

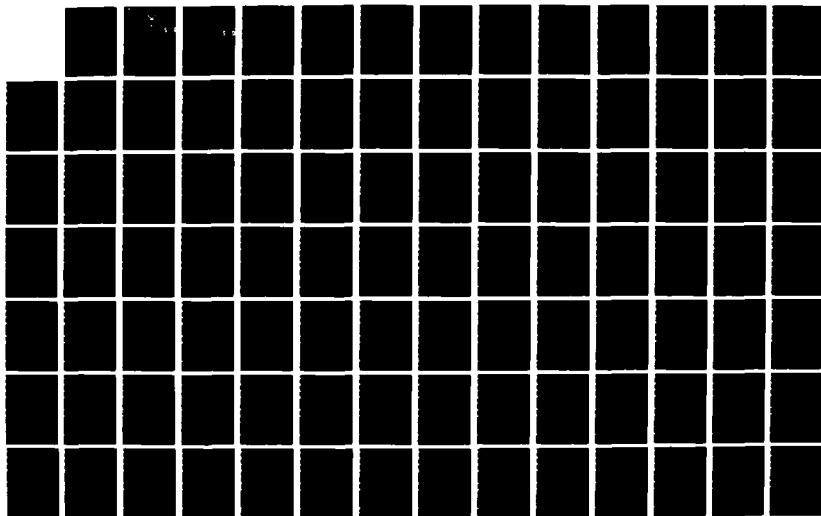
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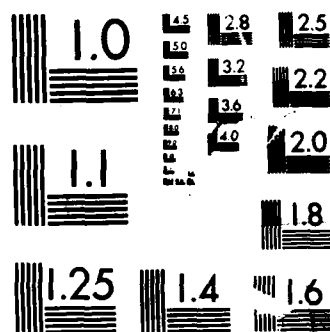
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THE CO-OPERATIVE LOGISTICS SUPPLY SUPPORT
ARRANGEMENT BETWEEN THE ROYAL AUSTRALIAN
AIR FORCE AND THE UNITED STATES AIR FORCE

THESIS

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Wright-Patterson Air Force Base, Ohio

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CO-OPERATIVE LOGISTICS SUPPLY SUPPORT ARRANGEMENT BETWEEN
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THESIS

Presented to the Faculty of the School of 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

Kenneth B. Gutterson. B.Sc. GradDipMilAv

Flight Lieutenant. RAAF

September 1987

Preface

The purpose of this study was to provide current lead time estimates for the RAAF-USAF CLSSA and to determine the effect on such estimates of recent USAF procurement reforms. The study was prompted by Australian concern that the procurement reforms may have led to a significant extension of CLSSA lead times over the past five years.

The data requirements for this study were extensive, and would have been difficult to satisfy had it not been for the help of Mr Ed Hater of the International Logistics Center (SAMIS) and Ms Patti Moore of AFLC Headquarters (Requirements Determination - DO41). Their assistance in this effort is gratefully acknowledged.

During the course of the study many difficulties were encountered with the complex format and apparent inconsistencies of the various CLSSA management reports. I am greatly indebted to Sergeant Kevin Downs, Wing Commander Mike Crimston and Mr Chuck Moores for their many attempts to explain these reports and to conduct further investigation when necessary. I am particularly grateful to Sergeant Kevin Downs for his continuing role as a point of contact for an endless variety of technical and administrative queries.

Finally, I would like to thank my wife Jacque for her considerable assistance in performing some of the more laborious data preparation tasks that were required for this study. Her assistance and continuing support contributed much to the timely completion of this research.

Ken Gutterson

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Abstract

Recent procurement reforms adopted by the USAF have given rise to concern within the Royal Australian Air Force (RAAF) that supply lead times under Co-operative Logistics Supply Support Arrangements (CLSSA) may have been considerably extended, thereby invalidating the current estimates of such lead times that are used by the RAAF in provisioning algorithms. The purpose of this study was to determine the expected lead time of the various types of RAAF requisitions within the RAAF-USAF CLSSA, determine the extent of their variation since 1980, and establish whether or not the procurement reforms were responsible for any variation found. The study was limited to research on investment items only.

The component of lead time measured by this study extended only from order receipt to order shipment. Data extracted from the SAMIS computer indicated that this period had increased by 72% for programmed requisitions (those for which demands are placed in accordance with a prefunded forecast of requirements) and 122% for non-programmed requisitions (all others). The increase in CLSSA lead time was compared to increases in administrative lead time (ALT) within the Air Force Logistics Command (AFLC) to determine whether or not the procurement reforms were having an effect on the CLSSA program. Unfortunately, there was insufficient CLSSA data to support a rigorous comparison and conclusive results were not achieved. Nevertheless, the average increase in ALT within AFLC for stock numbers on the RAAF-USAF CLSSA was observed to be similar to the increase in CLSSA lead time for programmed requisitions.

tions. which was believed to indicate that the procurement reforms were indeed having an effect on the CLSSA program.

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CHAPTER I

INTRODUCTION

Chapter Overview

This chapter contains a general background to the dependence of the Royal Australian Air Force (RAAF) on the United States Air Force (USAF) for logistics support, a brief description of the nature of that support, and a summary of recent procurement reforms that may have led to a decrease in the level of support provided. In addition, this chapter contains the problem statement, the research objective and the specific research questions for this study. The chapter is supplemented by the glossary of terms included as Appendix A.

Statement of the Problem

Recent procurement reforms adopted by the USAF have led to a doubling of administrative lead time for the procurement of replenishment spares within the USAF Logistics Command (AFLC) during the past five years. Each additional day of lead time is believed to have cost AFLC an additional 11.3 million dollars in the additional inventory investment

required to support the extended needs of fielded systems (36:4). The RAAF is concerned that the extension in AFLC administrative lead time may have led to a similar increase in the average satisfaction time of RAAF requisitions submitted under Cooperative Logistics Supply Support Arrangements (CLSSA), which would have adverse financial and operational implications for the various weapons systems supported by such means. A need has therefore arisen to establish whether or not such a relationship actually exists, and to review the validity of CLSSA lead time estimates used in current RAAF provisioning algorithms.

Background

In March 1986, the Dobb review of Australian Defence Force capabilities judged that the effectiveness of Australia's armed forces would depend to a significant extent upon Australia's ability to maintain a sufficiently high level of technology in critical capabilities. Foremost among these was the ability to absorb, operate and support advanced military equipment. However, the review recognized that, despite the professed Australian desire for greater self reliance, the country had neither the population nor industrial base to supply defense

equipment at the requisite level of technology, with acceptable lead times and at an acceptable cost. Accordingly, the Australian Defence Force remains dependent upon overseas sources for a significant proportion of its needs. (14)

The major source of supply for much of Australia's advanced defense technology and equipment is the United States (10:1), reflecting a joint security relationship between the two countries that was established in

1951 with the signing of the Australia, New Zealand and United States (ANZUS) Security Treaty (25:1). The ANZUS Treaty is augmented by a Memorandum of Understanding on bilateral supply and support arrangements that is periodically reviewed by both governments. The current Memorandum of Understanding is attached as Appendix B.

The sale of weapon systems and follow on support from the United States is governed by the US Arms Export Control Act of 1976, as amended (46). The Act provides for the sale of defense articles and equipment to eligible foreign governments either by direct purchase from commercial sources within the United States or by participation in the United States Government Foreign Military Sales (FMS) Cash Program. The majority of Australian Defence Force requirements for items of US origin are obtained through the FMS program (10:1).

The RAAF, as an element of the Australian Defence Force, is an active participant in the FMS program. Over 50 per cent of the aircraft and many of the communication systems currently in service with the RAAF are of United States origin and require follow on support accordingly (30:41). Separate FMS agreements have been negotiated between the RAAF and the USAF, the United States Navy (USN) and the United States Army, each service representing the prime user of the particular system operated by the RAAF and therefore the coordinator of replenishment provisioning for that system. The USAF FMS agreement currently holds the highest dollar value of the three agreements (19,33,34) and is therefore of major interest to the RAAF, although this emphasis may change in future years following the recent introduction of the USN supported F/A-18.

The USAF FMS Program

The USAF provides follow on support to FMS customers through contractual sales agreements known as 'cases' (8:Ch9,1). Each case documents the conditions pertaining to the supply of a particular range of goods or services. There are three types of cases (1:Ch1,1):

- a. Defined Order Cases, written for specific items and quantities;
- b. Blanket Order Cases, written for a specific dollar value; and
- c. Co-operative Logistics Supply Support Arrangement (CLSSA) cases, which allow FMS customers to buy into the US logistics system for the purpose of reducing requisition processing times.

A CLSSA requires a participating FMS customer to make a financial investment in the US logistics system in a fixed proportion to the expected level of requirements over any 17 month period. The investment allows the US Department of Defense (DOD) to augment its stocks in anticipation of the country's actual demands. In return for this investment the country is entitled to receive support from DOD stocks equal to that given to US forces assigned the same priority. The US DOD believes that CLSSAs are normally the most timely means of procuring repair parts and components for military equipment of US origin. (8:Ch19.2)

The level of support provided under a USAF CLSSA is influenced by several variables, each related to the nature of requisitions submitted by the FMS customer. These variables are briefly described as follows:

- a. Investment vs Expense Items. Replenishment spares demanded under a CLSSA are classified as either investment (high cost) items, or expense (low cost) items. Investment items are

identified by a service code of "A", whereas expense items are identified by service codes of "B" or "C" (12:Ch1,12).

- b. Priority. The priority of individual requisitions submitted through a CLSSA is assigned by the FMS customer, based on the Force Activity Designator (FAD) approved for that country by the US Joint Chiefs of Staff and the perceived urgency of need. The requisition priority, represented by an integer value between 01 and 16, is a key determinant in the decision of the US agency to satisfy that requisition from available DOD stocks. Higher priority demands (indicated by smaller numbers) will continue to be satisfied from lower levels of stock and therefore will usually achieve more timely satisfaction than demands of lower priority (1:Attach 8-A). Priority levels authorized for use by the RAAF are 03, 06 and 13. (7)
- c. Program Status. The financial investment required of an FMS CLSSA customer is assessed according to the level of requirements forecast by the customer for any 17 month period. The forecast is specified in dollar terms for expense items and by stock number and quantity for investment items. Requisitions that do not exceed the forecast 17 months requirement are assigned a "programmed" status code. Requisitions that exceed the 17 month requirement are assigned a "non-programmed" status code. Non-programmed requisitions are accorded lowest priority. (12:Ch2,2-4)

Effectiveness of the RAAF-USAF CLSSA

A CLSSA is designed to provide an FMS customer with a more timely means of obtaining replenishment spares. In return, the FMS customer is required to make a financial contribution to the US logistics system in direct proportion to the forecast level of activity within the CLSSA. The extent to which a FMS customer is prepared to make such an investment, however, will often depend on the perceived effectiveness of the CLSSA program.

Several studies have attempted to measure the effectiveness of CLSSAs. A short discussion of these studies is included in Chapter 2. One of these studies, conducted in 1981, recognized the heavy dependence of the RAAF on the RAAF-USAF CLSSA and attempted to measure the effectiveness of the CLSSA from that perspective. The study found that a requisition submitted under the RAAF-USAF CLSSA was generally satisfied in a shorter period than that taken by the USAF to procure the same item from a commercial source. The researchers had presumed that the RAAF would suffer similar lead times to those of the USAF if it elected to forgo the CLSSA in favor of direct commercial procurement. Accordingly, the researchers concluded that the RAAF-USAF CLSSA was meeting its objective of providing the most timely means of acquiring replenishment spares. (23)

A limitation of the study on the RAAF-USAF CLSSA was the lack of a complete set of data. The researchers noted that approximately 50% of the requisitions submitted under the CLSSA of interest had been incomplete at the time of their study. Thus, while the data was sufficient to provide a means of comparison between different alternatives, it was

limited in its ability to identify specific lead time parameters. Nevertheless, to avoid bias in their study, the researchers chose to use the expected completion dates provided by the USAF as the actual completion date for incomplete requisitions, and used the percentage of such requisitions to indicate the level of confidence in their findings.

The Importance of Lead Times

The level of stocks held by the RAAF is a function the time required to achieve replenishment, commonly referred to as the "lead time". Longer lead times require greater holdings of stock and consequently a greater level of investment.

Items obtained through a USAF CLSSA are assigned a standard lead time which reflects the expected time of satisfaction for a requisition of the lowest priority. The accuracy of this lead time is a key factor in determining the cost-effectiveness of replenishment provisioning for CLSSA items. Actual lead times shorter than those planned would represent a possible excess investment in higher stock levels. Longer lead times may cause an eventual shortage of spares for systems supported through a CLSSA and subsequently present a risk to the continued operation of such systems.

Changes in USAF Procurement Procedures

Significant changes have occurred to USAF procurement procedures during the past six years. The most significant of these has been the active encouragement of competitive bidding for USAF procurement contracts.

The move towards increased competition was prompted by a series of "horror" stories in the US media concerning over-priced defense acquisitions. The US DOD responded in 1981 by directing the military services to appoint competition advocates within each procurement activity whose primary goal was to pursue increased competition in defense acquisitions. The DOD direction was followed in 1984 with the Competition In Contracting Act which formalized the Competition Advocate Program and introduced a wide range of procurement reforms. (20:19)

Increased competition has resulted in significant savings for the US Government. For example, increased competition during fiscal year 1985 reportedly saved the DOD an estimated \$1.3 billion (20:21). However, competition related reforms have also led to a significant increase in the time taken to award contracts for the supply of defense materials. The Air Force Logistics Command (AFLC) has reported that the time taken to award a contract within that command had approximately doubled over the past three years (17:1). Similar increases have been reported throughout the DOD (20:24).

Procurement Reforms and the CLSSA Program

Requisitions submitted against a CLSSA that have been identified as part of a forecast 17 month requirement (i.e. "programmed" requisitions) should be satisfied from currently held stocks within the DoD. Indeed, the FMS customer has made a financial investment with the US DOD to allow his forecasted requirements to be purchased in anticipation of his requisitions (1:Ch1.1). Accordingly, the effects of DoD procurement reforms should have minimal impact on the satisfaction time of an eligible (programmed) CLSSA requisition.

Nevertheless, the RAAF has observed a significant increase in the average satisfaction time of eligible CLSSA requisitions submitted against respective RAAF-USAF CLSSAs during the past five years. These perceived increases have given rise to questions regarding the validity of current CLSSA lead times used by the RAAF and the effect of the USAF procurement reforms on the continuing effectiveness of the RAAF-USAF CLSSA. (7,38)

Research Objective

The purpose of this study is to determine the current mean lead times for requisitions submitted through the RAAF-USAF CLSSA and to assess the impact on these lead times of recent USAF procurement reforms.

Research Questions

The following questions will be addressed to answer the research objective:

- a. Research Question 1. What are the current lead times that may be expected for different types of RAAF requisitions submitted under a RAAF-USAF CLSSA?
- b. Research Question 2. To what extent do current lead times differ from those achieved at the time of the 1981 RAAF study?
- c. Research Question 3. How much of the variation in lead times can be attributed to variations in average contracting times experienced by USAF procurement personnel?

Scope of Study

This study will be limited to an examination of lead times for items of service code "A" only. This limitation is necessary to utilize the methodology of the 1981 study, which had the same limitation. The 1981 study observed that the significantly fewer RAAF requisitions for items of service code "A" represented approximately 34% of the total dollar value of CLSSA requisitions at that time. Accordingly, the 1981 study surmised that items of service code "A" were of major concern in the RAAF-USAF CLSSA.

Assumptions

This study will utilize the methodology of the 1981 study in determining approximate satisfaction times for incomplete requisitions. Without evidence to the contrary, the methodology of that study is assumed to be a relatively accurate means for obtaining such information.

CHAPTER II

LITERATURE REVIEW

Chapter Overview

This chapter is divided into two parts. The first part presents a review of previous studies that have attempted to measure CLSSA lead time. Although none of these studies had this measure as their primary objective, the review is useful in assessing the background and validity of the methodology that will be used in this thesis. The second part of this chapter presents a brief outline of the major executive and legislative reforms that are considered responsible for the doubling of administrative lead time within AFLC during the past five years. The purpose of this part is to illustrate the changes that have occurred within the USAF procurement process that may caused changes in the level of support afforded to the RAAF CLSSA.

