as a feature of their service (29). Just as with the surface carriers, then, interface arrangements would apply.

Whatever freight forwarder services are required by the country, the essence of this approach is to stimulate the existing manager of the PDS to insure the accountability of shipments throughout the system. Such an approach would undoubtedly necessitate some degree of increased cost but would emphasize maintaining the freight forwarder as the primary organization for managing shipments of the Danish or Norwegian F-16 assets to their country.

Conclusions

There have been some difficulties in the past with controlling the movement of FMS materiel from the CONUS

to recipient countries. Problems have surfaced in the F-16 program with the shipment of F-16 items to other countries. The F-16 SPO has established an office of primary responsibility for investigating the applicability of shipment tracking systems for future FMS F-16 programs.

Regardless of what has occurred in the past and what investigations are on-going, the ultimate responsibility and decision for implementing any shipment tracking system for their assets remains that of the purchasing country itself. The representatives of that country must weigh the benefits of greater accountability and visibility against the expense of implementing a tracking capability within their physical distribution system.

Earlier discussions highlighted a number of problems within the Danish and Norwegian PDSs. Other problems within the general area of FMS materiel transportation and freight forwarder operations were identified. The problems can impact the movement of assets from the CONUS and be reflected in any effort to improve the traceability of shipments in the PDS.

Several proposed and existing tracking systems were addressed. Some of the systems exist only in conceptual terms; others provide specific procedures which, if enacted using appropriate hardware, can be realized in a relatively short period of time; and finally, others which are

already in use in other programs but would require some degree of modification to implement with the Danish or Norwegian PDSs.

Two other approaches, the total-integrated-system (TIS) and increased freight forwarder control, were examined as potential means of providing the increased visibility and traceability for Danish or Norwegian F-16 programs. While no in-depth study appears to have been performed of this systems approach in the past, the TIS concept merits consideration for these or other F-16 programs. Increasing the freight forwarders' management control over the length of the Danish or Norwegian F-16 physical distribution systems may be the simplest and/or least costly approach to the problem.

This study has described the Danish and Norwegian F-16 physical distribution systems and analyzed them with respect to traceability of assets. Time and fiscal limitations precluded a detailed review of the entire physical distribution system from the CONUS supply source to the in-country destination. Several approaches for establishing shipment visibility and control were identified without analyzing each in terms of cost, hardware or software requirements, etc. Before any decision is made to change the Danish or Norwegian F-16 physical distribution systems, or incorporate a tracking system in the PDS, additional analysis is required in a number of areas.

Recommendations

Further research should provide an in-depth comparison of the potential tracking systems discussed earlier. The research effort should compare the specific capabilities of each system, the changes in the physical distribution systems required to facilitate implementation of each proposed tracking system, and a detailed cost analysis of each system.

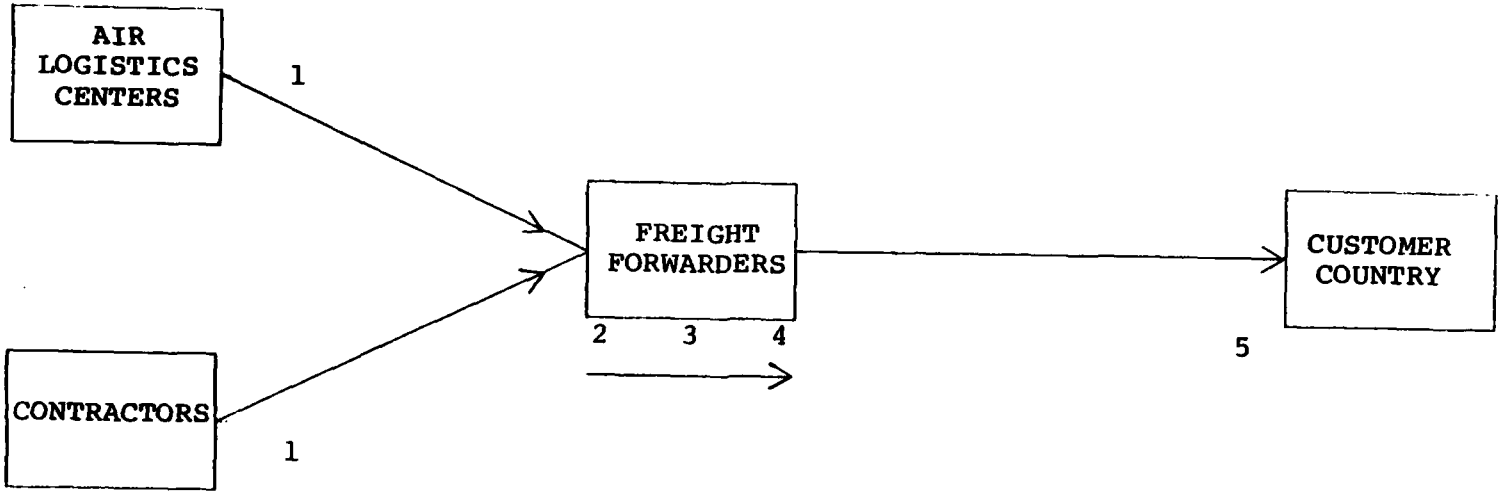
The total-integrated-system (TIS) was considered only in conceptual terms. The economic and technical aspects and legal and regulatory issues associated with this approach merit significant research effort.

