

NONMILITARY SPECIFICATION PROCUREMENTS IN
DEPARTMENT OF DEFENSE AVIATION AVIONICS
ACQUISITION PROGRAMS

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MASTER OF MILITARY ART AND SCIENCE

by

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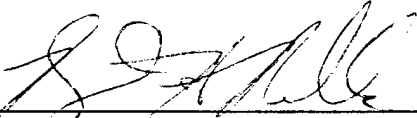
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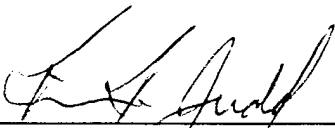
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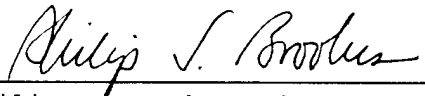
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ABSTRACT

NONMILITARY SPECIFICATION PROCUREMENTS IN DEPARTMENT OF DEFENSE AVIATION
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pages.

This study investigates the barriers to adopting commercial products relating to aircraft avionics within the Department of Defense after the passage of the Federal Acquisition Streamlining Act (FASA) of 1994. There has been a strong emphasis from both the federal government and industry for the Department of Defense to adopt commercial products and practices. The focus of this study is to identify the barriers that exist to accomplishing this goal, in the aircraft related avionics systems market, after the passage of FASA.

This study concludes that The barriers to procuring NON-MILSPEC aviation avionics in the DOD, after FASA, fall into three general categories: specifications, logistics and management and training. Research also supports the conclusion that while FARA may eliminate some logistics barriers, it will not likely effect barriers related to specifications, or management and training.

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TABLE OF CONTENTS

	<u>Page</u>
APPROVAL PAGE.....	ii
ABSTRACT.....	iii
ACKNOWLEDGMENTS.....	iv
CHAPTER	
ONE. INTRODUCTION.....	1
Background.....	4
Research Question.....	15
Assumptions.....	15
Limitations.....	16
Delimitations.....	16
Significance Of Study.....	18
Definitions Of Terms.....	18
TWO. LITERATURE REVIEW.....	26
THREE. RESEARCH METHODOLOGY.....	33
FOUR. ANALYSIS.....	37
Analysis Structure.....	37
Specifications.....	38
Logistics	48
Management/Training.....	53
FARA.....	57
Conclusion.....	60
FIVE. CONCLUSIONS AND RECOMMENDATIONS.....	65
Conclusions.....	67
Recommendations.....	67

Specifications.....	67
Logistics	70
Management/Training.....	72
Future Studies.....	72
BIBLIOGRAPHY.....	. 75
INITIAL DISTRIBUTION LIST.....	. 81

CHAPTER ONE

INTRODUCTION

Introduction

In these times of declining defense budgets the Department of Defense (DOD) can no longer afford to pay a premium for unique military requirements in military equipment. Industry can no longer sustain the defense-unique industrial base it has in the past with these declining budgets. The push from industry and the Federal government is for the DOD to adopt commercial products and practices and take advantage of high-quality commercial products that meet military performance requirements.

Even with declining budgets, the Federal government is still a big customer in the research, development, and acquisition industry. Each year the Federal government spends over \$200 billion for products and services.¹ Of this, the DOD by far spends the largest portion. The 1996 DOD budget authority for operations and maintenance, procurement and research, development, test, and evaluation was over \$170 billion.² Because the DOD spends most of the federal procurement budget, it also tends to receive the most public scrutiny.

In recent years, the DOD has gained a bad reputation for its waste in procurement practices. Many DOD contracts take twice as long to award as their commercial counterparts and often result in the DOD

receiving overpriced and outdated equipment. This inefficiency of the federal procurement process brought about a call for acquisition reform and streamlining from both industry and government agencies. The thrust of this acquisition reform is for the federal government to adopt commercial practices and commercial products, rather than rely on products designed to meet unique government specifications.

This study analyzes the barriers to adopting commercial practices and products relating to avionics within the DOD. The word "avionics" is a contraction of "aviation electronics." Aviation electronics include all communications, navigation and display electronics used in DOD aircraft operations. Before discussing these barriers, however, it is first necessary to examine the evolution of legislation which drove the change in DOD acquisition.