Part 1: CLSSA Lead Times

There have been a number of studies that have attempted to evaluate the benefits of participation in a CLSSA. Such studies flourished in the years of 1978-1981, during which time the USAF sought to validate the proclaimed benefits of a CLSSA in a bid to gain the Japanese Air Self Defence Force (JASDF) as an additional FMS customer (4:15). However, the studies of primary interest to this thesis are those that have contrib-

uted to the development of a methodology for the determination of CLSSA lead times. Such studies comprise those of:

- a. White and Logan (1968)
- b. Pendley and Ratley (1979)
- c. Callahan, Johnson and Moradmand (1980)
- d. Parker and Lang (1981)
- e. Silver (1986)

White and Logan

In 1968 Wing Commander Sydney White (RAAF) and Major Frank Logan (USAF) undertook the first critical evaluation of the CLSSA program. Their research effort covered many facets of the CLSSA program, including the effectiveness of the program in meeting the supply support requirements of participating countries. The essential elements of supply support were defined as requisition response time, standardization and quality control. White and Logan concluded that the CLSSA program provided effective support in each of these areas (44:80).

White and Logan recognized that many factors influenced the period of time between the creation of a valid CLSSA requisition document and the receipt of the item involved, many of which were under the direct control of the CLSSA customer. Consequently, they determined that the only measurable aspect of the Cooperative Logistics system in terms of supply response time was the response of the system itself (44:70). Accordingly, CLSSA response time was defined as the period of time between the receipt of a CLSSA requisition in the DOD logistics system and the completion of the transaction at the point of issue from a DOD facility. White and Logan found that the world-wide mean response time

of the CLSSA system was in the range of 33 to 42 days. The mean response time of the RAAF CLSSA was found to be 52 days, although this was based on only 63 transactions, all of which occurred during the month of February 1968. Neither the world-wide nor RAAF results were evaluated for the effects of item type, demand priority or program status. (27:44-74)

Pendley and Ratley

In 1979 Mr Kimble Pendley and Captain Griffin Ratley (USAF) expanded the definition of system response time to include the problem of split consignments, ie. where a single requisition is satisfied in several shipments. This problem had apparently been insignificant at the time of the White and Logan study. Pendley and Ratley adopted a weighted average approach to such requisitions, whereby the fill time of each partial shipment was multiplied by the ratio of the number shipped to the number demanded. The response time of the requisition was then computed as the sum of the weighted fill times for each partial shipment. (29:32)

Pendley and Ratley found that the average response time for their sample of 289 NMCS (Not Mission Capable Supply) requisitions was significantly lower for those requisitions eligible for programmed support (74 vs 251 days). An additional and surprising finding of the Pendley and Ratley study was that non-critical requisitions (ie. other than NMCS) of priority 9-15 appeared to enjoy faster response times than those of priority 1-8 (152 vs 227 days). However, the study did not attempt to compare requisitions for like items in each priority grouping and the finding may therefore be related to the nature of the items demanded. (29:50)

Callahan, Johnson and Moradmand

CLSSA response time was further evaluated in the 1979 study of Mr James Callahan, Major Charles Johnson (USAF) and Colonel Mahmood Moradmand (Imperial Iranian Air Force). The methodology of this study differed from that used by Pendley and Ratley in that it included those requisitions which had a 'supply date' but no shipment date. The supply date was defined as the date when the Item Manager identified the asset(s) that would be used to fill the requisition. For such requisitions the fill time was computed as the difference in days between the supply date and the date of receipt of the CLSSA requisition, plus ten days. The addition of ten days was to provide for the incomplete segment of the requisition process, quantified on the basis of the average difference between supply and shipment dates. Split consignments were once again handled as weighted averages. The study found an average response time of 198 days for programmed requisitions and 288 days for non-programmed requisitions. (4:41.64)

Lang and Parker

In 1981 Squadron Leaders Samuel Lang and Cedric Parker (RAAF) undertook a study designed to quantitatively assess the 'supply-effectiveness' of the RAAF CLSSA. Supply-effectiveness was defined by the authors as "the degree to which RAAF requirements for follow-on support receive timely satisfaction by the USAF FMS program once those requirements have been advised to the USAF" (23:14). Lang and Parker concluded that requisition fill-time, defined as the period in days between the commencement of order processing and the finish of order picking, was the most appropriate measure of supply-effectiveness. Although this definition

agreed with that adopted by earlier studies. Lang and Parker had certain reservations on the use of the methodology that had previously been used in the calculation of fill-times. Their main area of concern was for partial shipments, and the true value of such shipments in relieving a critical supply situation. However, the researchers realized that they would be unable to quantify the value of partial shipments and were therefore obliged to accept the approach of the previous methodology. (23:33-40)

Lang and Parker actually used two methods for calculating fill-time. In one, fill-time was calculated by the weighted average method proposed by Pendley and Ratley. This served as the basis for a series of comparative evaluations of the RAAF CLSSA. In the other, Lang and Parker again used the weighted average approach but included all requisitions submitted against the case under examination (AT-D-KBC) by using the Estimated Shipment Date (ESD) as the actual shipment date for incomplete requisitions. This was an extension of the procedure used by Callahan et al, which only included those incomplete requisitions for which a 'supply date' was available. Lang and Parker used this measure to compare RAAF CLSSA fill-times with USAF procurement lead times. (23:39-40)

This research is not directed towards any comparative evaluation of the RAAF CLSSA. Rather, this research is directed towards the description of the present characteristics of the RAAF CLSSA and trends that have occurred within the past few years. Nevertheless, the study of Lang and Parker serves as a useful basis for this study. The second measure of fill-time used in the Lang and Parker study will be used as the methodology for the determination of current fill-times within the RAAF CLSSA.

In addition, the mean fill-times reported by Lang and Parker through their use of this measure will be compared to those found within this study to serve as a backdrop to the study of USAF procurement reforms and their impact on lead time within the RAAF CLSSA.

Silver

In 1986, Captain Bradley Silver (USAF) undertook a further evaluation of CLSSA response times to resolve an apparent contradiction in the results of two earlier studies that sought to validate CLSSA effectiveness. Once again, this study was not directed towards the actual determination of response times but rather towards a statistical evaluation of CLSSA effectiveness on the basis of comparative response times. In addition, the study examined the impact of several variables (type of item, priority and supporting ALC) that were thought to have had an effect on requisition response time. (35:1-2)

Unfortunately, Silver's study is of little use to this effort, as he chose to use readily available summary reports rather than conduct a detailed study of individual requisitions. The specific report used by Silver was the SAMIS Fill Time Statistics Report (35:3-1), which shows the number of requisitions that have been satisfied within a particular 30 or 60 day period. The report shows the priority of these requisitions as belonging to one of only two categories: 1-8 or 9-16. The data is therefore part of a two way grouped frequency distribution that suffers from the problem of all such distributions in that it loses the accuracy of the original data (16:129). Although such imperfections may have been acceptable for the purposes of Silver's research, they are not considered

acceptable for this more descriptive study and the data source will not be utilized.

Conclusion: CLSSA Lead Times

In the course of previous studies that have examined the USAF CLSSA program, a methodology has been developed to measure CLSSA lead time. Development has progressed to the point whereby the response times of both complete and incomplete requisitions can now be evaluated. However, the methodology only provides for measurement of the order processing and order picking elements of the CLSSA order cycle, as these were considered to be the only elements that would reflect CLSSA effectiveness. The methodology has already been used (albeit indirectly) for the determination of mean lead times within the RAAF CLSSA. Those findings can now be used as a benchmark for this study.

Part 2: Procurement Reforms

Introduction

In recent years the US Department of Defence (DOD) acquisition process has been the target for a plethora of legislative and executive reforms. Many of these reforms were prompted by adverse publicity in the early 1980's related to instances of apparent overspending by the DoD in the procurement of weapon system spares. Congress and the DoD have responded to the allegations of waste by respectively introducing a series of Public Laws and Executive Orders aimed at reducing the cost of spares by increasing competition in every phase of the acquisition cycle.

The perceived benefits of competition were enumerated in 1981 by the Deputy Defense Secretary, Mr Frank Carlucci. In a memorandum dated 27 July 1981, Mr Carlucci stated :

We believe that (competition) reduces the cost of needed supplies, improves contractor performance, helps to combat rising costs, increases the defense industrial base, and ensures fairness of opportunity for award of government contracts (6:1).

The extent to which increased competition has met those objectives is difficult to assess in quantitative terms. Nevertheless, government procurement agencies have taken great delight in publishing a series of 'success' stories for individual acquisitions during the past few years (24:17) that bear as much relevance to the health of the overall acquisition process as the 'horror' stories published earlier by the media.

Increased competition and related procurement reforms have undoubtedly secured significant price reductions for the DoD in the acquisition of systems and replenishment spares. The extent of the savings realized was assessed at \$1.2 billion in 1984 and \$1.3 billion in 1985 (20:21). However, the additional manpower and material resources consumed in pursuing 'full and open' competition may have substantially reduced the benefit of those savings. For example, the requirements of competition related legislation has led to the hiring of an additional 2,600 people within the Air Force Logistics Command (AFLC) alone (36:4). However, while several studies have attempted to measure this additional cost in manpower (31), few have attempted to address the additional inventory costs associated with the longer lead times incurred by the new acquisition bureaucracy.

Understandably, the major impact of the recent procurement reforms has been experienced in the contracting divisions of the various government procurement agencies. Accordingly, increases in acquisition lead time

can generally be attributed to increases in administrative or contract lead time, defined as the period between the receipt of a procurement request and the time of contract award. Such increases are a particular concern within AFLC, where every day of additional lead time results in an estimated \$11.3 million investment in the inventory levels of fielded systems (36:4). The increase in administrative lead time (ALT) within AFLC during the past five years is shown in Figure 1 (2).

The purpose of this section is to provide a brief summary of the executive and legislative procurement reforms that have led to the increased emphasis on competition and to assess their apparent or potential impact on ALT within the AFLC.

Executive Reforms

Executive reforms are those that have been introduced by government rather than Congress. The more significant reforms from an Air Force perspective have come from:

- a. development and publication of the Federal Acquisition Regulation;
- b. the Defense Acquisition Improvement Program; and
- c. the Air Force Management Analysis Group.

Federal Acquisition Regulation (FAR)

The FAR was implemented throughout the Air Force on April 1, 1984. The major contribution of the FAR was to render all government agencies involved in contracting subject to the same rules and regulations. Although the FAR did not have any significant impact on the procurement

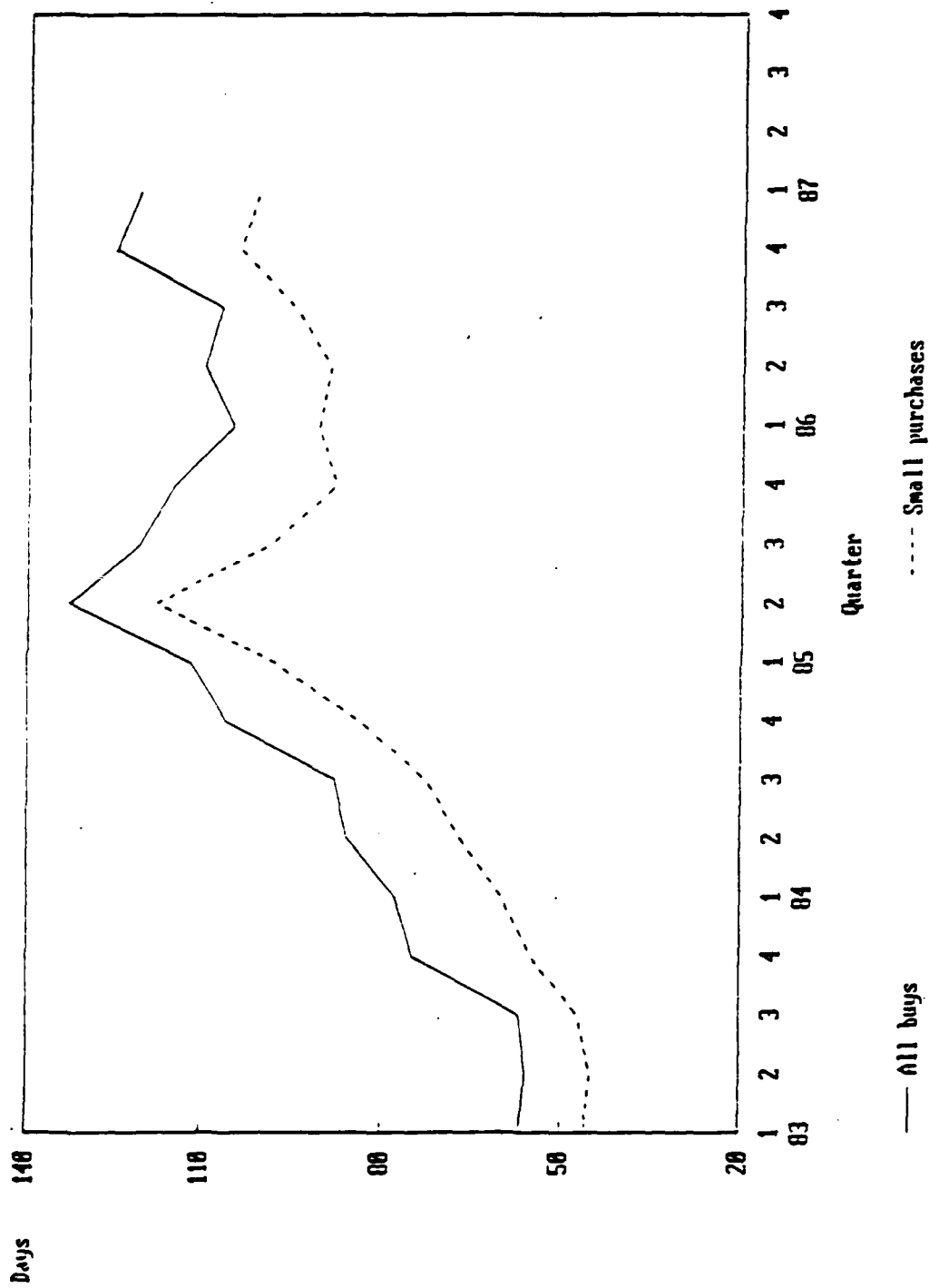


Figure 1. AFLC Administrative Lead Time (2)

practices of the DOD. it did provide a regulation that was much easier to read and use. Accordingly, the FAR was considered to offer improved support for people actually engaged in the procurement process. However, a certain cost was incurred in the extensive training and reorientation of procurement personnel. (37:14)

Defence Acquisition Improvement Program

In 1981 the Deputy Secretary of Defense, Mr Frank Carlucci, promulgated 31 initiatives aimed at solving long-standing problems in the acquisition process (5). A 32nd initiative, promoting the increased use of competition, was included in 1982 (40:29). In 1983 the subsequent Deputy Secretary of Defense, Mr Paul Thayer, placed additional emphasis on six of those initiatives, including competition (39:1). The initiatives became known as the Defence Acquisition Improvement Program, which was primarily focused on reducing the cost of weapons systems and improving the efficiency of the military procurement process. The program has been given credit for checking the growth of program costs that had been a characteristic of major systems acquisition (27:1).

Air Force Management Analysis Group (AFMAG)

The greatest impact on the Air Force from executive reforms in recent years has come from the 1983 AFMAG study on the acquisition of spare parts (37:18). The AFMAG study focused on spares acquisition in the weapon system design, development and production phases and in post-production support activities. The study made 178 recommendations designed to redress four basic kinds of inadequacies: insufficient competition, inaccurate pricing, repetitive buys, and a lack of individual respons-

ibility for cost reasonableness (24:15-16). About 90% of the study's recommendations were implemented during the following two years and have reportedly led to 'positive and measurable' results (24:16).

Legislative Reforms

According to General Lawrence A. Skantze, former commander of Air Force Systems Command, by May 1986 the Air Force had:

tumbled through three years of unprecedented legislative reforms that are well-intentioned but misguided. The original worthy goal was to reduce costs and streamline a complex procurement process. But the intense scrutiny has, instead, increased weapon system lead times and reduced the system to a state of semi-paralysis. (28:1)

The major legislative reforms to which General Skantze refers are:

- a. P.L. 98-72 : Commerce Business Daily Act of 1983:
- b. P.L. 98-369: Competition in Contracting Act of 1984:
- c. P.L. 98-525: Defense Procurement Reform Act of 1984:
- d. P.L. 98-577: Small Business and Federal Procurement Competition Enhancement Act of 1984.