A critical assessment should be made to determine what actions the freight forwarders can take to increase control and visibility over the length of the PDSs. This should include a cost-benefit analysis of the actions identified and the materiel requirements of those actions.

APPENDICES

APPENDIX A

FOREIGN MILITARY SALES (FMS) MATERIEL FLOW



1 Materiel shipped to freight forwarder; title for materiel passes to customer country.

2 Materiel received by freight forwarder.

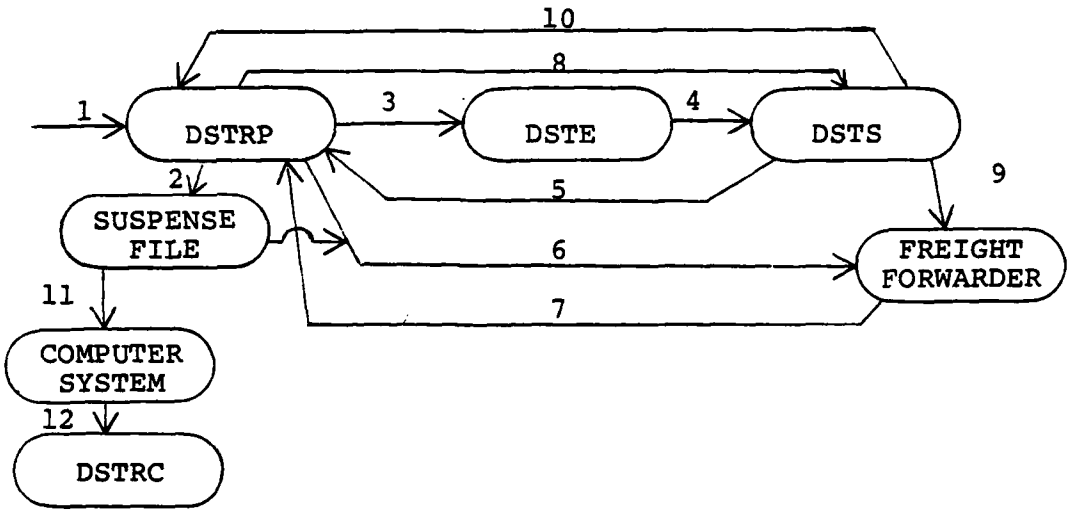
3 Materiel consolidated for shipment.