The first major mandate for change in the defense acquisition system came with the passage of Public Law 99-661, the Defense Acquisition Improvement Act of 1986. This act became known as the Nondevelopmental Item (NDI) Act because it required the DOD to fulfill its requirements with NDI items to the maximum extent possible. It also, for the first time, established a statutory preference for NDI within the DOD.³

The term NDI in this law encompassed items available in the commercial market place, previously developed government products or any modifications made to existing products to meet military requirements. This law encouraged the DOD to seek existing products from the private sector. However, most products did not meet all the unique military specifications and standards required by the DOD. Since the law did not

address many of the barriers which prevented the DOD from using commercial products, many NDI items were either rejected or extensively modified.

The passage of Public Law 103-355, more commonly known as the Federal Acquisition Streamlining Act of 1994 (FASA), was the next major acquisition reform initiative. It enhanced the Defense Acquisition Improvement Act of 1986 by changing the laws to remove the barriers that existed to the federal government procurement of nondevelopmental items. This law addressed many of the problems which existed after the passage of the Defense Acquisition Improvement Act of 1986. The effectiveness of FASA in removing the barriers to procuring commercial items in DOD aviation avionics is the focus of this study.

The latest acquisition reform initiative is contained in the National Defense Authorization Act for fiscal year 1996, Public Law 104-106. Division D of this act contains the Federal Acquisition Reform Act (FARA) of 1996.⁴ This act further emphasizes the requirement for increased government reliance on the use of commercial products and practices. The FARA clarifies and refines some of the provisions of FASA.

Although FARA is the most recent acquisition reform initiative, this study will focus primarily on FASA. The provisions of FARA have not been fully implemented in defense regulations at the time of this study, so it is not possible to accurately make conclusions about the effectiveness of FARA. Chapter four of this thesis includes an analysis of the provisions of FARA that relate to this study. That analysis will

discuss whether the provisions of FARA, as written in the law, address deficiencies that exist after FASA.

Background

On 29 June 1994, Secretary of Defense William Perry directed sweeping reform of military specifications and standards. The secretary directed the DOD to make greater use of the performance and commercial requirements in the acquisition process. As a result, performance specifications are now required for all government purchases, and a waiver is required to use detailed military specifications (MILSPECS). According to Mr. Perry, this will increase the DOD's access to commercial, state-of-the-art technology. As a result, the DOD will gain direct access to the existing commercial industrial base for defense applications.⁵

The DOD acquisition system has become increasingly complex and inefficient over the past fifty years. It has gained a reputation for excessive rules, regulations, and red tape in its procurement process. The use of MILSPECS and Military Standards (MILSTDS) by the DOD has drawn attention to these problems. They are now a symbol of excessive government control and waste in the system.

Over the years, the DOD developed an enormous collection of MILSPECS and MILSTDS. They are a compilation of lessons learned, intended to insure the Government does not repeat past mistakes in procurements. These volumes have grown to over 31,000 MILSPECS that dictate, in minute detail, precisely how the items that the DOD buys

must be made.⁶ There are detailed specifications for over 80 percent of all goods supplied to the military.⁷

MILSPECS are essentially design specifications. They are used in development and procurement to describe the technical requirements for items, materials, and services including the procedures by which the government procurement office will determine if the requirements have been met. Specifications may be unique to a specific program, or they may be common to several applications.

MILSTDS are incorporated into MILSPECS to establish uniform engineering and technical requirements for military unique or substantially modified commercial processes, procedures, practices, and methods. Standards can and do go into minute detail to tell the manufacturer how to build the DOD product.

The alternatives to MILSPECS are performance specifications and commercial specifications. The performance specification is now the preferred means of expressing requirements. It states requirements in terms of the required results and provides criteria for verifying compliance, but it does not state methods for achieving results. It defines the functional requirements for the product, the environment in which it must operate, and the interface and interchangeability requirements.⁸

The commercial specification is essentially a design specification used by industry. Commercial specifications are established by either a group of companies that establish minimum requirements for the industry or by national standards setting bodies, like the American National Standards Institute. The DOD is in the process of replacing MILSPECS

with performance specifications or comparable commercial specifications, where they exist.

MILSPECS and MILSTDS are a result of the DOD standardization program which was established by the Defense Cataloging and Standardization Act of 1952.⁹ The purpose of this act was to reduce the proliferation of items in the inventory, force national standardization by the Armed Services, and ensure the quality of items procured by the DOD.