Public Law 98-72 : Commerce Business Daily

P.L. 87-305, Amending the Small Business Act, empowered the Secretary of Commerce to 'obtain and publish notice of all proposed defense procurements in excess of \$10,000' (42:712). Such publication was and is made by the procuring government agency in the Commerce Business Daily. Defense Department implementation of P.L. 87-305 was effected through the Defence Acquisition Regulation (DAR) which stated that, "Purchasing offices should, when feasible, synopsise proposed procurements no later than ten days before the issuance of solicitations" (11:1:68).

The discretionary loophole offered in the above clause gave rise to P.L. 98-72, which required that 'all proposed competitive and non-competitive actions be synopsisized'. In addition, P.L. 98-72 prohibited the issuance of solicitations until fifteen days after the synopsis was tendered and provided for a minimum 30 day response period for all solicitations. (43:403)

The increase in the synopsis requirements, combined with the additional administrative procedures required by P.L. 98-72 for sole source procurements, has been cited as a primary cause of the increased administrative lead times experienced throughout the DoD since the law came into effect on October 1, 1983. (37:26)

Public Law 98-369: Competition in Contracting

The most significant reforms to federal procurement policy in recent years have come from the Competition in Contracting Act of 1984 (CICA). Prior to the implementation of CICA on April 1, 1985, the Armed Services Procurement Act of 1947 (ASPA) separated federal contract placement methodologies into two discrete forms - formal advertising and negotiation. Under formal advertising procedures, government agencies were required to publish a synopsis of their requirements in the CBD, solicit sealed bids and award contracts to the lowest responsive and responsible bidder. Negotiation provided for the discussion of technical requirements and costs with the contractor prior to contract award. The ASPA directed that purchases and contracts be made by formal advertising in all cases for which the use of such method was feasible and practicable. (40:17-19)

Under CICA the emphasis changed from formal advertising to competition, placing competitive negotiations on almost an equal footing

with sealed bidding (previously formal advertising). In addition, non-competitive contracts were no longer a matter of 'feasibility and practicality' but rather become subject to a determination by the head of the procurement agency that the proposed contract met one of the seven criteria specified within CICA for use of other than 'full and open' competition. Other provisions of CICA include a formalization of the Competition Advocacy Program, an extension to the synopsis requirements for the CBD and new protest procedures following contract award (preventing work from proceeding while a protest is pending). (15:1-5)

Air Force reaction to CICA has been mixed. The recognition of competitive negotiation as an equally viable method to sealed bidding has been welcomed, but the requirement for 'full and open' competition is considered less preferable to 'adequate and effective' competition, particularly for small purchases. The new approval requirements for non-competitive buys, revised protest provisions and new synopsis requirements are believed to have placed an additional heavy load on the contracting officer and further exacerbated the problem of increasing ALT. (37:28-29)

Public Law 98-525: Defense Procurement Reform Act of 1984

P.L. 98-525 enacted a broad range of procurement reforms intended to resolve inconsistencies amongst previous legislation (37:30). Major features included provision for (3:54-55):

- a. public comment on proposed defence regulations at least 30 days prior to implementation;
- b. DOD discretion in obtaining contractor guarantees for major weapon systems (thereby amending P.L. 98-94):

- c. inclusion of technical data rights in DOD contracts, based primarily on the source of funding for research and development; and
- d. encouragement of new contractors by promulgation of minimum qualification requirements.

The DOD has not welcomed the requirement for public comment on proposed regulations, claiming that the requirement will inhibit the ability of the DOD to promulgate policy in a timely manner. However, the provision for contractor guarantees is seen as a positive move, reflecting a DOD desire for increased flexibility in contracting. The effect of specifying technical data rights in contracts has not yet been evaluated, but the DOD believes that the provision may lead to a further increase in ALT by requiring layers of approval requirements above the contracting officer. The requirement to set prequalification standards for potential contractors is generally considered to be positive, though it is believed that the requirement will significantly complicate the process of establishing qualified sources on source restricted parts. (37:30-33)

Public Law 98-577: Small Business and Federal Procurement
Competition Enhancement Act of 1984

Prior to the implementation of P.L. 98-577, a small business could be assessed as a non-responsible bidder for a particular contract by the federal procurement agency and the business would then be eliminated from the list of potential contractors without further administration. However, if the value of the contract exceeded \$25,000, the determination of non-responsibility had to be referred to the Small Business Administration (SBA) for review. P.L. 98-577 removed the exemption for contracts

valued at less than \$25,000, thereby requiring every determination of non-responsibility to be reviewed by the SBA before contract award. By Defence Logistics Agency (DLA) estimates, the referral process can delay a contract from between 45 to 90 days. (20:19)

P.L. 98-577 also contained a requirement for the establishment of 'breakout' representatives at each procurement center, tasked with identifying those items currently produced on a sole-source basis which might be less costly to the government if two or more manufacturers were forced to compete for the business (22:13). The Air Force considers the requirement to be a duplication of the function of the Competition Advocate and a further aggravation to continuing increases in ALT (37:35).

The Impact on Administrative Lead Time

The various executive and legislative reforms have realized some tangible benefits for the DOD, not least of which is a significant saving in the cost of weapon systems and component parts. AFLC alone is reported to have saved an estimated \$434 million during fiscal year 1985 (37:46). However, many of the reforms have had the potential for one major detrimental side effect - increased administrative lead time (ALT).

The increasing time required to develop and procure new weapon systems has been identified as one of the major ailments of the defense acquisition process (17:94). Nevertheless, the recent flurry of reforms have been primarily directed towards the amelioration of cost rather than lead time. The inevitable consequence of such focus and the attendant increase in acquisition bureaucracy was a rapid escalation in ALT throughout the DOD. In AFLC ALT rose from an average of 54 days in May 1983

to a peak of 133 days in April 1985 (37:58). The trend has since levelled off and currently (April 1987) appears to be steady at approximately 110 days (2). Based on AFLC estimates (36:4), the average increase of 55 days since 1983 will require an additional \$620 million investment in aircraft replenishment spares and stock fund to support fielded systems for an extended period. This investment, coupled with the ongoing salaries of an additional 2,600 workers within AFLC alone, somewhat tarnishes reports of the substantial savings that have been achieved through procurement reform.

Another concern that has arisen as a result of the increasing lead times has been fear that operational readiness will be degraded. Indeed, an investigation by a House appropriations defense subcommittee found that the most serious problem faced by the Air Force in attempting to achieve planned flying programs in recent years has been the lack of spare parts (21:291). Security Assistance customers have also been affected. For example, the Canadian Defence Forces have noted that the number of their MICAP requisitions placed on backorder has increased sharply since the introduction of the new legislation (18). However, General Smith of AFLC points out that increased lead times have an effect on readiness only if no one plans for them. Nevertheless, he admits that increased lead times can inject a greater amount of uncertainty into requirements determination and reduce the ability of the system to respond in the event of an emergency (20:24).

Conclusion: Procurement Reforms

The number of executive and legislative reforms implemented by the USAF in recent years has been unprecedented in the history of US defense procurement. The primary focus of these reforms has been on increasing competition and reducing costs. However, while attention was focused on competition and unit prices, lead times increased at an alarming rate. Within AFLC, administrative lead times have doubled within the past four years. Attention should now be directed to reducing those lead times to avoid jeopardizing many of the benefits the reforms sought to achieve.

CHAPTER III

RESEARCH METHODOLOGY

Chapter Overview

This chapter describes the methodology used to determine the mean lead times of requisitions submitted against a RAAF-USAF CLSSA and to determine the impact on such lead times of USAF procurement reforms adopted within the past five years. In addition, the chapter details the populations of interest, the the sources of data, and the specific approach that will be taken in answering each of the research questions listed in Chapter I. Frequent references are made in this chapter to the methodology of the previous RAAF study conducted in 1981 by Squadron Leaders Lang and Parker.

Populations of Interest

The research objective required an examination of three populations. described as follows:

- a. Population 1. All requisitions for service code "A" items submitted against the RAAF-USAF CLSSA case designated AT-D-KBR, which was open for requisitions between 01Jul85 and 30Jun86.
- b. Population 2. All requisitions for service code "A" items submitted against the RAAF-USAF CLSSA case designated AT-D-KBC, which was open for requisitions between 01Jul79 and 30Jun80.

- c. Population 3. USAF administrative lead times for all service code "A" items that were eligible for CLSSA support against both the AT-D-KBC CLSSA and the AT-D-KBR CLSSA.

Each population will be discussed further in the research design for the respective research questions.

Sources of Data

Populations 1 and 2 were obtained by manually extracting the required information from file dumps of history information held by the Security Assistance Management Information System (SAMIS), the USAF computer system employed for CLSSA management. Both file dumps were drawn on 4 December 1986.

Population 3 was obtained by two special extractions from the AFLC computer system known as the DO41, or the Recoverable Item Requirements Computational Information System (RCIRCS). The DO41 includes both current and historical information on the production and administrative lead times for items of service code "A" (19,10). The first extraction obtained administrative lead time data current on 4 December 1986 for all investment items that had been demanded against the AT-D-KBR case. The second extraction obtained administrative lead times for this same set of items using data that was current on 4 December 1980. Population 3 was then formed by restricting the set of investment items in the AT-D-KBR case to those items for which data was available on both dates.

Research Method

Research Question 1

Research question one asked, "What are the current lead times that may be expected for different types of RAAF requisitions submitted under a RAAF-USAF CLSSA?" Population 1 was chosen as the source of data for this question as it was the most recent CLSSA case for which a complete set of requisitions had been submitted. Lead times were calculated on the basis of the methodology utilized by Lang and Parker in their 1981 study, once again using ESD as the actual completion date for incomplete requisitions. The 1981 study, however, examined only that part of lead time that was under the control of the USAF, arguing that other components of lead time were largely a result of management decisions by the RAAF which could be controlled accordingly. Lead times determined on the basis of the Lang and Parker methodology therefore do not embrace all elements of the order cycle and consequently do not represent true lead times for provisioning purposes. Nevertheless, the lead times so determined provide a useful basis for assessing the performance of the USAF procurement machinery and provide RAAF management with information on the order processing and picking elements of the CLSSA order cycle.

Lang and Parker observed that RAAF CLSSA requisitions were under the control of the USAF from the time the requisition was received by the SAMIS (then the H051) computer and the time the item(s) were shipped from the USAF procurement centre. In keeping with CLSSA terminology, the researchers defined this period as the "fill-time" of a requisition.

To satisfy the requirements of Research Question 1, population 1 was divided into eight sub-populations, delineated by program status and priority. Mean fill-times for all requisitions within each sub-population were then determined using the methodology of Lang and Parker, as discussed in Chapter 2. The percentage of complete requisitions were also calculated to provide an indication of the reliability of the findings. The results of the calculations were then tabulated using priority, mean fill-time (in days), the number of requisitions and the percentage of requisitions that had been completed for both programmed and non-programmed requisitions.

Research Question 2

Research Question 2 asked, "To what extent do current lead times differ from those achieved at the time of the 1981 RAAF study?" Research Question 2 therefore involves a comparison between the fill-times achieved in the AT-D-KBR case of 1985/86 and those achieved in the AT-D-KBC case of 1979/80. To provide such a comparison, mean fill-times of requisitions from the KBC case (population 2) were calculated on the same basis as those for the KBR case (population 1), delineated by program status and priority. Since all requisitions were analyzed from both populations, differences between the respective sub-groups in the two populations were immediately apparent. To illustrate the direction of change over the past five years, these difference were displayed in tabular format expressed as percentage increases or decreases from the mean fill-times of the KBC population.

Research Question 3

Research question 3 asked, "How much of the variation in lead times can be attributed to variations in average contracting times experienced by USAF procurement personnel?" Research Question 3 therefore investigates the relation between variations in USAF administrative lead time and variations in CLSSA lead time over the past five years. However, the only segment of CLSSA lead time that was likely to be affected by variations in USAF administrative lead time was that segment for which requisitions were under USAF control. Accordingly, requisition fill-time was again considered to be the most appropriate research measure.

Variations in requisition fill-times for the RAAF-USAF CLSSA were determined from populations 1 and 2 on the basis of stock numbers that were common to both populations. The set of stock numbers so determined was further restricted to those stock numbers that had requisitions of equal priority and program status in both populations. Without such restrictions any variation in CLSSA lead time could have been easily attributed to differences in those parameters.

Variations in USAF administrative lead times for individual stock numbers were determined from population 3 by comparing data that was current on 4 December 1980 and data that was current on 4 December 1986. Administrative lead time has been defined as the period between the receipt of a procurement request by AFLC and the award of a contract for the supply of the item requested. Previous studies have shown that administrative lead times have increased significantly following the introduction of recent procurement reforms. Accordingly, variations in

administrative lead times were considered a suitable research measure for assessing the effect of the procurement reforms.

The relationship between variations in RAAF-USAF CLSSA lead times and USAF administrative lead times was measured using simple linear regression. Matching sets of observations for the two variables were analyzed by the ISP (Interactive Statistical Program) software package on an IBM personal computer. The output of the ISP regression procedure provided a measure of the Coefficient of Determination (R^2), expressed as a percentage, which indicated the practical significance of the degree of association between the two variables.

The degree of association found between the variations in contract lead times and RAAF-USAF CLSSA fill-times was used to draw conclusions for Research Question 3.

CHAPTER IV

DATA ANALYSIS AND EVALUATION

Chapter Overview

The purpose of this chapter is to provide answers to the three research questions. Each question will be covered in turn. The results of the data analysis will be detailed first to give an objective description of the findings. Subsequent evaluation will then draw on those findings to establish conclusions in accordance with the research objective.

Research Question 1

The Problem

Research Question 1 sought to determine the current lead times that could be expected for the different types of RAAF requisitions submitted under a RAAF-USAF CLSSA.

Data Extraction

The data for Research Question 1 was drawn from population 1, which comprised all requisitions for investment items submitted against the AT-D-KBR case of 1985/6. The data was manually extracted from a SAMIS product designated U-W001-HBC, which was drawn for the AT-D-KBR case on 4 December 1986. The product contained a complete transaction history for all requisitions submitted against the AT-D-KBR case to that point in time. Unfortunately, the product does not separate expense from investment items and the selection therefore had to be performed manually. A

total of 539 investment item transactions were identified from a total of 17,523 transactions against the AT-D-KBR case.

To satisfy the requirements of this question, as well as those of Research Questions 2 and 3, the following information was extracted for each transaction and loaded into a computer database:

- a. case designator
- b. report page number (for verification and corrections)
- c. stock number
- d. quantity
- e. priority
- f. program status code
- g. SAMIS input date
- h. respective shipment dates
- i. respective shipment quantities
- j. estimated shipment dates (for incomplete requisitions)

Once loaded, the database was sorted on program status to separate programmed from non-programmed requisitions. Programmed requisitions were identified by a program code of 6, as opposed to non-programmed requisitions which had program codes of 7, 8 or 9. An exception to this format occurred with "drawdown" requisitions, which did not show any program code whatsoever. A drawdown requisition is used to permanently reduce the quantity of an item for which the customer (in this case the RAAF) has a obligation to purchase. However, such an obligation exists only if the item is eligible for programmed support. Accordingly, all drawdown requisitions are eligible for programmed support. The database was amended to reflect this reasoning.

The database was further sorted within the two program categories on the basis of requisition priority. As discussed in Chapter 1, the requisition priorities authorized for use by the RAAF are 03, 06 and 13. However, 57 of the 539 requisitions were observed to have priorities of 15. Fifty of these were associated with drawdown requisitions, while 6 others were associated with 'MRRL' (maintenance repair and replacement) requisitions. Discussions with the RAAF Supply Liaison Officer and the Australian country manager revealed that each of these requisitions should have been given a priority of 13. The database was subsequently amended to reflect this information. A further problem with requisition priority arose when the transaction history revealed a change in priority. In these instances the priority was assumed to be the priority that was current at the time of the report, viz. 4 December 1986.