4 Materiel shipped to customer country.

5 Customer country receives materiel.

APPENDIX B

OGDEN AIR LOGISTICS CENTER NOTICE OF AVAILABILITY (NOA) PROCEDURES



1 Requisition to the Shipping Planning Branch (DSTRP) (2 sets of DD Forms 1348-1, six copies each set).

2 DD 1348 (set 2) placed in suspense file.

3 DD 1348 (set 1) with "HOLD"label to Packaging (DSTE).

4 DD 1348-1 (set 1) and packaged item to the surface terminal.

5 DD 1348-1 (set 1, copies 1, 5, and 6) returned to DSTRP.

6 NOA to Freight Forwarder (DD 1348-5, DD 1348-1 (set 1, copy 5), and DD 1348-1 (set 2 from suspense file)).

7 Shipping instruction sent to DSTRP from Freight Forwarder.

8 DD 1348-1 (set 1, copies 1 and 6) with shipping instructions to the Surface Terminal (DSTS).

9 Shipment made: C/CBL and DD 1348-1 (set 1, copy 6) retained in DSTS.

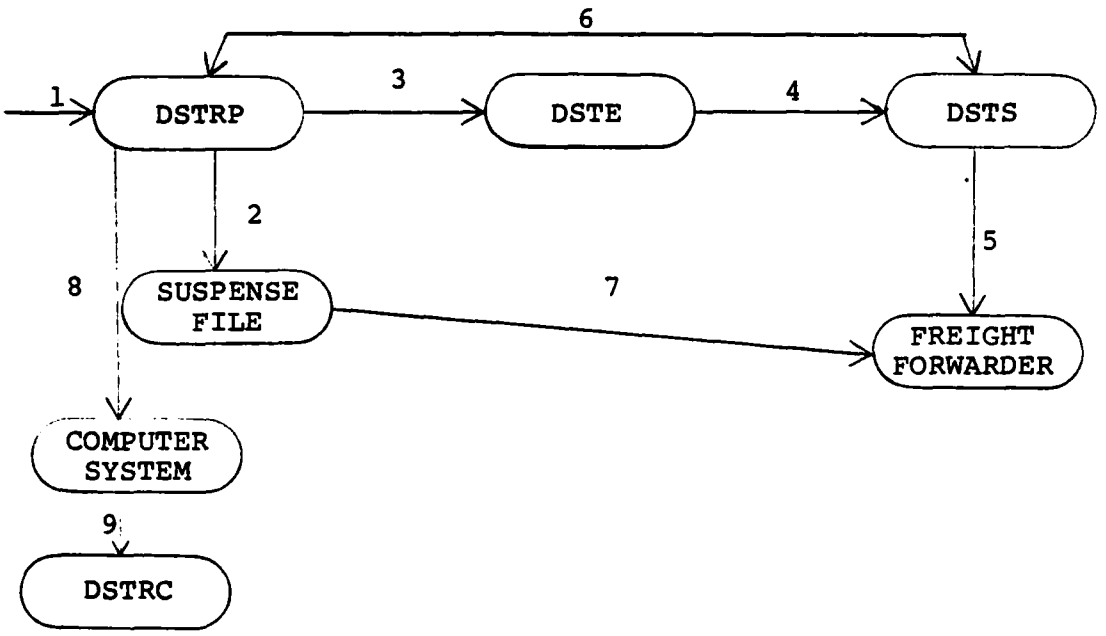
10 DD 1348-1 (set 1, copy 1) returned to DSTRP.

11 Information from DD 1348-1 (set 1, copy 1) input to computer system to reflect a filled requisition.

12 DD 1348-1 (set 1, copy 1) filed in the Administration Office (DSTRC).

APPENDIX C

OGDEN AIR LOGISTICS CENTER NON-NOA PROCEDURES



1 Requisition to the Shipping Planning Branch (DSTRP) (DD 1348-1, 2 sets, six copies each).

2 DD 1348-1 (set 2) to suspense file.

3 DD 1348-1 (set 1) to Packaging (DSTE).

4 DD 1348-1 to the Surface Terminal (DSTS).

5 Shipment made (C/CBL and DD 1348-1 (set 1, copy 6) retained in DSTS.

6 DD 1348-1 (set 1, copies 1 and 5) to DSTRP.

7 DD 1348-1 (set 2) and DD 1348-1 (set 1, copy 5), on which the C/CBL number is annotated, is sent to the freight forwarder.

8 Information from DD 1348-1 (set 1, copy 1) input to computer system to reflect a filled requisition.

9 DD 1348-1 (set 1, copy 1) filed in Administration Office (DSTRC).

APPENDIX D

SHIPMENT CONTROL AND INTRANSIT VISIBILITY SYSTEM FOR FOREIGN MILITARY SALES CUSTOMERS

SHIPMENT CONTROL AND INTRANSIT VISIBILITY SYSTEM FOR FOREIGN MILITARY SALES CUSTOMERS

HQ AFLC/LOTI
INTERNATIONAL LOGISTICS TRANSPORTATION OFFICE
WRIGHT-PATTERSON AFB, OHIO 45433
AUTOVON 787-2598 OR 787-2919
COMMERCIAL 257-2598 OR 257-2919