Military specifications were deemed essential in the 1950s to 1970s when the government was the leader in technology. During that time, the government was a "big player" in the technology development field with the money to set the rules. The MILSPECS and MILSTDS were developed to make sure that the technical expertise of the government was properly applied by industry in developing military equipment and that the taxpayers' money would not be wasted on manufacturing mistakes. Today, however, the commercial technology, development, and manufacturing processes in areas, such as communications and information technology, have surpassed capabilities of the government.

The MILSPECS and MILSTDS are now accused of stifling potential benefits from industry expertise. Some of problems, however, are not due as much to the application of military specifications and standards as it is due to their misuse. One of the most common complaints of abuse from industry is the lack of tailoring of MILSPECS and excessive tiering.

The requirements in MILSPECS are written to provide requirements on a range of engineering and other technical matters. They are

intended to be modified and tailored to meet the specific requirements for each individual procurement. This tailoring results in only the desired portions of a MILSPEC becoming a requirement for the contractor. When they are not tailored, unnecessary requirements may be imposed on the contractor resulting in cost penalties to the DOD.

Tiering is another complaint from industry. Many MILSPECS contain references that may add additional requirements. These references then cite other references which add additional requirements and references, and so on. It has become very easy for procurement or requiring activity personnel to simply quote the MILSPEC pertaining to the item required without bothering to check the tiers of other specifications referenced in the primary MILSPEC. As a result of these practices, the government has bought reams of unnecessary information and reports that nobody really looks at and in the process, placed stifling management and technical constraints on contractors. This lack of tailoring of MILSPECS has also been blamed for the infamous \$640 toilet seat and \$435 hammer procured by the military.¹⁰

Currently, the numerous DOD unique requirements, in most cases, do nothing more than increase the cost of goods purchased and stretch the acquisition program times. Defense electronics companies and others that sell to the government incur an estimated thirty to fifty percent cost penalty for doing business with the government due to the redundant and excessive regulatory system.¹¹

The American Electronics Association reports an eighteen percent cost premium on defense contracts results from compliance with unnecessary DOD acquisition regulations and oversight.¹² This report

goes on to say that in order to achieve greater savings for industry and the taxpayer, a greater reliance on more advanced commercial off-the-shelf technologies and nondevelopmental items must be sought by the government. These products can be acquired faster with less procurement oversight and overhead.

In a survey of twenty large industrial companies in 1990, the Center for Strategic and International Studies (CSIS) found that the majority of goods that firms produced for the military had been spin-offs from their commercial divisions.¹³ The study concluded that the greater a company's commercial sales, the less likely it was to seek defense work. In some cases, the company may even get out of the defense business altogether, depriving the government access to precious skills and cutting-edge technology.

Some of the best high technology companies in America, including Hewlett-Packard, IBM, Intel, Motorola, and Digital Equipment, have begun to see military sales as barely worth bothering with.¹⁴ Some of the biggest defense industry contractors have even decided to get out of the defense business. IBM decided the defense business was not worth the trouble and sold its Federal Systems Division to Loral, which is now part of Lockheed Martin, for \$1.5 billion.¹⁵ Texas Instrument and Hughes also sold their defense electronics business to Raytheon.

The potential dollar savings associated with the reduction of MILSPECS is not the only goal of acquisition streamlining. The ability to use NON-MILSPEC items, such as commercial-off-the-shelf (COTS) items, commercial items (CI), nondevelopmental items (NDI), and commercial specifications will also expedite the acquisition process of high

technology systems, thus allowing the government to keep up with leaps in technology. This is particularly important in the computer and communications fields where the government has historically fielded weapon systems that were already up to ten years behind in technology when they were fielded.

The terms COTS, CI, and NDI are government unique terms describing different forms of commercial products. The most commercial of these three terms is COTS. The COTS items are offered to the government without modification. The government essentially buys these products "as is."¹⁶

The CI is similar to the COTS except the government may require modifications to the item. As with the COTS, this item is customarily used for non-governmental purposes, however, the government can require minor modifications not customarily available in the commercial marketplace to meet government requirements. This item also differs from COTS in that CI items may also include items not yet available in the commercial marketplace, but they will be available in time to satisfy the government delivery requirements.¹⁷

The NDI is the least commercial of these three descriptions. These items are previously developed items used exclusively for governmental purposes. The definition also includes previously developed items used exclusively for governmental purposes that require minor modifications or modifications of a type customarily available in the commercial marketplace in order to meet government requirements.¹⁸

For the purpose of this study, any item classified as COTS, CI, or NDI will be referred to as a NON-MILSPEC item. The definition of NON-

MILSPEC items in this study also includes those items designed under a commercial specification that the government does not acquire.