Analysis and Findings

The sorted database was transferred to a spreadsheet program (Lotus 123) to perform the calculations of requisition fill-time. The fill-time of a requisition that was satisfied in one shipment was calculated as the period in days between the SAMIS input date and the date of the shipment. The fill-time of a requisition that was satisfied in more than one consignment was calculated as a weighted average according to the quantity shipped relative to the quantity demanded. The fill-time of an incomplete requisition was calculated as if the estimated shipment date (ESD) was the actual date of shipment. A partially incomplete requisition was treated as a multiple shipment requisition with the ESD as the final date of shipment. Each of these techniques draws on the methodology of Lang and Parker as developed and discussed in Chapters 2 and 3.

The fill-times determined for each requisition were extracted from the spreadsheet program and appended to the original database. The database then served as the basis for selective extraction of fill-time data within each of the following sub-populations of the AT-D-KBR case:

- a. all programmed requisitions of priority 03
- b. all programmed requisitions of priority 06
- c. all programmed requisitions of priority 13
- d. all programmed requisitions
- e. all non-programmed requisitions of priority 03
- f. all non-programmed requisitions of priority 06
- g. all non-programmed requisitions of priority 13
- h. all non-programmed requisitions

The data in each of these subpopulations was analyzed with the help of the ISP software package. The results are summarized in Tables 1 and 2.

Table 1

Mean Fill-times for Programmed Requisitions: Case AT-D-KBR

Priority	Mean fill-time (days)	No. of requisitions	Percentage complete
03	67.2	10	70
06	81.4	37	86
13	109.7	87	90
All	98.7	134	87

Table 2

Mean Fill-times for Non-Programmed Requisitions: Case AT-D-KBR

Priority	Mean fill-time (days)	No. of requisitions	Percentage complete
03	354.6	33	30
06	355.7	192	51
13	287.5	107	54
All	333.6	332	50

Evaluation

Tables 1 and 2 present reasonably predictable findings. The results indicate that the average satisfaction time for a non-programmed requisition is considerably greater than that for a programmed requisition, regardless of priority. An interesting observation, however, is that the number of demands for non-programmed items is over twice that for programmed items. A check of the database revealed that the requisitions for non-programmed items held the following program codes:

Program code 7 - 106 requisitions (27.7%)

(indicates a non-recurring demand)

Program code 8 - 213 requisitions (55.6%)

(indicates a recurring demand for an item which is not included on the country's pre-funded forecast of requirements)

Program code 9 - 64 requisitions (16.7%)

(indicates a recurring demand that exceeded the eligible to be programmed quantity)

Given the significantly greater satisfaction times inherent to non-programmed support, some investigation might be called for to see if such a high level of non-programmed support, particularly for recurring items, is warranted.

An important observation that is not apparent from the information within Tables 1 and 2 is that the mean fill-times do not accurately portray the central tendency within each set of fill-times for each sub-population. In other words, the mean fill-times shown do not represent the fill-times that could be expected of a typical requisition submitted against a particular combination of program status and priority. The problem is evident in Figures 1 and 2, which illustrate the frequency distributions of fill-times for programmed and non-programmed requisitions respectively. The figures show that the majority of requisitions are satisfied in less than 100 days, although a disproportionate few take considerably longer. This would seem to indicate that the majority of demands are satisfied from USAF or contractor stocks, rather than initiate new buys or possibly new production. A better indication of central tendency (or expected value) in this situation is given by the median, which, unlike the mean, is unaffected by extreme values. Accordingly, the median value of each sub-population in the AT-D-KBR case was determined and is presented in Table 3.

The median values displayed in Table 3 are representative of the fill-times within the respective sub-populations in the AT-D-KBR case. An unexpected observation from this table is that requisition priority and requisition fill-time appear to be inversely related. However, this phenomena is due partly to the lower number of requisitions on which the higher priorities were determined, which makes them more subject to the nature

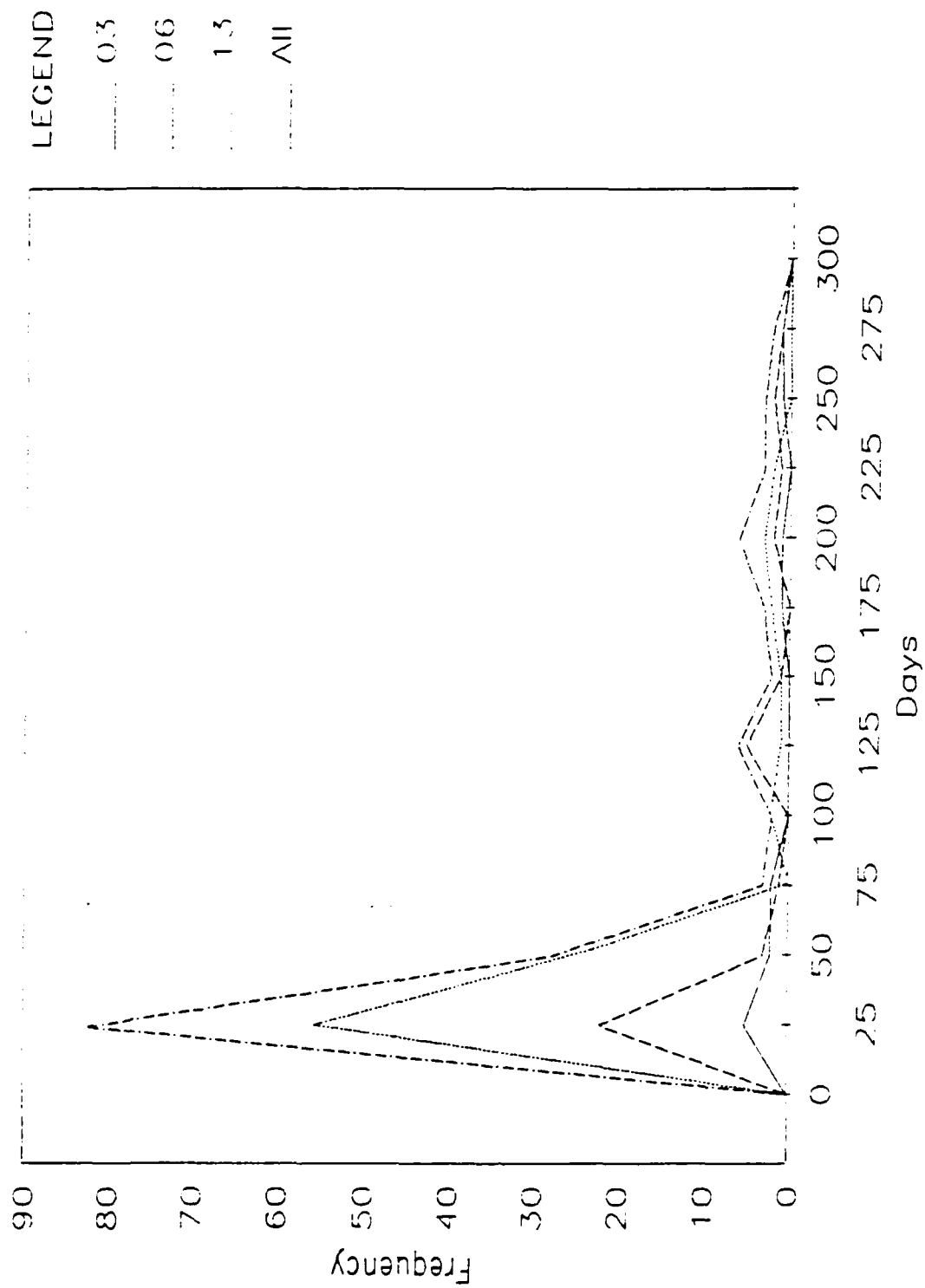


Figure 2. Fill-time Distribution Curves
Programmed Requisitions: Case AT-D-KBR

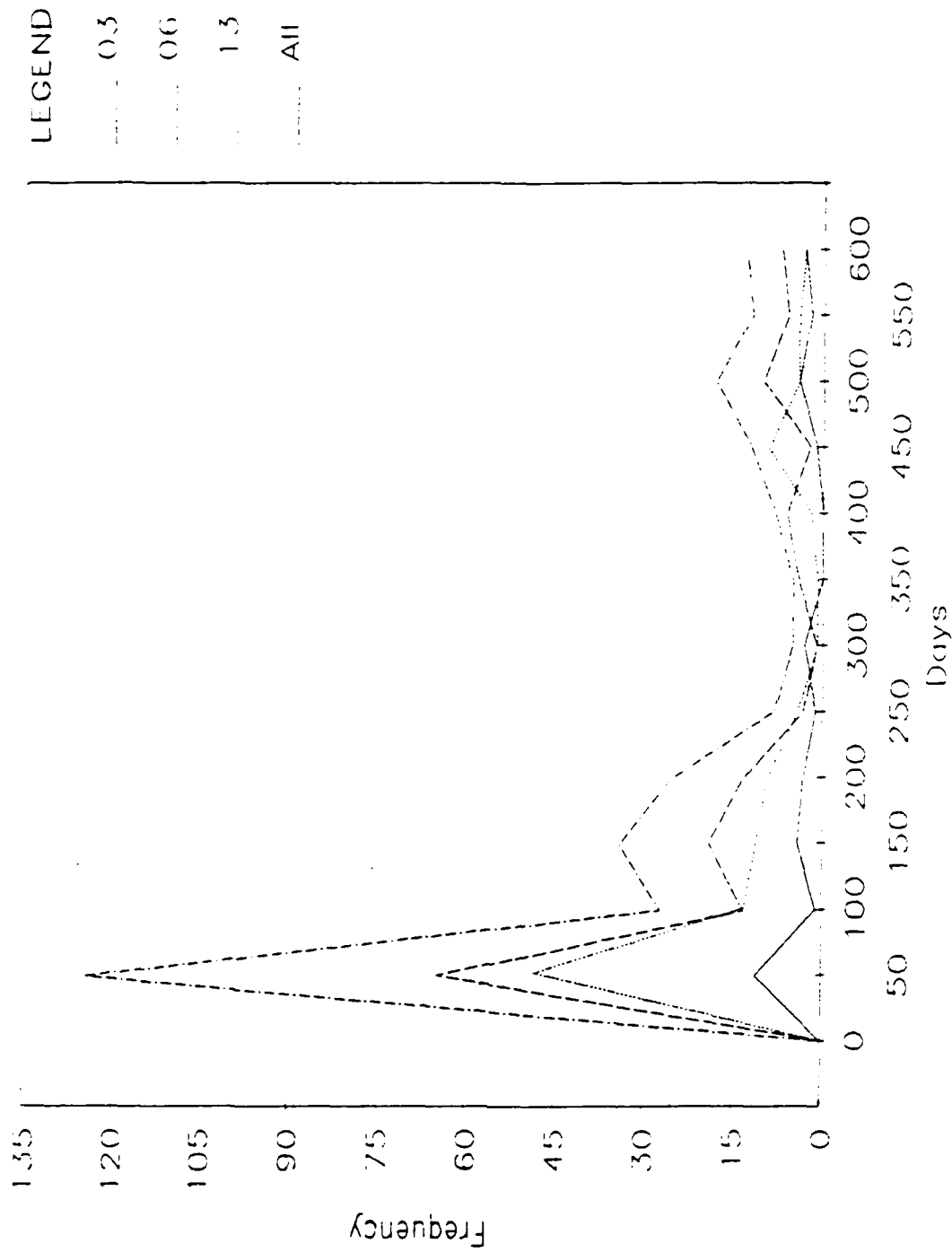


Figure 3. Fill-time Distribution Curves
Non-Programmed Requisitions: Case AT-D-KBR

Table 3

Median Fill-times : Case AT-D-KBR

Programmed Requisitions		Non-Programmed Requisitions	
Priority	Median (days)	Priority	Median (days)
03	36.5	03	197.0
06	22.5	06	182.0
13	33.6	13	159.0
All	22.3	All	164.5

of individual requisitions rather than the actual position of central tendency. In addition, higher priority requisitions are more likely to be submitted for "problem" items which are more susceptible to supply difficulties and thus attract higher fill-times.

Since the AT-D-KBR case is the most recent case for which a full set of requisitions is available, the median values shown in Table 3 also represent the best estimation of current fill-times that could be expected for the different types of requisitions in a RAAF-USAF CLSSA.

However, the RAAF uses only one measure of FMS lead time to determine provisioning requirements for FMS sourced items. This measure does not take into account the various combinations of requisition priority and program status and hence must provide for the expected lead time at the lowest level of support. The fill-time component of that lead time is assessed at 159 days (approximately 5 months), which is the median value of fill-time for all non-programmed requisitions of priority 13 in the AT-D-KBR case. This period compares favourably against the 12 month period

currently used by the RAAF for FMS lead time and suggests that this figure could be reduced, with subsequent savings in inventory investment and with minimal impact on operational capability. However, it is interesting to note that the current period of 12 months is very close to the average fill-time for non-programmed requisitions in the AT-D-KBR case. This would seem to indicate that RAAF FMS lead time forecasts have previously been based on the mean, rather than the median of sample data. As discussed earlier, such a basis is considered to be inappropriate and misleading in view of the highly skewed fill-time distributions.

Research Question 2

The Problem

Research question 2 sought to investigate the difference between current fill-times and those achieved in 1980. To do this the fill-times from the AT-D-KBC case of 1979/80 were compared to the fill-times achieved in the AT-D-KBR case of 1985/86.

Analysis

Data for the AT-D-KBC case was collected in exactly the same manner as that for the AT-D-KBR case. Similar problems arose and were treated accordingly. However, all requisitions from the AT-D-KBC case were complete by the time of the SAMIS extraction (4 December 1986) and there was subsequently no need to use ESD in lieu of a final shipment date. The accuracy of the findings (given that there were no transcription errors) should therefore be complete.

Tables 4 and 5 detail the number of requisitions and the mean for each sub-population in the AT-D-KBC case. Once again, the number of non-programmed requisitions appears to be excessively large. In fact, non-programmed requisitions comprised 79% of all requisitions submitted against the AT-D-KBC case. It is interesting to note that this ratio remained virtually unchanged for the AT-D-KBR case (71%).

Table 4

Mean Fill-times for Programmed Requisitions : Case AT-D-KBC

Priority	Mean (days)	No. of requisitions
03	133.9	20
06	214.7	48
13	153.0	34
All	178.3	102

Table 5

Mean Fill-times for Non-Programmed Requisitions : Case AT-D-KBC

Priority	Mean (days)	No. of requisitions
03	188.3	46
06	307.4	191
13	392.4	146
All	325.5	383

A comparison of fill-times between the AT-D-KBC case and the AT-D-KBR case would be valid only if the fill-times used represented typical fill-times for each sub-population. In the analysis for Research Question 1 it became apparent that the sub-populations were better represented by the median rather than the mean, due to the presence of extreme upper values. A similar check was performed on the data from the AT-D-KBC data by constructing the frequency distributions shown in Figures 3 and 4. Once again, the distributions proved to be highly skewed and therefore better represented by the median rather than the mean. Accordingly, the median of each sub-population in the AT-D-KBC case was determined and is presented in Table 6.