SHIPMENT CONTROL AND INTRANSIT VISIBILITY SYSTEM

(SC&IVS)

TABLE OF CONTENTS

1. Introduction

a. The Shipment Control and Intransit Visibility System (SC&IVS) as described herein, is designed to be a stand-alone country operated or commercially contracted self-help system. All service's shipments currently governed by MILSTRIP are adaptable to this system. Commercially procured NON-DOD shipments are also adaptable to the intransit visibility portion of SC&IVS by establishment of initial suspense at the time the material is received by the Freight Forwarder. There will be no USG involvement other than the initial standard documentation (NOAs and shipment status as applicable). This study does not commit the US Government to provide Hardware/Software support or evaluations thereof, training, systems maintenance, or other procedures.

b. Electrical Communication is the major facet of this system consisting of card transmittal capability between the control data bank located in-country and DOD Supply Sources, ILCOs, Freight Forwarders (FF), in-country Port of Debarkations (POD), in-country consignees, and in-country materiel and system managers. Due to the simplicity of this system, elaborate computer hardware is not required.

c. This operational concept is designed to provide immediate updates of shipment intransit status as each change in movement occurs. Automatic follow-ups of processing segment delays are the main controlling feature of SC&IVS. Exception output to the in-country manager simultaneous with follow-up output to the Freight Forwarder or Port of Debarkation as required, provides the necessary policing controls.

d. Maintenance of historical data provides performance data pertaining to the CONUS carrier, Freight Forwarder, surface/air carrier, Port of Debarkation, and country carrier. SC&IVS provides actual transit time data which may be used in conjunction with materiel requirements computations.

e. All receipt data provided includes materiel condition upon receipt by each intransit segment in the pipeline. This will provide immediate notification to the country customer when either packaging or materiel intransit damage has occurred. Re-requisition action may be taken as necessary. Furthermore, historical data regarding damage/claim action will provide the country basis for exercising traffic management controls by not utilizing carriers/modes with excessive damage rates.

f. An optional provision depicted in the attachments is a financial planning system covering CONUS transportation charges, over-ocean transportation charges and Freight Forwarder service charges. Historical finance charges may impact mode selections by comparing damage rates and costs with charges incurred by carriers/modes with minimal damage rates. Selection of initial high cost modes/carriers may provide overall cost reductions due to low damage/corrosion costs.

g. SC&IVS provides the in-country manager capability to upgrade intransit requisitions/shipments which become critical. The in-country manager inputs data to the SC&IVS directing upgrade and expeditious processing of given requisitions which is passed to the applicable intransit segment for action.

2. SC&IVS - Shipments Requiring Notices of Availability (NOA).

a. Currently many FMS shipments are option code "A" (No NOAs required) Processing procedures are provided pending subsequent use by the country. It must be emphasized that NOA procedures are not recommended and are only addressed herein to emphasize the flexibility of SC&IVS.

b. Redistribution orders have not been addressed as they do not impact SC&IVS processes. Except for contractor procedures, all others are considered materiel release orders for simplicity and continuity purposes.

c. Processing Procedures.

(1) Requisitions are passed to the supply source.

(2) Supply source accomplishes the following:

(a) Select materiel.

(b) Accomplish preservation and packing.

(c) Pre-plan shipment.

(d) Prepare notices of availability.

(e) Stage material pending receipt of NOA response.

(3) Manual NOA (DD Form 1348-5) with accompanying DD Forms 1348-1 are mailed to the Freight Forwarder within 24 hours of materiel staging.

(4) Mechanical NOA (AD2 Document Identifier) is forwarded via electrical card transmittal to the SC&IVS.

(5) SC&IVS establishes initial suspense record, and outputs follow-ups to in-country manager and Freight Forwarder if no "NOA Response Confirmation Card (FN2) is received from Freight Forwarder in 14 days, and every 7 days thereafter until "AS2" or "FN2" is received.

(6) Freight Forwarder receives manual NOA (DD Form 1348-5), prepares reply to consignor and inputs NOA Response Confirmation card (FN2) to SC&IVS. Accompanying DD Forms 1348-1 are filed pending receipt of applicable materiel. If materiel is being shipped to an address other than in the MAPAD the clear ship to address will be furnished by means of an NOA Response Confirmation Trailer Card (FN3).