In an effort to identify areas that the DOD can improve acquisition through streamlining, Mrs. Colleen Preston, Deputy Under Secretary of Defense for Acquisition Reform, chartered a Process Action Team (PAT) to develop a strategy and a specific plan of action to decrease reliance, to the maximum extent practicable, on military specifications and standards.¹⁹ The Process Action Team brought together key government and industry leaders to discuss the concerns of both sides. Industry leaders also provided the "industry perspective" of the problems with government procurement.

The Acquisition Reform Process Action Team report, "Blueprint for Change," identifies the tasks the PAT believes necessary to achieve this objective.²⁰ These recommendations have become the cornerstone of acquisition reform for the DOD. The PAT recommendations regarding specifications and standards were that if a performance specification cannot meet the user's needs, then a non-governmental standard may be used. If a non-governmental standard will not assure that the user's needs are met, then a military specification may be used, but only with a waiver from the acquisition milestone decision authority (MDA).

The MDA is designated in accordance with criteria established by the Under Secretary of Defense for Acquisition and Technology, or by the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence for information system acquisition programs.²¹ The MDA approves entry of an acquisition programs into the next phase. The four phases in the DOD acquisition process requiring approval are concept

exploration, program definition and risk reduction, engineering and manufacturing development, and the production and deployment phases. The MDA also reviews solicitations and contracts prior to their release or execution for initial production contract of the production and deployment phase.

The Federal Acquisition Streamlining Act of 1994 (FASA) amended the Truth in Negotiations Act and other acts to improve the efficiency of federal procurements and remove the barriers to procuring NDI, CI, and COTS. It is the culmination of extensive problem identification efforts by DOD, industry, the House and Senate Armed Services Committee, and the House Government Operations Committee. The FASA attempts to lower the government's cost of doing business by encouraging commercial practices.

The FASA has nine major provisions: (1) simplifies small purchase procedures, (2) establishes the Federal Acquisition Network (FACNET), (3) changes bid protest procedures, (4) encourages commercial-off-the-shelf procurements, (5) allows evaluation of past performance, (6) introduces performance based service contracting, (7) establishes pilot programs, (8) clarifies task and delivery order contract procedures, and (9) improves small and disadvantaged business access to federal contracts.²² To simplify small purchase procedures, FASA allows all federal agencies making purchases less than \$100,000 to use simplified solicitation procedures rather than requiring a full and open competition. This change in the law is expected to reduce the paperwork burden and shorten award time on more than 46,000 contracts per year.²³

The second major provision of FASA establishes the FACNET. The FACNET reinforces the Clinton administration's electronic commerce initiative, entitled the electronic data interface (EDI) system, which will move the federal government from a paper-based organization to an automated one. The FACNET will allow any business with a personal computer and a modem to access government solicitations. The government will encourage much more competition from a much larger population of businesses, both small and large, informed of the latest solicitations. The government will also reduce costs in the proposal process by eliminating the reproduction and mailing of reams of paper which make up a solicitation.

The FASA changes bid protest procedures by authorizing the General Services Administration Board of Contract Appeals (GSBCA) to dismiss frivolous protests and invoke sanctions against anyone it determines are abusing the protest system or files a protest in bad faith. In the past, any bid protest whether frivolous or not, had to be investigated by the GSBCA. While the protest was being investigated, all work essentially stopped on the contract. This often cost both the government and industry substantial amounts of money in program delays and lost earnings.²⁴

It is important to point out that FARA changes a portion of this provision of FASA. The FARA eliminates the GSBCA protest authority over information technology procurements.²⁵ Under FARA, the General Accounting Office becomes the sole administrative forum for protest resolution on information technology procurements.²⁶ This provision of FARA became effective in August of 1996.²⁷

Commercial items are now preferred over those designed to government unique specifications. The FASA expands the definition of commercial items to include not only items which are currently available to the public, but also items or technology that is evolving. It also changes many of the cost data requirements for procurements of commercial items. The government cannot require certified cost data on noncompetitively awarded commercial contracts if the price information on similar items sold on the commercial market is available. It also states that cost data is not required for contracts under \$500,000.²⁸