Table 6

Median Fill-times : Case AT-D-KBC

Programmed Requisitions		Non-Programmed Requisitions	
Priority	Median (days)	Priority	Median (days)
03	4.8	03	44.4
06	30.9	06	67.0
13	12.9	13	158.0
All	12.9	All	74.2

Findings

The median values from the two cases now form the basis for a comparison of fill-times. Differences between the two cases are presented

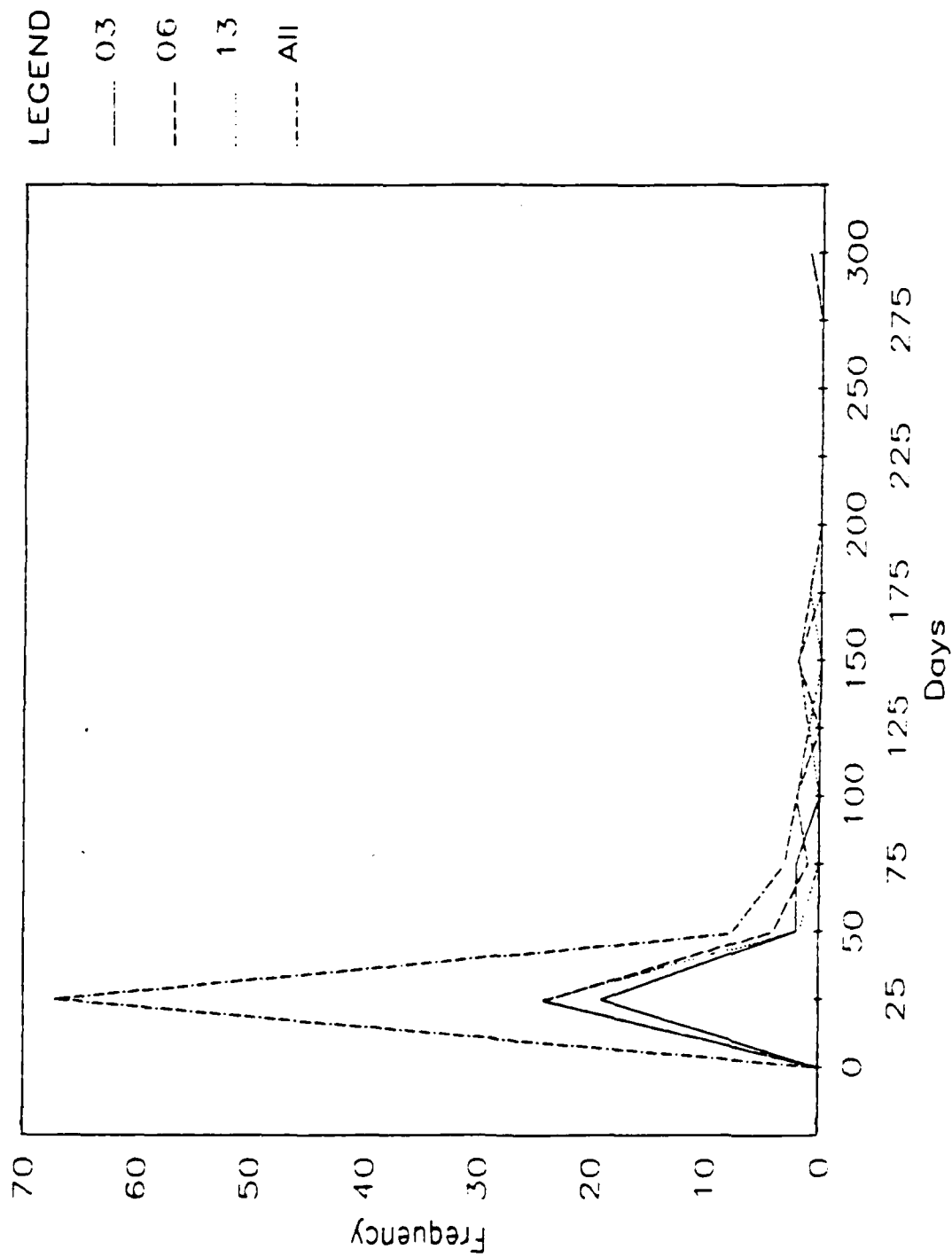


Figure 4. Fill-time Distribution Curves
Programmed Requisitions: Case AT-D-KBC

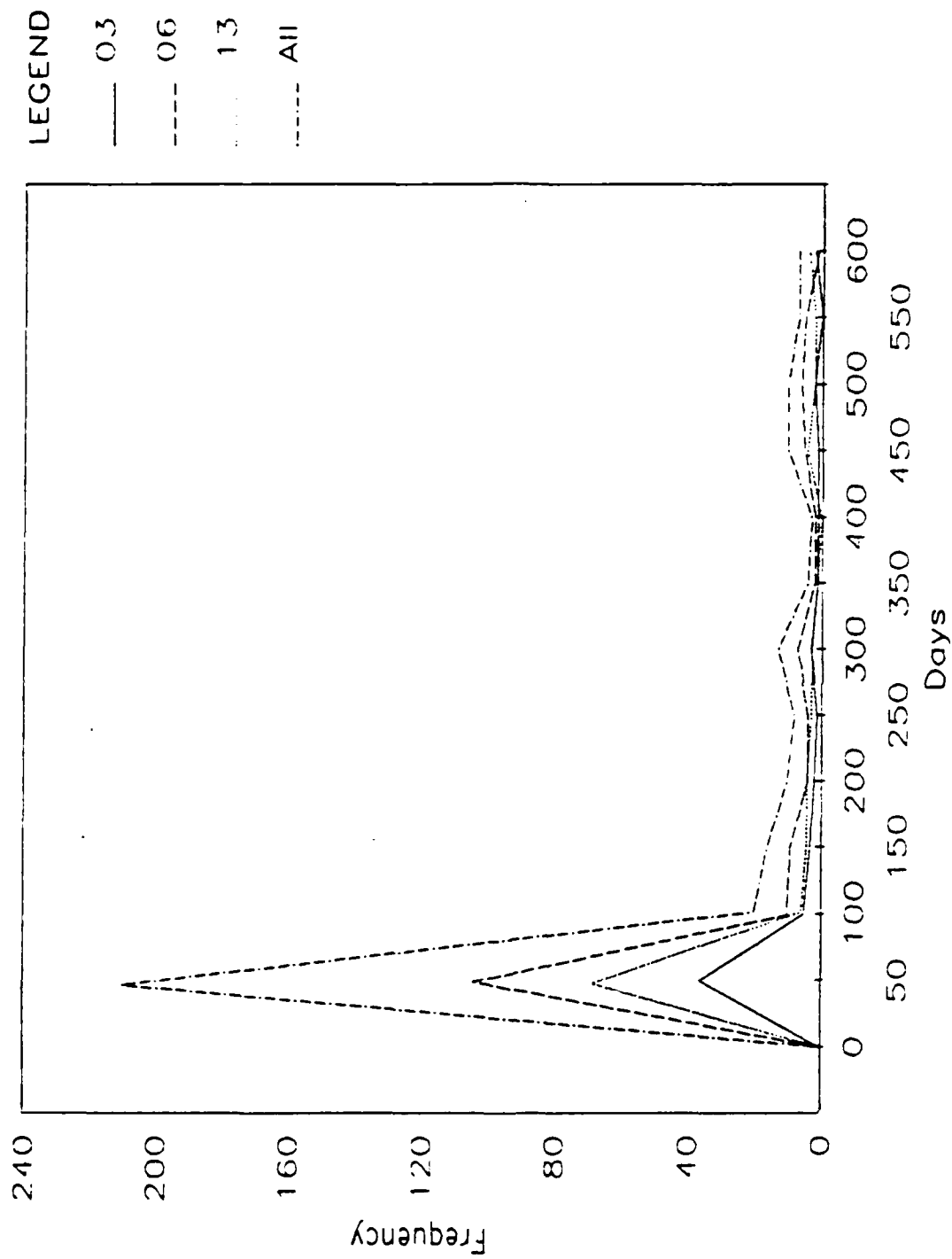


Figure 5. Fill-time Distribution Curves
Non-Programmed Requisitions: Case AT-D-KBC

in Table 7, expressed as percentage increases from the fill-times of the AT-D-KBC case.

Table 7
Percentage Increases in Fill-time

Programmed Requisitions		Non-Programmed Requisitions	
Priority	Percentage Increase	Priority	Percentage Increase
03	660	03	344
06	-27	06	171
13	160	13	1
All	73	All	122

Evaluation

The seemingly erratic findings in Table 7 can be attributed in some degree to the number of requisitions on which the findings were based. For example, there were only 20 programmed requisitions of priority 03 within the AT-D-KBC data and only 10 within the AT-D-KBR data. The increase of 660% found for such requisitions should therefore be viewed with some skepticism. With few requisitions to draw on, the findings become subject to the idiosyncrasies of individual requisitions. The highest degree of confidence in the findings should therefore be given to the sub-populations containing the greatest number of requisitions, viz. those that contain all requisitions for the programmed and non-programmed categories respectively. As shown in Table 7, both of these sub-populat-

ions indicate that a substantial increase has occurred in the fill-time of CLSSA requisitions.

Research Question 3

The Problem

Research Question 3 sought to determine the extent of the relationship between variations in CLSSA fill-times and variations in USAF administrative lead times during the past six years. The purpose of the question was to determine whether or not the RAAF has been affected by the many procurement reforms undertaken by the USAF during that same period.

Data Extraction

The set of investment items demanded against the AT-D-KBR case comprised 636 individual stock numbers. These stock numbers were output on magnetic tape from SAMIS and served as the basis for drawing information from the D041 to construct population 3. Unfortunately, 138 of these stock numbers were not held on the D041 on 4 December 1980, and the set of investment items for use in the analysis was therefore reduced to 438. Administrative lead time data for the reduced set was extracted from the D041 and downloaded to a floppy disk in simple ASCII format. The information on the floppy disk was then used to build a database on a personal computer using the 'Database III Plus' software package. An additional field on the database was constructed to calculate the difference in administrative lead times over the six year period.

To compare variations in USAF administrative lead times with variations in CLSSA lead times over the same period, a set of investment items was required that had been demanded in both the AT-D-KBR case of 1985/86 and the AT-D-KBC case of 1979/80. However, a difficulty arose with the issues of item priority and program status. The researcher believed that it would be invalid to calculate differences in fill-times between the two cases for a particular stock number unless the stock number had been demanded at the same priority and had received the same program status (ie. programmed or non-programmed) in each case. Accordingly, variations in CLSSA fill-times were extracted from populations 1 and 2 for only those items that met this condition. Unfortunately, this condition also reduced the extracted data to a set of only 17 stock numbers. Further investigation revealed that only 28 stock numbers were common to both cases, of which 11 had mixed priorities or program status. The 17 remaining stock numbers were then matched to stock numbers extracted from the D041 to perform a regression analysis. Unfortunately, only 7 of the stock numbers matched, leaving a very poor basis on which to draw reliable conclusions.

Analysis and Findings

Despite the paucity of data, increases in USAF administrative lead time and increases in CLSSA fill-times for matching stock numbers were input to the ISP software package to conduct the regression analysis. The output from the procedure revealed a Coefficient of Determination (R^2) of only 0.08, indicating that very little if any association existed between the two variables.

Evaluation

The degree of association found between increases in USAF administrative lead time and RAAF CLSSA fill-times should be viewed with some reservation. The seven stock numbers used in arriving at this figure represent only 1.5% of the investment item stock numbers that were demanded against either the AT-D-KBR or the AT-D-KBC case. The unreliable finding is largely due to the fact that the set of investment items demanded against the A-D-KBC case was almost completely different from those demanded against the AT-D-KBR case. The staff of the RAAF Supply Liaison Office within the ILC suggested that a possible explanation for the phenomena would be that investment items are not characterized by frequent procurement and there could therefore be several years between consecutive demands. The possibility of observing matching stock numbers in any two 12 month periods would then be purely coincidental. This reasoning is supported by the high proportion of non-programmed requisitions in populations 1 and 2, including many which were coded as non-recurring.

Although the finding was unreliable and therefore inconclusive, some value may be obtained in examining the general increase that has been experienced in USAF administrative lead times for items on the RAAF FMS01 case (the prefunded forecast of requirements). Using similar data extraction and analysis procedures to those that have been described for the respective research questions, the average increase in USAF administrative lead time in the period from 4 December 1980 to 4 December 1986 for all items on the RAAF FMS01 case was 132 days, representing a 55% increase above the average administrative lead time that existed in 1980.

This 55% increase is not too dissimilar from the average increase of 73% found in Research Question 2 for the median values of programmed CLSSA requisitions, which by definition are a subset of the items on the FMS01. Hence, although a relation between CLSSA fill-time increases and USAF administrative lead time increases was not proven in this study, there is nevertheless evidence to suggest that there may be some basis to the contention. More conclusive results could be obtained by the inclusion of data from the cases in the years between the two CLSSA cases reviewed, which should provide a stronger basis on which to confirm or deny the association between the two variables.

Conclusion

This chapter has provided answers to the three research questions as far as possible given the limitations of the data. The significance of the findings was discussed, together with their possible implications for the RAAF. The following chapter summarizes these results in terms of their relevance to the research objective and presents recommendations for further research.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Chapter Overview

The purpose of this chapter is to draw conclusions from the findings in Chapter IV relevant to the research objective of establishing current RAAF-USAF CLSSA lead times and evaluating the impact on such lead times of recent USAF procurement reforms. In addition, this chapter presents recommendations for management action and further research.

Conclusions

Summary of Research Questions and Conclusions

Research Question 1. What are the current lead times that may be expected for different types of RAAF requisitions submitted under a RAAF-USAF CLSSA? This study attempted to measure only that component of lead time known as fill-time, or the period between order receipt and item shipment. The fill-times for the different types of RAAF requisitions were found to be best represented by the median value for each combination of program status (ie. programmed or non-programmed) and item priority. These values are presented in Table 8.

The value of 159 days for non-programmed requisitions of priority 13 was considered to be particularly significant as this represents the median fill-time for items that attract the lowest level of support. This is believed to be the period that should be used for the single forecast of

Table 8
Current Median Fill-times of CLSSA Requisitions

Programmed Requisitions		Non-Programmed Requisitions	
Priority	Median (days)	Priority	Median (days)
03	36.5	03	197.0
06	22.5	06	182.0
13	33.6	13	159.0
All	22.3	All	164.5

FMS lead time used by the RAAF, since the shorter fill-times associated with other combinations of program status and priority are the result of management actions that have been taken specifically to improve individual lead times from that basis.

However, the current RAAF forecast of FMS lead time is 12 months (7), which considerably exceeds the findings of this study. This would appear to indicate that the RAAF may be carrying an excess amount of inventory to provide for a pipeline that is apparently much shorter than expected. The exclusion of expense items from this study would not appear to affect this conclusion, as the committed value of expense items in the AT-D-KBR case did not exceed the program limit for such items, indicating that the majority of expense items would have enjoyed program-med support with relatively short lead times.

The findings of this study do not, however, indicate the criticality of the items that were satisfied with fill-times near the median. It may well

be that the less numerous but more critical items took longer to procure, and would have been severely impaired operational capability had the lead time forecast reflected the expected satisfaction time of less critical items. This possibility is supported by the information in Table 8, which shows that the median fill-times of 03 requisitions in both programmed and non-programmed categories were actually longer than those of lower priorities. Thus, although this study indicates that some reduction in the RAAF FMS lead time forecast could be warranted, any such reduction should be carefully weighed against any possible detriment to operational capability.

Research Question 2. To what extent do current lead times differ from those achieved at the time of the 1981 RAAF study? The study found that exact comparisons for each combination of program status and priority across the six year period were unreliable due to the lack of sufficient data in some categories. However, the study did show that the average fill-time for non-programmed requisitions as a whole had increased by approximately 122%, while programmed requisitions had increased by approximately 73%.

These findings support the contention that CLSSA lead times have increased significantly in recent years. More importantly, however, these findings suggest that the level of inventory committed to the CLSSA pipeline has increased commensurately, with an equivalent reduction in the level of inventory available for use. Such a concern, however, is mitigated by the finding for Research Question 1, which indicated that the current FMS lead time forecast provided for a level of inventory in excess of that actually required. Nevertheless, the increase in fill-times is disturbing, as

it indicates that the safety margin of CLSSA stock purchased by the RAAF is diminishing, with subsequent impact on maintenance capacity in the short term and the surge capacity of affected systems in the long term.

The possibility also exists that the apparent excesses of an increased lead time forecast have been balanced against shortfalls that have resulted from insufficient forecasts of other lead time components, notably the ill-defined 'supply margin' (7). From this perspective, the current RAAF FMS lead time forecast may have been necessary to provide for the minimum level of inventory required to support a particular range of systems. Thus, if that minimum level of inventory is reduced through increases in actual lead time, significant shortages could result that would impair operational capability. To prevent such a problem, or indeed to remedy a problem that could already exist, the RAAF may wish to increase the FMS lead time forecast using the increases in fill-time found for Research Question 2 as a guide.

A further consideration that ensues from the findings of both Research Question 1 and Research Question 2 is whether or not the 5 month period used in CLSSA computations for procurement lead time (which includes both administrative and production lead time) remains valid. If the period is sufficient, very few requisitions for items eligible for programmed support would need to be placed on hold until the items were received in USAF stock. However, the increase in the median fill-time for programmed requisitions over the past five years suggests that the period is in fact insufficient and should be increased. Whether or not the RAAF or any other CLSSA customer should be required to make any

commensurate increase in their level of equity, however, is a matter for negotiation between the respective parties.