3. SC&IVS - Shipments Without NOAs

a. Interfacing DOD Logistics support systems are involved, but explanation of such systems are not required for pertinence to SC&IVS.

b. Processing Procedures.

(1) Requisitions are passed to the supply source.

(2) Supply source accomplishes the following.

(a) Select materiel.

(b) Accomplish preservation and packing.

(c) Accomplish required inspections.

(d) Pre-plan shipment. Select mode in accordance with issue priority and carrier availability.

(e) Effect shipment.

(3) As soon as shipment is accomplished, shipment information cards are input to applicable Shipment Control System which confirms established suspense and outputs "AS2" shipment status card to SC&IVS through various intermediary systems.

(4) "AS2" shipment status cards post to SC&IVS, establishing initial suspenses for shipments without NOAs and posts to previously established suspense for shipments requiring NOA. Follow-up is made to Freight Forwarder and in-country manager if Freight Forwarder Shipment Receipt Data Card (FFR) is not received within 21 days of "AS2" receipt.

(5) Within 24 hours subsequent to shipment, advance DD Forms 1348-1 are mailed to the Freight Forwarder. Copy #4 of first set indicates mode, date shipped, carrier code, pieces, weight, cube, dimensions, type of pack, TCN, etc.

(6) Upon receipt of documents, Freight Forwarder prepares and submits "FDR" card to SC&IVS.

(7) Freight Forwarder receives materiel with packing list (DD Forms 1348-1) and accomplishes the following:

(a) Identify shipment and pull advance documents from hold file.

(b) Determine package/materiel condition. Annotate carrier bills when damage occurred intransit and file claim to the appropriate time.

(c) Prepare Freight Forwarder Receipt Card (FFR) and transmit to SC&IVS.

(d) Accomplish re-coup/repack/consolidation/containerization as required.

(e) Obtain customs clearance.

(f) Schedule for shipment.

(g) Stage materiel pending carrier departure.

(8) SC&IVS receives and posts "FFR." Output exception notice to in-country manager if "4" appears in Column 76 of "FFR." After receipt of the "FFR"and prior to receipt of the "FFL" the in-country manager may furnish the Freight Forwarder with special in the clear shipping instructions by the use of an in-country Manager Routing Instruction Card (CRI). (4 indicates materiel received damaged and Freight Forwarder is unable to forward shipment.) Output follow-ups to in-country manager and Freight Forwarder if Freight Forwarder Lif Data Card ("FFL") is not received within the following time frames:

IPD 01-03 - 7 days

IPD 04-08 - 14 days

IPD 09-15 - 21 days

(9) Freight Forwarder effects shipment by various modes and submits Freight Forwarder Lift Data Card ("FFL") to SC&IVS.

(10) SC&IVS receives and posts "FFL." Output follow-up to in-country manager and POD, if POD Receipt Data Card ("PDR") is not received within the following time frames:

IPD 01-03 - 14 days

IPD 04-08 - 30 days

IPD 09-15 - 45 days

(11) POD receives shipment/container and accomplishes the following:

(a) Custom clearance.

(b) Inspect packaging/container/materiel as required and determine receipt condition.

(c) Stage materiel pending carrier departure.

(d) Frustrate damaged materiel.

(e) Submit POD Receipt Data Card ("PDR") to SC&IVS.

(f) Accomplish carrier claims as required.

(12) SC&IVS receives and posts "PDR." Output follow-up to in-country manager and POD if POD Lift Data Card ("PDL") is not received within following time frames:

(a) IPD 01-03 - 7 days

IPD 04-08 - 14 days

IPD 09-15 - 21 days

(b) Output exception to in-country manager if "4" appears in Column 76 of "PDR." (4 indicates material damages and cannot be forwarded to consignee.)

(13) POD effects shipment and submits POD Lift Data Card ("PDL") to SC&IVS.

(14) SC&IVS receives and posts "PDL." Follow-up to in-country manager and consignee if Country Consignee Receipt Data Card ("CCR") is not received within time frames indicated in Para 3B(12)(a) above.

(15) Consignee receives shipment and accomplishes the following:

(a) Identify shipment and determine package/materiel condition and quantity.

(b) Prepare and submit Country Consignee Receipt Data Card ("CCR") to SC&IVS.