The FASA now makes a company's past performance a critical part of the evaluation process for contract award. The government now evaluates not only what the contractors say they can do in the proposal, but, also how good of a track record they have on past contracts. This provision allows the government to score the contractor's ability to work to cost, schedule and performance requirements of other contracts to reduce risk before selection for a new contract award.²⁹

Another provision of FASA is the performance-based contracting for service contracts. Under this provision, service contracts will describe the work to be performed in measurable, mission-related terms. The goal of this provision is to reduce misunderstandings during the performance of the service contract. In the past, many service contracts were very broad and not precise which caused disputes between the government and contractors.³⁰

The FASA authorized thirteen pilot government programs to test alternative procurement procedures. The DOD was authorized to test alternative procedures in five programs. The five DOD test programs are

Fire Support Combined Arms Trainer (FSCATT), Joint Direct Attack Munitions (JDAM), Joint Primary Aircraft Training System (JPATS), Commercial-Derivative Aircraft, and Commercial Derived Engine. These DOD programs were tasked to creatively implement commercial type acquisition procedures.³¹

Under FASA, agencies that award multiple task and delivery order contracts and then compete particular orders are now able to define their needs in more general terms. They are also no longer required to conduct a full and open competition for each order. They may also limit the number of offers they will consider.³²

The final major provision of FASA pertains to small and disadvantaged businesses. The dollar value of contracts to be set aside for small business is raised from \$25,000 to \$100,000. The law also sets a goal of not less than 5 percent of the total prime and subcontract awards annually to women owned and small businesses. Purchases less than \$2,500 are excluded from this law to allow for credit card purchases.³³

It is now three years after the Secretary of Defense directed the DOD to make greater use of performance and commercial requirements in the acquisition process. Much has been done to inform the services. Each service has developed its own procedures to implement FASA and meet the intent of the Secretary's directive. How effective are the DOD procedures to utilize NON-MILSPEC items in acquisition programs? This study will examine available data from the JPATS program, the aviation avionics acquisition community and the DOD acquisition community to

determine if barriers still exist to procuring non-military specification avionics in the DOD.

Research Question

This thesis will answer the question: What barriers to procuring nonmilitary specification aircraft related avionics systems, in the DOD, remain after the passage of the Federal Acquisition Streamling Act of 1994? This primary question yields several subordinate questions.

Subordinate questions to this primary question are intended to identify and recommend a fix to any barriers that may exist. Has the DOD effectively implemented the provisions of FASA in aviation avionics? Does the DOD have an effective information dissemination and training program for NON-MILSPEC avionics procurement? What barriers to procuring NON-MILSPEC aviation avionics identified prior to FASA were not addressed in FASA? Are there still barriers after FASA? What anticipated effect will FARA have in removing barriers that remain after FASA?

Assumptions

Two assumptions are necessary in this study. The first is that legislation will continue to direct the federal government to prefer the use of commercial items, commercial-off-the-shelf, and nondevelopmental items. If this assumption is not true, then there is no significance in this study for future acquisition programs other than as a historical account.

The second assumption is that the Joint Primary Aircraft Training System (JPATS) program government personnel understood and properly

implemented the acquisition reforms of FASA. If this assumption is not true, it may render all or portions of the conclusions of this study invalid.

Limitations

There are two limitations to this study, both of which stem from the potential competition sensitive nature of this subject. The first limitation is that industry will not release information that may jeopardize future government contract awards, relations with their prime contractors, or may put them at a competitive disadvantage. Therefore the author is limited to using available information that the industry does not deem sensitive in nature.

The second limitation involves government information that is competition sensitive in nature. The author will not have access to contract evaluation board scoring or proceedings. The government will also not provide information regarding bidders on contracts currently under evaluation for award by DOD agencies.

Delimitations

The author has chosen to delimit this study in five areas. The first delimitation is that the author will restrict the research population to that of the available DOD aviation avionics acquisition community. The federal government has numerous acquisition activities all of which are specialized in different commodity areas. While it would be desirable to include this enormous population, it would be well outside the ability of a single researcher to accomplish in one academic year at the Command and General Staff College.