Research Question 3. How much of the variation in lead times can be attributed to variations in average contracting times experienced by USAF procurement personnel? The data that was used in this study did not support any reliable measure of the degree of association between these two variables. However, the average increase in USAF ALT for eligible-to-be-programmed items and the median increase for programmed CLSSA requisitions (see Research Question 2) were of a similar magnitude, suggesting that such an association may indeed exist. Proof of such an association, however, would involve the examination of a different set of data, which is considered to be beyond the scope of this research.

Satisfaction of the Research Objective

The initial purpose of this study was to determine current lead times for the different types of RAAF requisitions submitted against a RAAF-USAF CLSSA. This objective is considered to have been satisfied by the findings and conclusion for Research Question 1. The subsequent purpose of this study was to determine to what extent these lead times had been affected by recent USAF procurement reforms. This objective was not satisfied in that a reliable conclusion could not be drawn from the data available. In view of this outcome a recommendation will be made to conduct additional research in this area.

Recommendations

Management Action

The conclusion to Research Question 1 indicates that the expected time between order receipt and order shipment for a CLSSA requisition with the lowest level of support is 159 days, or about 5.5 months. The RAAF may wish to review and possibly reduce the current FMS lead time forecast on the basis of this finding, subject to consideration of the reducing supply margins that were highlighted in the conclusion to Research Question 2. In addition, although no reliable association was found between USAF administrative lead time and CLSSA requisition fill-time, there is evidence to suggest that the two are indeed related. The RAAF may therefore benefit by conducting periodic reviews of FMS lead time based in part on the AFLC administrative lead time for investment items listed on the RAAF-USAF CLSSA.

In view of the deteriorating level of CLSSA support, USAF management is encouraged to review the adequacy of the current 5 month period used in CLSSA negotiations for procurement lead time and equity investment. An increase to this period would seem to be necessary to better reflect the actual time of procurement and enable a greater proportion of programmed CLSSA requisitions to be satisfied from USAF stocks. Alternatively, measures could be undertaken to reduce the procurement lead time, but since the extensions have been the result of both congressional mandates and changing industry characteristics, such measures are unlikely to be effective in the short term.

The data extraction and analysis for this study involved many hours of tedious manual labour and operations on computer systems that were

not available to the RAAF Supply Liaison Officer (SLO) at Wright-Patterson AFB. If further studies are to be conducted and more timely information is required, consideration should be given to providing the RAAF SLO with the means to conduct these studies rapidly at the time required. The present computer system used in support of FMS operations (SAMIS) has apparently been designed to give excellent support to day to day operations but only limited support to management needs (especially those of foreign customers). The RAAF and USAF may wish to consider the joint development of a Decision Support System for the Australian office that would have limited access to the SAMIS database but would allow the RAAF SLO to conduct more effective reviews of FMS performance parameters. If successful, the system could be used as a prototype for other FMS customers represented in the ILC.

USAF management is also encouraged to undertake a review of the many channels of input to SAMIS. In the process of this study many anomalies appeared (eg. inaccurate item priorities, mismatching summary and detail lines) that suggest that a greater level of control is needed. In addition, ILC management may wish to consider the inclusion of a comprehensive data dictionary to assist SAMIS users interpret the many codes and symbols on the various SAMIS management products.

RAAF management is encouraged to examine the high proportion of RAAF CLSSA requisitions that receive non-programmed support. The extended fill-times for requisitions thus classified inevitably leads to a requirement for an increased level of investment in inventory or a deterioration in the level of support provided to affected systems. Such financial and operational repercussions would appear to substantially

outweigh the financial risk of including a greater range of items on the FMS01 or increasing the quantity for certain items thereon.

Further Research

There are at least two further areas of research that are suggested by this study. The first area lies in the continuing evaluation of USAF performance in respect of fill-times for RAAF CLSSA requisitions. Periodic information of this nature is believed to be useful to the RAAF in validating the extent of its involvement in the FMS program. Such evaluation should also include the monitoring of changes in the USAF procurement system and assessing the effect of such changes on the RAAF-USAF CLSSA. Future studies, however, should consider using requisition data from more than two cases to ensure that sufficient data is available on which to base any comparative analyses.

The second area of study lies in determining the expected duration of the other elements in the CLSSA order cycle, viz. order preparation and transmittal, order shipment, delivery and unloading. Information from these areas would be useful in completing the work done by this study and give proper testimony to the continuing validity of the lead time forecast used for requisitions in the RAAF-USAF CLSSA.

Appendix A: Glossary of Terms

Administrative Lead Time. The time between the receipt of a purchase request and contract award. (2)

Control Level. A computed stock level the Item Manager and Stock Level Requirements Computer (D032) use when filling requisitions. Non-programmed requisitions are eligible to be filled from depot stocks if the asset position is above the control level. (1:vii)

Co-operative Logistics Supply Support Arrangement. The arrangement, sometimes called a supply support arrangement, under which logistic support is provided to a foreign government through its participation in the United States Department of Defense Logistic System with reimbursement to the United States for support performed. (12:Glossary)

D032. The Stock Control and Distribution System used by the Air Logistics Centers to manage assets and fill requisitions. (1:vii)

Expense Item. An item that is expensed from accounting records at the time of issue. These items are not considered to be reparable. Also referred to as EOQ items and consumable items. Identified by service codes of "B" or "C" in FMS cases. (1:viii)

Fill-Time. Fill-time is defined in the FMS context by Lang and Parker as the time between the input of a requisition to SAMIS and the shipment or expected shipment of the item(s) from an AFLC or contractor facility. (23:Glossary)

Follow On Support. Recurring support required to maintain the operational status of a system or major item. Includes spares, repair parts, publications, maintenance, training, support equipment, munitions.

modifications, technical assistance, metrology/calibration, and petroleum, oils and lubricants. (8:Ch19,3)

Force Activity Designator (FAD). A Roman numeral from I to V assigned to a customer of the USAF by the United States Joint Chiefs of Staff. The FAD is applicable to all requisitions for material destined for the customer; or the FAD may be assigned to a specific military service of the FMS customer or to a particular FMS case. (8:Ch6,12)

Foreign Military Sales (FMS). The selling of military equipment to friendly foreign governments and international organizations under the authority of the Arms Export Control Act of 1976 (AECA), as amended. (13:A1.3)

Foreign Military Sales (FMS) Case. A contractual sales agreement between the United States and an eligible foreign country or international organization documented by DD Form 1513. One FMS case identifier is assigned for the purpose of identification, accounting and data processing for each accepted offer (DD Form 1513). (12:Glossary)

Investment Item. An item that can be repaired and reissued. Also referred to as a reparable item or a recoverable item. Identified by a service code of "A" in FMS transactions. (1:viii)

Lead Time. Generally refers to the amount of time required between issuance of a purchase request to a supplier and delivery of the item to depot. (1:viii)

Non-Programmed Demand. A demand (requisition) for an item for which no stock level forecast exists. As such, on-hand stocks will not normally be used to satisfy the requisition. Non-programmed demands

will be backordered lead time away unless the asset position is above the computed control level. (12:viii)

Programmed Demand. A demand (requisition) for an item for which a stock level forecast has been incorporated into the applicable requirements computation for a sufficient period of time to enable depot stocks to be increased in anticipation of the demand. Programmed demands are given access to on-hand depot stocks. (12:viii)

Security Assistance Management Information System (SAMIS). The computer system used for Foreign Military Sales (FMS) management and requisition routing and control. (1:x)

Service Code. A code used in the CLSSA program to indicate the type of asset and the agency responsible for its management. Service code "A" items are USAF managed investment items, ERRRC codes C and T. Service code "B" items are USAF managed expense items, ERRRC codes N and P. Service code "C" items are DLA managed expense items, ERRRC codes N and P. (1:x)

Appendix B: Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING ON LOGISTIC SUPPORT BETWEEN THE GOVERNMENT OF AUSTRALIA AND THE GOVERNMENT OF THE UNITED STATES OF AMERICA

BACKGROUND

1. Basic security relationships between the United States and Australia (hereafter referred to as the Parties) are contained in the Australia, New Zealand, United States (ANZUS) Treaty signed on 1 September 1951. This Memorandum of Understanding (MOU) supports ANZUS security objectives. The United States has a strong interest in the defense capabilities of Australia and New Zealand. The supply and support of defense materiel by the United States makes an important contribution to the capacity of the Australian Defence Force for self-reliant combat capability and thus to the achievement of broad ANZUS interests in the region.
2. The Australian Defence Force is equipped with a wide range of advanced technology weapon systems of United States origin. The uninterrupted supply and other logistic support of these items is essential to the operational effectiveness of the Australian Defence Force.
3. In conjunction with Australian purchase of modern weapons systems and equipment from the United States, arrangements have been made for peacetime supply and support of the items by the United States¹. These arrangements do not provide specifically for additional support for war or other contingency.

PURPOSE

4. The purpose of this MOU is to set forth policies and guidelines for provision of logistic support to the Australian Defence Force by the United States and to the United States Armed Forces by Australia during peacetime, during periods of international tension or in circumstances of armed conflict involving either or both Parties.

BASIC SUPPORT POLICY

5. The Parties recognize that their national and collective capacity to resist armed attack relies in large measure on the establishment and maintenance in peacetime of defense forces equipped with effective weapons and of plans and arrangements for the timely expansion of those forces should the need arise. Their common interests will be advanced with a clear understanding between them about the continued availability to Australia from the United States of defense articles and services in situations extending from peacetime through circumstances of armed conflict. A continuing need also exists for mutual arrangements of cooperative exchange of data, research, development, production, procurement and logistic support.

Footnote: 1. Cooperative Logistic Arrangement Relating to the Supply Support of the Armed Forces of Australia by the United States Department of Defense (1965).

6. The Parties further acknowledge that practical measures to enhance the foregoing objectives should be consistent with the broad aims of their respective defense policies. Australia, although heavily dependent upon an extensive range of defense articles and services procured and supported from the United States, will continue to seek to enhance its independent capacity to produce and support defense materiel. To this end also Australia will continue to seek particular conditions of purchase and offsetting orders in the case of major equipment purchases which may be negotiated under separate arrangements.

7. Subject to the provisions of the United States Arms Export Control Act, as amended, International Traffic in Arms Regulations, and related United States legislation and policies, the United States accords Australia the status of an eligible purchasing country who may procure defense articles and services either from United States Government or commercial sources. Australia is also included in the list of nations that are extended special waivers of certain restrictions under the legislation. It will be important to the basic support policies outlined in paragraphs 5 and 6 above that this status be sustained.

SUPPORT ARRANGEMENTS - PEACETIME

8. Subject to the legislation and policies referred to in the preceding paragraph, the United States will make available to Australia in peacetime, defense articles and services which are mutually determined by the Parties. The defense articles and services will include:

- (a) Weapons systems and equipments;
- (b) Spare parts for weapons systems and equipment and other support items;
- (c) Munitions, ammunition and other explosives;
- (d) Modification kits;
- (e) Test equipment;
- (f) Manufacturing tooling, specialized materials and advice;
- (g) Manufacturing data;
- (h) Publications and film;
- (i) Technical Data Packages;
- (j) Technical assistance services;
- (k) Training;
- (l) Repair services;
- (m) Transportation services; and
- (n) Contract Administration services.

9. The defense articles and services which the United States will provide to Australia in peacetime will include those arranged under the Cooperative Logistic Supply Support Procedures contained in Annex A to this MOU. Australia will have direct access to support items from the United States Defense Logistics System in accordance with those supply support procedures.

SUPPORT ARRANGEMENTS - OTHER THAN PEACETIME

10. Subject to its laws and regulations and the exigencies of war, the United States will continue to provide logistic support materiel and services of the kind described in paragraph 8 to Australia during periods of international tension or in circumstances of armed conflict involving either or both Parties. Such United States support could include the following elements if needed:

- (a) Supply and maintenance support of weapon systems and equipment of United States origin that are in the inventory of the Australian Defence Force. Peacetime support arrangements would be expanded to increased levels required to meet the contingency.
- (b) Supply of additional weapons systems and equipment required for expansion of the Australian Defence Force and to replace combat losses.
- (c) Supply of high technology munitions such as torpedoes, missiles and other explosives that are not produced in Australia.
- (d) Assistance to Australia in activation and expansion of the Australian defense production base to produce selected items of equipment, spare parts and munitions of United States origin.
- (e) Provision of, or assistance with, transportation of defense articles from United States sources to the Australian Defence Force.
- (f) Cooperative planning for pre-positioning of stocks in Australia. Such planning may relate to stocks for replenishment of United States and allied forces as mutually arranged by the Governments of the United States and Australia.
- (g) Assistance in direct arrangements between Australia and the United States industry for support of weapons, systems and equipments not initially acquired through government-to-government arrangements.
- (h) Assistance in support of weapons and equipment of United States origin that are no longer standard with United States forces.
- (i) Provision of cataloguing and technical data, manufacturing information and training material to assist Australia in enhancing its internal logistic support capability for defense articles of United States origin.

PROCEDURES

11. (a) Supply Support - Existing peacetime Cooperative Logistics Supply Support Arrangements (CLSSAs) between the United States and Australia will continue in force during periods of international tension or in circumstances of armed conflict involving either or both Parties. Quantities of material requisitioned may be increased to meet demands. Such increases will be subject to materiel availability, procurement/production leadtimes and competing requirements/commitments of the United States Armed Forces unless action is taken in advance to provide for Australian capitalization of additional stocks in the United States logistic system.
- (b) Weapon Systems and Munitions - During periods of international tension or in circumstances of armed conflict involving either or both Parties, the United States will endeavour to continue the delivery of all weapons, equipment and munitions that have been ordered by Australia under Foreign Military Sales. Subject to its laws and regulations, the United States will also receive and endeavour to fill orders for additional weapons and munitions required by Australia consistent with United States requirements for the same materiel. If Australia desires to have selected items of weapons and munitions available in advance of normal leadtimes, these should be the subject of special FMS arrangements to be worked out as far as practicable in peacetime. Options include measures such as prestockage, advance procurement of long leadtime components, and use of substitute items.
- (c) Other Support - To the extent that Australia anticipates requirements for the United States to provide other logistic support such as airlift, sealift, maintenance or storage, these needs should be identified and advance planning accomplished as far as practicable in peacetime.

PRIORITIES

12. Australia is included in the Uniform Materiel Movement and Issue Priority System of the United States Department of Defense. Force Activity Designators (FAD) are assigned under this system by the United States Joint Chiefs of Staff (JCS). FADs will be adjusted as appropriate during periods of international tension or in circumstances of armed conflict involving either or both Parties. In assigning FADs to the Australian Defence Force, the United States Joint Chiefs of Staff will take into account any views on priorities communicated to the United States Department of Defense by the Australian Department of Defence and will be guided by Annex H of this MOU.

13. With regard to Australian purchases of United States origin defense articles and services through direct commercial channels, the United

States will make its best endeavours to ensure that delivery to Australia is in accord with the timetable required by Australia insofar as consideration of export licenses and transportation services are concerned. Where this cannot be achieved there will be consultation between the United States Department of Defense and the Australian Department of Defence to explore alternative means for meeting the Australian need.

FUNDING

14. All materiel and services provided to Australia by the United States Department of Defense under this MOU will be priced on a fully reimbursable basis as required by the United States Arms Export Control Act as implemented by appropriate US Department of Defense publications. However, provision of cooperative military airlift by one government to the other will be in accordance with the pricing and other terms and conditions stipulated in Annex G of this MOU. All materiel and services provided to the United States by Australia under this MOU will also be priced on a fully reimbursable basis. Charges to the United States Government for any articles or services rendered will be no more than the actual costs to Australia plus administrative and accessorial charges not in excess of the percentages assessed by the United States Government when furnishing similar supplies and services to Australia.

RECIPROCAL LOGISTIC SUPPORT

15. Subject to United States laws and regulations and the exigencies of war, the United States will make its best endeavours to provide assistance sought by Australia to facilitate cooperative logistic support actions between countries in the Southwest Pacific area.

16. Subject to its laws and regulations, policies and the exigencies of war, Australia will make its best endeavours to provide to the United States any defense articles or services of the nature described in paragraph 8 which the United States might seek from Australia. This could include the repair/refit and maintenance of United States ships, aircraft and equipment in Australia. It could also include supply to United States forces of general supplies, replenishment items of United States design produced or available in Australia, and Australian defense articles in United States service.