(16) SC&IVS receives and posts "CCR." Complete record unless "F" is in Column 5 or Codes 2, 3, or 4 in Column 6, in which case output exception to in-country manager. Compute transit time, summarize transportation charges, and retire record in 90 days.

AD-A087 503 AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL--ETC F/G 5/4
CONUS-TO-COUNTRY PHYSICAL DISTRIBUTION SYSTEM FOR DANISH AND NO--ETC(U)
JUN 80 S D KAHNE, L J WILLADSEN

UNCLASSIFIED AFIT-LSSR-29-80 NL

2 OF 2

END
DATE FILMED
9-80
DTIC

4. Contractor Originated Shipments.

Procedures.

a. When the supply source receives the shipping copy of the DD 250, an "AS2" shipment status card will be output to SC&IVS.

b. SC&IVS receives and posts "AS2" and establishes initial suspense record. Output follow-up to Freight Forwarder and in-country manager if Freight Forwarder Receipt Data Card ("FFR") is not received within following time frames:

IPD	01-03	-	7 days
IPD	04-08	-	14 days
IPD	09-15	-	21 days

c. Continue processing as indicated in para 3 above.

Ignore references to advance documentation and substitute DD Form 250 packing list for DD Form 1348-1 packing list.

7. Processing Exceptions and Follow-Up.

a. SC&IVS is designed to automatically output exceptions to the originator whenever any card input does not meet edit requirements. It is recommended that exceptions be of a controlled nature to assure expeditious reinput of erroneous cards. Actual edit requirements have not been addressed, country may desire very stringent or permissive edits, and for the purposes of this operational design, edits are considered optional.

b. Exceptions will be output whenever the sequence of events becomes distorted. For example, exception notices should be output whenever lift data posts prior to receipt data. The exception would alert offending activity of failure to provide receipt data.

c. Follow-ups are output whenever a segment fails to provide input within required time frames. Output follow-ups will include latest posted data to provide responsible function with data required to effect tracer action whenever necessary. Successive follow-ups will be output at seven day intervals until required data posts to SC&IVS.

d. Follow-ups must be thoroughly researched as soon as possible to determine causes in delays in shipment of receipt. Tracer action as described in paragraph 8 must be accomplished in a timely manner whenever receipts are unduly delayed.

e. Follow-ups will not be output for delinquent out shipment by Freight Forwarder and PODs when material receipt condition codes indicate material cannot be forwarded. Delay codes in POD receipt cards (PDR) will determine follow-up time frames. For example, PDR indicates awaiting customs clearance, 10 days will be added to follow-up time frames to allow adequate processing time frames.

8. Tracing Procedures.

a. Tracer action by Freight Forwarder.

(1) Receive follow-up from SC&IVS for shipments due in.

(a) If follow-up status indicates advance DD Form 1348-1 (DD Form 250) have been received, pull suspended copy, determine mode and carrier.

(b) If follow-up indicates "AS2" only has posted, determine mode. If other than postal or United Parcel Service (UPS), contact shipper and obtain carrier identity.

(c) Upon determination of carrier, contact originating carrier and request immediate tracer action. Since carriers convert commercial collect bills of lading (CCBL) to waybills, obtaining depot CCBL number would be of no value. To effect tracing, carriers require consignor, pro number/waybill number, date of pick-up, consignee, pieces, weight and cube.

(d) If shipment tendered UPS, contact local UPS office and request tracing action.

(2) Receive follow-ups from SC&IVS for shipments received but not lifted within required time frame. Follow-up will indicate all receipt data provided previously by Freight Forwarder.

(a) Research storage bay indicated in follow-up. Materiel found in place, re-input follow-up indicating reason shipment is delayed and anticipated shipment date.

(b) Research shipped file whenever materiel is not in location. Every effort must be expended to locate shipment data and input "FFL" as soon as possible. POD receipt data will be output to the Freight Forwarder whenever he fails to provide lift data for closing of local files.

b. Tracer action by PODs and Consignees.

(1) Utilizing lift data provided to SC&IVS, follow-up output for outstanding due ins will contain all required data to effect carrier tracers.

(2) Follow-ups for delinquent outshipments will contain materiel location. These locations are researched and if materiel is found in place, re-input follow-up indicating reason for delay and estimated shipment date. When materiel has apparently been shipped, research all outbound history files and prepare required lift data for input to SC&IVS.

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