CO-ORDINATION

17. Australia will provide the United States the maximum practicable notice of its requirements. The United States will provide Australia with the maximum practicable notice of its intentions for the development, production, introduction into service, support and eventual disposal of military equipments of potential interest to the Australian Defence Force. To facilitate this the United States and Australia will establish joint machinery for the regular review of equipment plans and programs of potential joint interest.

COOPERATIVE LOGISTICS SUPPLY SUPPORT PROCEDURES

I. PURPOSE

The purpose of these Procedures is to enable the Armed Forces of the Government of Australia, within the terms of the Arms Export Control Act and related or successor legislation, and in accordance with DoD implementing regulations, to use the organization and facilities of the United States Defense Logistics System to support Australian military equipment specified by Australia and common to the Armed Forces of the two Governments on a basis which:

A. Will permit Australia to obtain logistic materiel and services for its armed forces equivalent in timeliness and effectiveness to that provided United States Armed Forces within assigned Force/Activity Designators (FAD).

B. Will reimburse the United States for costs including accessorial/administrative charges incurred in providing such support to Australia in accordance with the provisions outlined below.

II. MATERIEL REQUIREMENTS

A. The determination of equipment to be supported by the United States will be made jointly by Australia and the United States on the basis of commonality of equipment between the armed forces of the two Governments and Australian assessments of its capacity to provide support from its own resources.

B. For such equipment, Australia will provide information to the United States on a timely basis to enable the United States to increase and maintain stock levels and on-order levels so as to assure support of the Australian Armed Forces equivalent to that provided US Armed Forces that have been assigned the same priority and FAD.

C. The initial determination of stock levels required to assure support for Australia will be made by the United States in consultation with Australia. Such determination will consider (1) information furnished by Australia on its planned usage of the equipment to be supported, (2) consumption experience data of the United States and (if available) of Australia, and (3) the calculation of pipeline days-of-supply tailored to the geography, lines of communication and requirements peculiar to Australia. These initial determinations will be modified subsequently in the light of experience.

D. The United States will provide appropriate technical assistance and advice as requested by Australia on Australian Foreign Military Sales Order I stock levels and on-order levels.

III. ORDERS

Foreign Military Sales Orders (FMSO) covering stockage, consumption and storage are necessary. Two FMSO cases are required: Foreign Military

ANNEX A

Sales Order (FMSO) I and Foreign Military Sales Order (FMSO) II Both cases must be executed in order for FMS requirements to be anticipated and to be satisfied on an equal footing with US requirements.

A. Stock Levels. On the basis of the Article II determination and using established US procedures, Australia will place with the US Military authorities a Foreign Military Sales Order (FMSO I), covering the estimated dollar value and total initial agreed list of items and quantities to be stocked and maintained on order from procurement for the support of Australia's US-furnished equipment.

B. Consumption. Australia will place with the US military authorities a consumption FMSO (FMSO II), undefined as to items and quantities equivalent to a dollar amount of the estimated withdrawals of materiel from the Supply system for the jointly determined period (normally one year) and funded quarterly. Prior to the beginning of each quarter, payments will be made in accordance with mutually decided to procedures to cover that quarter's anticipated withdrawals.

C. Revisions to FMSOs. 1. After the development of sufficient demand history, FMSO I will be revised to include those items required, based upon Australia's usage experience, to be in the US pipeline.

2. Provision will be made for the updating of FMSO I to assure stockage of all items essential to the proper maintenance of major equipment.

3. In the event Australia reduces its FMSO I coverage, future requests for such items will not be handled as a requisition subject to this procedure.

4. The FMSO II will fund storage fees including normal inventory losses on other than stock funded items. These fees are based on the on-hand portion of the FMSO I.

5. The FMSO II will be closed on 30 September each year, at which time a new consumption Sales Order will be established, based on demand history or planned operations.

IV. REQUISITIONS AND ISSUES

A. Australia will forward requisitions for standard materiel items, using US Military Standard Requisition and Issue Procedure (MILSTRIP), to the designated Military Service Requisition Control Office (RCO). Non-standard materiel items may be requisitioned upon the consent of the Military Department concerned.

B. Stock requisitions will be issued from supply points within the US military system. Title to equipment and materiel will pass to Australia at the initial point of shipment or origin unless otherwise specified in the Letter of Offer and Acceptance (DD Form 1513).

C. Australia is responsible for the cost of transportation from the point of shipment or origin, unless otherwise specified, to final destination. Documents and procedures used by the US for invoicing and issuing will be

ANNEX A

compatible with those used by the US Armed Forces. After storage levels have been established, invoices will be computed utilizing the "Standard" US military price prevailing at the time requisitioned items are issued from the US inventory with an appropriate surcharge, where applicable or where a waiver has not been granted, to recover applicable Department of Defense asset use and non-recurring recoupment charges.

V. SUPPORT PRIORITY

A. Requisitions placed by Australia with the US supply system before US stock levels have been increased, or for items not included in FMSO I, will be filled from procurement or from existing stocks to the extent that inventory levels are adequate to permit supply without detrimental effect on support of prior commitments of US Forces (i.e., when such issues will not reduce levels below the re-order point). Pricing will be in accordance with DoD 7290.3M, Foreign Military Sales Financial Management Manual.

B. Upon attainment of the increase of US stock levels, referred to in Article IIIA, support for FMSO I items will be provided to Australia with the same responsiveness as for equivalent US forces in equivalent operational circumstances. Australia will assist in the verification of high priority requirements submitted by Australian forces when such verification is requested by the US. In all circumstances Australia will have the status of a favoured customer of the United States.

C. When US stock levels are insufficient to meet Australian demands, because of Australian reduction of US proposed levels (Article IIIC), requisitions will be filled in the same manner as those referred to in paragraph VA, above.

VI. STORAGE AND MODIFICATION

A. Australian stocks of materiel held in the US system will not be physically separated or otherwise physically identified.

B. The quality and description of materiel furnished by the US to Australia will be identical in all respects to that furnished to the US Armed Forces, including all maintenance and modification work which normally will be accomplished before materiel is issued. In those cases where materiel previously issued requires modification, Australia may at its own option order the required modification kits in accordance with normal FMS procedures.

VII. OBSOLETE AND EXCESS STOCKS

A. If an item becomes obsolete or excess to Australian but not to US requirements, Australia may request cancellation of the FMSO I item. If the US agrees to the cancellation, appropriate action will be taken by the US to cancel the FMSO I item and apply the equity to subsequent requirements for other items or to return the 5/17 investment to Australia. If the US does not agree to the cancellation, Australia will, upon request, withdraw the quantity, or arrange for the US to dispose of such materiel with the net proceeds to be credited to the Australian account. If Australia has additional stocks in country which are excess to its need, Australia will have the option of reporting these excesses to the appropriate Military Department via the Materiel Returns Program (MRP) procedures contained in MILSTRIP. If the US desires

ANNEX A

Australia to return the materiel under the MRP, appropriate credit to Australia's trust fund account will be made in accordance with Department of Defense procedures.

B. If an item listed in a FMSO I becomes obsolete or excess to US but not Australian requirements, the US may request Australia to withdraw its materiel equity from U.S. stocks. Australia may purchase additional quantities of such items from existing US stocks at a fair value to be jointly determined in accordance with applicable regulations. Australia may, with the approval of the US, place a final order for spares in sufficient range and quantity to support the equipment for its probable remaining useful life. Military Departments will alert Australia to anticipated US equipment phase-outs to permit a timely and orderly final procurement of spares.

C. If an item becomes obsolete or excess to the requirements of both Australia and the US, Australia will, upon request, withdraw its materiel from US facilities. Alternatively, at the request of Australia, the US will dispose of such materiel in accordance with current US DoD procedures and credit Australia with its proportionate share of the net proceeds.

VIII. REPURCHASES

Upon request of the US, Australia will, to the extent compatible with its supply requirements, sell to the US items which have been previously delivered under these Procedures. Such repurchases will be made at a fair price to be jointly determined in accordance with applicable regulations which will not in any case exceed the price at which the item was sold to Australia, plus the cost of any modification and accessorial charges. Transportation in such cases will be furnished by the US.

IX. UNUSUAL STOCK LOSSES

Stock losses due to enemy action, major disaster, or other casualty from a natural phenomenon will be assessed against Australia in an amount proportionate to the ratio that the value of its stock case bears to the total value of like stocks in storage. Charges submitted under this provision will include a certification that such losses were not due to fault or negligence of US personnel.

X. EXPANSION OF FACILITIES

Any additional capacity needed to accommodate stocks ordered by Australia under this Procedure may be provided by arrangement between the US and Australia for the expansion of US facilities at Australian expense. If it is not possible to reach joint determination on all aspects (including financing) of such expansion of US facilities, the US supply commitment will be limited to fulfilling requirements within the available capacity of existing US facilities. Any such limitation in US supply capability will be clearly established at the time of US acceptance of the FMSO I specified at Article IIIA, and amendments thereto, or as soon as practicable thereafter as such limitations become evident to the US.

XI. FUNDING

A. The FMSO I case is sub-divided into two parts: Part A, an on-hand portion representing five months of inventory; and Part B, an on-order dependable undertaking which provides the obligational authority necessary to award the contracts required to support Australia through the normal 12 months administrative and procurement lead times. Australia is to pay a cash amount equal to the on-hand portion 5/17 of the total materiel value of the case, upon acceptance of the FMSO I. In unusual circumstances it may be determined that the 5 month on-hand and 12 month on-order are inappropriate for the particular equipment being supported. In this instance the specified levels may be adjusted. A nonrefundable administrative charge (currently 5% of the 5/17 value) will be added to the billing for the on-hand quantity; the 5% administrative charge will be assessed on any increase in FMSO I value. Neither materiel nor administrative charges will be assessed against the on-order materiel until that materiel has been delivered to the US supply system in a terminal transaction. Charges for storage will be based on the Part A, on-hand, portion (currently 1.5% of the FMSO I 5/17 value). Charges for normal inventory losses will be computed on a pro-rata basis.

B. Periodically, the FMSO I will be financially updated in accordance with the individual US Service's procedures. The materiel value, 5/17 investment and administrative charge will be adjusted to reflect current requirements and prices.

C. The FMSO II case represents Australia's anticipated yearly consumption under these Procedures. Australia is to pay cash in advance of each quarter to cover requisitions placed during that quarter. An administrative surcharge (currently 3%) will be charged on requisitions processed under FMSO II cases.

D. Cash and obligation authority derived from the FMSO I and FMSO II cases will be used by the supporting US Service to increase stock and on-order quantities in anticipation of requisitions being placed on the Service by Australia.

E. Subject to the foregoing, billing and collection will be in accordance with the normal US Foreign Military Sales procedures.

XII. SPECIAL SUPPORT

A. The forces of each of the two Governments will provide unanticipated support to the forces of the other to the extent that such support requirements can be met.

B. Should there be occasions when Australia desires short term sustained support from United States operational locations and the United States is in a position to provide such support, special arrangements will be separately negotiated between representatives of the using forces of the two Governments.

XIII. EFFECTIVE DATE AND TERMINATION

A. During the period between the notice of termination and the termination date, Australian requisitions, if any, will be submitted in the

ANNEX A

normal manner. All requisitions submitted by Australia and accepted by the US prior to the termination date will be filled by the US in the normal manner regardless of whether the termination date will have passed. Subject to the filling of such requisitions, the provisions of Article VII will apply after the termination date to the disposition of the Australian equity in the undelivered quantity of each common item covered by these Procedures.

B. In the event of termination of these Procedures, Australia and the US will negotiate a fair residual value settlement for those installations or major improvements financed by Australia under Article X above, to the extent that such facilities are required for the US Government.

PROCEDURES FOR REQUEST BY AUSTRALIA FROM THE
UNITED STATES OF WEAPONS AND MUNITIONS IN
ADVANCE OF NORMAL LEADTIMES

I. PURPOSE

To outline procedures by which, when mutually arranged by both parties, the Armed Forces of the Government of Australia will receive from the United States, deliveries of selected weapons and munitions in advance of leadtime normally applying.

II. APPLICATION OF PROCEDURES

These procedures will apply, subject to the provisions contained in the US Arms Export Control Act, during periods of international tension, or in circumstances of armed conflict, or for other reasons, when Australia and the US mutually determine that weapons and munitions are required in advance of leadtimes which would apply under normal peacetime procedures.

III. CONSULTATION

When assessing its requirements in the light of Section II above, Australia will consult with the United States regarding changes to Force/Activity Designators, prestockage, advance procurement of long leadtime items, use of substitute items or other alternative means by which delivery of weapons and munitions may be advanced. Consultations will be conducted between the Armed Services of the two countries under existing arrangements.

IV. ALTERNATIVE PROCEDURES

For each weapon or munitions item mutually arranged for advance delivery, the United States will consider the following options:

A. For materiel for which Australia has negotiated a current FMS case with a United States Service, the United States may provide Australia's requirements from its inventory and replenish US inventories from later deliveries which had been intended to fill the Australian order. For materiel not available direct from the inventory of a United States Service, the United States will use its best efforts to arrange for priority delivery to Australia of the items from the contractor.

B. For materiel for which no FMS case has been negotiated, Australia will initiate an appropriate request for an FMS case which, if and when accepted and implemented, the United States will, to the extent consistent with its own priority requirements and commitments, sell the items to Australia, from its inventory. Alternatively, the United States will use its best efforts, under standard FMS procedures and consistent with other priorities and commitments to arrange production of the materiel in a time frame consistent with Australia's requirement.

C. Should neither of the above options be practicable, Australia and the United States will consult concerning alternatives which might meet the Australian requirement. Arrangements for supply will be in accordance with the US Arms Export Control Act.

ANNEX 3

D. Should a need arise for advance deliveries of items not covered under a Cooperative Logistic Supply Support Arrangement, Australia will negotiate with the United States for increased holdings of the items in the United States inventory to meet future possible Australian requirements.

V. POINTS OF CONTACT

A. Australia

First Assistant Secretary
Technical Services and Logistic Development
Department of Defence
Canberra ACT 2600

B. United States

OASD (International Security Affairs)
Pentagon
Washington DC 20301

ARRANGEMENT TO FACILITATE COOPERATIVE LOGISTIC
SUPPORT BETWEEN AUSTRALIA AND OTHER COUNTRIES
IN THE SOUTHWEST PACIFIC AREA

I. PURPOSE

The purpose of this Arrangement is to set forth the types of assistance the US may provide to Australia to assist cooperative logistic support between Australia and other countries in the Southwest Pacific area.

II. ELIGIBLE SOUTHWEST PACIFIC COUNTRIES

A. Those Southwest Pacific countries to which the US Government would itself sell defense articles through the US Foreign Military Sales program are generally considered eligible for receipt of items produced by Australia, based on production agreements with the US DoD or US commercial sources.

B. The US DoD will provide advisory opinions regarding the prospect of USG approval of the transfer by Australia to eligible Southwest Pacific countries of such US Defense Items. The main intent of this review will be to identify to Australia those items and/or countries for which the USG would be unable to consider such transfer.

III. AUTHORIZED ITEMS

A. Consistent with the provisions of the arrangements with the US DoD, or with US commercial sources, for Australian production of US Defense items, Australia may request, on the basis of an annual forecast of items, quantities and recipients, on a case by case basis, US authority for transfers to or within third countries.

B. Proposals for transfer will be identified to the Defense Security Assistance Agency and the US Department of State, and will include the following information:

1. Recipient countries.
2. Items/quantities/original FMS price (if applicable).
3. Source of original production authorization.
4. Reasons for the proposed transfer.

IV. APPROVAL OF THIRD COUNTRY TRANSFER

A. Where applicable, the US Department of State will notify the US Congress, and obtain any required assurances from the intended recipient with regard to the en. use of the item and any further transfer thereof.

B. The US DoD will notify Australia of the results of third party transfer requests.

V. POINTS OF CONTACT

A. Australia

First Assistant Secretary
Technical Services and Logistic Development
Department of Defence
Canberra ACT 2600

B. United States

OASD (International Security Affairs)
Pentagon
Washington, D.C. 20301

PROCEDURES FOR THE EXCHANGE OF INFORMATION OF EQUIPMENT
PLANS AND PROGRAMS OF POTENTIAL JOINT INTEREST

I. PURPOSE

A. To outline procedures to identify mechanisms for exchange of information concerning equipment plans, programs and logistic requirements.

B. The aim of these Procedures is to ensure, consistent with the security needs of both countries and in accordance with the statutes and regulations of each country, that sufficient data are made available to both parties to implement the intent of this MOU to the extent that:

1. Australia will provide the United States with maximum practicable notice of its requirements.

2. The United States will advise Australia to the maximum extent practicable of its intentions for the development, production, introduction into Service, support and disposal of military equipment of potential interest to the Australian Defense Force.

3. Information or data exchanges under this Annex will be confined to routine information and will not include technology transfer and/or transfer of other proprietary information.

II. USE OF ESTABLISHED LINES OF COMMUNICATION

To the extent practicable, information exchange for equipment plans, programs and logistic requirements will be conducted through the medium of currently established formal agreements and other established machinery for mutual discussions. These media include, but are not limited to:

A. Defence/Defense Talks conducted under the Barnard/Schlesinger arrangements.

B. US/Australian Joint Staff and Service-to-Service Talks.

C. The ABCA Standardization Agreement.

D. The Technical Cooperation Program

E. The Mutual Weapons Development Data Exchange Agreement.

F. Upon specific request by Australia to exchange information.

III. COORDINATION OF REVIEW ACTIVITIES

Australia and the United States will establish internal mechanisms to:

A. Identify those activities under the various agreements referred to in II above which impact on the implementation of the MOU and which warrant policy consideration/discussion at joint meetings.

ANNEX D

B. Prepare official positions on matters of joint interest for presentation and discussion at joint meetings.

C. Disseminate information and arrange for implementation of decisions flowing from joint meetings.

D. Mutually determine the appropriate forum, specific subject matter, and representation for joint discussions.

IV. POINTS OF CONTACT

A. Australia

1. For Service-to-Service and Joint Staff Forums:

Chief of Joint Operations and Plans
Department of Defence
Canberra ACT 2600

2. For other Forums:

Chief of Supply and Support
Department of Defence
Canberra ACT 2600

B. United States

OASD (International Security Affairs)
Pentagon
Washington DC 20301

TECHNOLOGY TRANSFER

I. PURPOSE

To outline procedures whereby the United States may facilitate transfer of defense technology of US origin permitting Australia to enhance its independent capacity to produce and support defense materiel.

II. GENERAL ARRANGEMENTS

Subject to the provisions of relevant legislation, and to mutual agreement between the two parties on a case by case basis, the United States will facilitate transfer of appropriate technology to Australia to permit Australia to support defense equipment purchased from the United States. Technology transfers and other USG assistance made expressly under this Annex (e.g., facilitation of negotiations) will be as concluded in Letters of Offer and Acceptance (LOAs) negotiated according to the US Arms Export Control Act and other applicable Defense Policies. It is further understood that USG undertakings to employ best efforts to assist Australia in negotiations do not obligate the USG to intervene in private sector matters where inappropriate.

III. NEW MATERIEL PURCHASES

A. As part of any purchases of new materiel by Australia, the US will, consistent with legislative requirements and applicable defense policies, transfer technology enabling Australia to achieve a mutually acceptable level of self-sufficiency in support of the materiel being purchased.

B. Technology transfer arranged under A above will include:

1. Release to Australia of those technologies for which unlimited rights are held by the US Government.
2. Use of best efforts to assist Australia in negotiations with US firms to transfer those technologies for which the US Government does not have unlimited rights.

IV. EQUIPMENT REMOVED FROM THE US DEFENSE INVENTORY

A. When equipment is removed from the active United States defense inventory, all technology incorporated in that equipment will, to the extent practicable and as mutually arranged between the parties, be made available for transfer to Australia to facilitate continued support of Australian-owned equipment.

B. To this end, consistent with legislative requirements and applicable Defense policies, the United States will, subject to mutual arrangement between both parties, release to Australia those technologies for which the US Government has unlimited rights and use best efforts to assist Australia in negotiations with US firms to transfer, on request, those technologies for which the US Government does not have unlimited rights.

TECHNOLOGY TRANSFER

I. PURPOSE

To outline procedures whereby the United States may facilitate transfer of defense technology of US origin permitting Australia to enhance its independent capacity to produce and support defense materiel.

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B. Technology transfer arranged under A above will include:

1. Release to Australia of those technologies for which unlimited rights are held by the US Government.
2. Use of best efforts to assist Australia in negotiations with US firms to transfer those technologies for which the US Government does not have unlimited rights.

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A. When equipment is removed from the active United States defense inventory, all technology incorporated in that equipment will, to the extent practicable and as mutually arranged between the parties, be made available for transfer to Australia to facilitate continued support of Australian-owned equipment.

B. To this end, consistent with legislative requirements and applicable Defense policies, the parties intend to make a mutual arrangement between both parties whereby the US Government will assist Australia in negotiations with US firms to transfer those technologies for which the US Government does not have unlimited rights.

V. POINTS OF CONTACT

A. Australia

First Assistant Secretary
Defence Industry and Materiel Policy
Department of Defence
Canberra ACT 2600

B. United States

OASD (International Security Affairs)
Pentagon
Washington DC 20301

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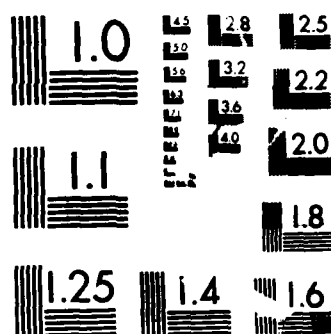
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PROCEDURES FOR REQUEST BY AUSTRALIA FOR ASSISTANCE IN
ACTIVATION AND EXPANSION OF THE AUSTRALIAN DEFENSE
PRODUCTION BASE DURING PERIODS OF INTERNATIONAL TENSION
OR IN CIRCUMSTANCES OF ARMED CONFLICT

I. PURPOSE

The purpose of this Annex is to outline procedures by which, when mutually arranged by both parties, the United States will provide assistance to Australia in activation or expansion of the Australian Defense production base as necessary to produce selected items of equipment, spare parts and munitions of United States origin, during periods of international tensions or in circumstances of armed conflict involving either or both parties.

II. SCOPE

These procedures will cover such equipments, spare parts and munitions of United States origin, as may be mutually arranged by both parties on a case-by-case basis, which are presently included in the inventory of the Australian Defence Force, and such materiel which Australia may acquire in the future from the United States.

III. ACTIVATION OF PROCEDURES

A. Activation and expansion of the Australian industrial base may be required when materiel cannot be made available from United States sources in the quantities and time frames sought by Australia, or when otherwise arranged between the parties.

B. Consonant with Australia's stated intention to continue to seek to enhance its independent capacity to produce defense materiel (paragraph 8 of the MOU refers), the processes provided for in this Annex may be tested during peacetime against selected materiel so that the potential ramifications of a more general activation of these processes can be monitored by both parties.

C. The procedures outlined in this Annex may, as arranged between the parties, be amended from time to time in the light of the practical experience of peacetime activities.

IV. TECHNICAL AND MANUFACTURING ASSISTANCE

A. For specific items included in the range of materiel covered by Clause II above, the United States will provide assistance to enable their production in Australia. FMS procedures will be used to transfer technical data and services under Government-to-Government Agreements and Arrangements between the United States and Australia. Should such data or services be authorized for transfer to Australia on a direct commercial basis, the US Department of Defense will use its best efforts to facilitate appropriate licenses. Types of assistance may include:

1. Technical data packages;
2. Manufacturing data;

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3. Test procedures;
4. Technical assistance services;
5. Training; and
6. Access to sources of specialized manufacturing tooling, plant, and test equipment.

B. Where the provision of such assistance involves limited rights data, the United States will, when mutually arranged between the parties, use its best efforts:

1. To permit timely Australian access to data, equipment and services to which the United States has rights; and
2. To facilitate negotiations toward timely Australian access to data, equipment, and services to which the United States does not have unlimited rights.

V. LICENSE AND ROYALTY FEES

A. The United States will, as mutually arranged between the parties on a case-by-case basis, waive license and royalty fees associated with the manufacture in Australia for use by Australian Forces of those United States-designed defense items for which the United States Government owns the right to use the technical data without incurring liability to others.

B. For those defense items of US design for which the US Government does not own the right to use the technical data without incurring liability to others, the US Government will use its best efforts to assist the Government of Australia in keeping license and royalty fees to a minimum level.

VI. PRE-PRODUCTION AND PROOFING

The United States agrees that pre-production of mutually arranged quantities of specified items may be arranged between the parties in peacetime under the terms of these procedures, where Australia and the United States deem such pre-production is necessary for the purpose of proving Australian manufacturing facilities and capabilities exist to permit timely production during periods of international tension or in circumstances of armed conflict involving either or both parties.

VII. PROVISION OF UNITED STATES SOURCED MATERIALS

Where production of defense items of United States origin undertaken in Australia in accordance with this Annex requires the use of United States sourced materials or components, the United States agrees that orders placed by Australia will be assigned a priority based on the mutually agreed urgency of the request and consistent with the Force/Activity Designator.

VIII. FUNDING ARRANGEMENTS

The services and materiel provided to Australia by the United States under the procedures outlined in this Annex will be as concluded in Letters of Offer and Acceptance negotiated according to the US Arms Export Control Act.

V. POINTS OF CONTACT

A. Australia

First Assistant Secretary
Defence Industry and Materiel Policy
Department of Defence
Canberra ACT 2600

B. United States

OASD (International Security Affairs)
Pentagon
Washington DC 20301

COOPERATIVE MILITARY AIRLIFT SUPPORT

I. PURPOSE

To outline the guidelines for mutual military airlift support of Australian and United States Defense Forces.

II. IMPLEMENTATION OF GUIDELINES

An Air Force-to-Air Force cooperative airlift arrangement will be negotiated within these guidelines for the mutual military airlift support of both defense forces. Such an arrangement will have reciprocal application for the transportation of the personnel and cargo of the military forces of the United States and Australia on aircraft operated by or for the military forces of those countries.

III. GUIDELINES

The arrangement will include, but not be limited to, the following terms:

A. The rate of reimbursement for transportation provided will be the same for each party and will be the rate charged to the military forces of the United States for airlift in the US Defense Transportation System.

B. Credits and liabilities accrued as a result of providing or receiving transportation will be liquidated not less than once every three months by direct payment to the country that has provided the greater amount of transportation.

C. During peacetime, the only military airlift capacity that may be used to provide transportation is that capacity which:

1. Is not needed to meet the transportation requirements of the military forces of the country providing the transportation, and

2. Was not created solely to accommodate the requirements of the military forces of the country receiving the transportation.

D. Transportation incident to transactions under the Arms Export Control Act (AECA) using aircraft operated by or for the military forces of the United States will be under US FMS procedures at the rate of reimbursement for FMS Defense Transportation System shipments.

IV. POINTS OF CONTACT

A. AUSTRALIA

Director General Movement & Transport
Department of Defence
CANBERRA ACT 2600

B. UNITED STATES

Deputy Assistant Secretary of the Air Force
(Logistics and Communication)
Department of the Air Force
Pentagon
Washington, D.C. 20301

ASSIGNMENT/ADJUSTMENT OF FORCE/ACTIVITY DESIGNATORS (FAD)

I. PURPOSE

Further to paragraph 12 of the US/AS MOU on logistic support, principles and procedures for assigning or adjusting US FAD for specific Australian military organizational elements or tasks are outlined below.

II. DEFINITION

A FAD is defined as the numerical expression of the relative order of priority given to a specific military force, unit, function, project, task or program. For example, specified combat-ready and direct combat support forces (of comparable importance to US forces) of selected countries are assigned FAD III.

III. PRINCIPLES

Acknowledged principles governing the assignment or adjustment of foreign countries FADs are as follows:

- A. FAD are authorized by the US Joint Chiefs of Staff (JCS).
- B. The US Commander in Chief, Pacific Command (USCINCPAC) may recommend variation in the level of FAD authorized to the JCS.
- C. On an emergency basis, USCINCPAC has the JCS-delegated authority to raise the level of FAD temporarily (not exceeding 180 days) up to and including FAD II.
- D. The Defense Attache (DATT) responsible for security assistance management in Australia may recommend through USCINCPAC to JCS if Australian operational necessity requires the assignment of a higher FAD than authorized.
- E. The Defense Attache (DATT) to Australia responsible for security assistance management has been delegated authority to assign and coordinate the use of FADs up to levels authorized.
- F. For defense articles or services purchased as Foreign Military Sales, the US Military Service with primary interest may assign to specific sales cases a temporary FAD if a higher one is required (not to exceed 180 days and up to and including FAD II).

IV. PROCEDURES

In implementing the above principles the following procedures will be observed:

- A. Routine Adjustments. For routine adjustment of FAD up to the authorized levels, application will be made by the Australian Defence Procurement Agencies to the DATT for security assistance management in Australia.

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B. Emergency Temporary Assignments. For emergency assignments of temporarily higher FAD than the level authorized, the Australian Chief of Defence Force (CDF) will apply direct to USCINCPAC, informing HADS (Washington) and DCATT (Canberra).

C. Variation to the Authorized FAD Exceeding 180 Days. For variation to the authorized FAD, CDF will forward a recommendation for appropriate assignment to USCINCPAC for submission to JCS, informing HADS (Washington) and the US Ambassador (Canberra).

D. Application to FMS Purchase. Upon notification of temporary or permanent assignment of a FAD, US Military Services will take appropriate action to reflect that assignment in their records and FMS cases.

E. Notification. Variation in the level of FAD will be notified to interested authorities and agencies by:

1. For routine adjustments within the authorized FAD,
 - a. Director General of Supply - Navy, Army, Air Force for Australia and
 - b. DATT Canberra for the USA;
2. For emergency assignments of FAD,
 - a. CDF for Australia and
 - b. USCINCPAC for the USA;
3. For variation to the authorized FAD,
 - a. CDF for Australia and
 - b. JCS for the USA

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Vita

Flight Lieutenant Kenneth B. Gutterson was born on 13 March 1956 in Cronulla, New South Wales, Australia. He graduated from high school in Caringbah, New South Wales, in 1973 and attended the University of New South Wales before joining the Royal Australian Air Force (RAAF) Academy in 1976. He graduated from the Academy in 1978, receiving a permanent commission in the RAAF, a Bachelor of Science degree in Pure Physics and a Graduate Diploma in Military Aviation. He transferred to the Supply Branch in 1981 and undertook his initial assignment as project coordinator for a supply computer system in Air Force Office, Canberra, Australian Capital Territory. He was transferred to RAAF Base Darwin, Northern Territory, in 1983 to serve as the Senior Stores Officer for a period of three years before being assigned to the School of Systems and Logistics, Air Force Institute of Technology, in May 1986. Following graduation from AFIT, he will be employed in the development of new computer systems for logistics applications within Headquarters Support Command (RAAF).

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Abstract

Recent procurement reforms adopted by the USAF have given rise to concern within the Royal Australian Air Force (RAAF) that supply lead times under Co-operative Logistics Supply Support Arrangements (CLSSA) may have been considerably extended, thereby invalidating the current estimates of such lead times that are used by the RAAF in provisioning algorithms. The purpose of this study was to determine the expected lead time of the various types of RAAF requisitions within the RAAF-USAF CLSSA, determine the extent of their variation since 1980, and establish whether or not the procurement reforms were responsible for any variation found. The study was limited to research on investment items only.

The component of lead time measured by this study extended only from order receipt to order shipment. Data extracted from the SAMIS computer indicated that this period had increased by 72% for programmed requisitions (those for which demands are placed in accordance with a prefunded forecast of requirements) and 122% for non-programmed requisitions (all others). The increase in CLSSA lead time was compared to increases in administrative lead time (ALT) within the Air Force Logistics Command (AFLC) to determine whether or not the procurement reforms were having an effect on the CLSSA program. Unfortunately, there was insufficient CLSSA data to support a rigorous comparison and conclusive results were not achieved. Nevertheless, the average increase in ALT within AFLC for stock numbers on the RAAF-USAF CLSSA was observed to be similar to the increase in CLSSA lead time for programmed requisitions, which was believed to indicate that the procurement reforms were indeed having an effect on the CLSSA program.

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