The second delimitation area is that of the research data time frame. This research will focus on the effectiveness of acquisition procedures as a result of changes made after the implementation of the Federal Acquisition Streamlining Act of 1994. The data research, however, will include the time period of 1980 through 1996. The topic of this study is an extremely dynamic one in which numerous changes in law and policy are taking place even as this study is being written. Therefore, the author feels it is imperative to focus on the past three years after the passage of FASA.

The third delimitation is that only developmental aviation avionics acquisition programs will be studied. There is another segment of the aviation avionics acquisition field in spares and follow-on procurements. While the follow-on procurement field is similar, it would require further analysis to insure recommendations from this study fully apply.

The fourth delimitation is that the primary source of available data related to the current aviation avionics acquisition programs is from one acquisition program: The Joint Primary Aircraft Training System (JPATS). This program is named as one of the five DOD pilot programs named in FASA and uses the latest acquisition streamlining initiatives in its solicitation and design. Although this is only one program, the personnel involved with the program draw upon their experiences from various other programs, both prior to and after FASA.

The fifth and final delimitation is that the author has chosen not to administer a survey developed by the 1996 Command and General Staff College students participating in the Industry Partnership Program with

Allied Signal Aerospace, Incorporated. While the CGSC class created a useful product, the limitations placed on distribution by the Command and General Staff College and the Army Research Institute (ARI) rendered the study ineffective for the purpose of this thesis. The distribution limitation was that it could only be sent to the Department of the Army acquisition activities. The purpose of this study is to examine the DOD acquisition activities. This survey would not yield comparable information from the other three services in DOD.

Significance of Study

The laws and federal regulations are being changed at a rapid pace in an attempt to remove the barriers to adopting commercial items. It is important for the acquisition professional to fully understand the effects these changes have had on the way the DOD does acquisition business and the problems that still exist due to the remaining barriers.

The goal of this study is to contribute to the DOD's effort to adopt commercial products and practices. This is, in the final analysis, the directive from Congress, the Secretary of Defense, and the American people for that matter. DOD acquisitions must be made to be more efficient and to buy more for the dollar than they ever have in the past.

Definitions of Terms

This study uses some terms that are unique to the government acquisition community, or in some cases, to this study. This section

provides definitions of these unique terms in order to establish a common frame of reference.

The preference for existing definitions used in this study is first to statutory definitions, then federal regulation definitions, and finally to defense directive definitions. The preferred source of defense unique definitions is first to defense directives then to the Defense Systems Management College, *Glossary-Defense Acquisition Acronyms And Terms*, Sixth Edition.³⁴ This is important to note because definitions of terms may differ between these sources.

Acquisition. The acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract.³⁵

Acquisition Procedures. The policies used by acquisition program management and contracting offices to procure NON-MILSPEC items.

Acquisition Program. A directed, funded effort that is designed to provide a new, improved, or continuing weapons system or automated information system (AIS) capability in response to a validated operational need. Acquisition programs are divided into categories, which are established to facilitate decentralized decision-making and execution and compliance with statutory requirements.³⁶

Aviation Acquisition Community. The population of rotary wing and fixed wing aviation program management offices, the contracting offices supporting aviation program management offices and the commercial manufacturers of aviation components.

Aviation Avionics Acquisition Community. The population of communication, navigation and target acquisition program management offices, the contracting offices supporting communication, navigation and target acquisition program management offices and the commercial manufacturers of communication, navigation and target acquisition systems.

Commercial Item (CI).

(a) Any item, other than real property, that is of a type customarily used for non-governmental purposes and that --

(1) Has been sold, leased, or licensed to the general public; or,

(2) Has been offered for sale, lease, or license to the general public;

(b) Any item that evolved from an item described in paragraph (a) of this definition through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a Government solicitation;

(c) Any item that would satisfy a criterion expressed in paragraphs (a) or (b) of this definition, but for --

(1) Modifications of a type customarily available in the commercial marketplace; or

(2) Minor modifications of a type not customarily available in the commercial marketplace made to meet Federal government requirements. Minor modifications means modifications that do not significantly alter the non-governmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;

(d) Any combination of items meeting the requirements of paragraphs (a), (b), (c), or (e) of this definition that are of a type customarily combined and sold in combination to the general public;

(e) Installation services, maintenance services, repair services, training services, and other services if such services are procured for support of an item referred to in paragraphs (a), (b), (c), or (d) of this definition, and if the source of such services --

(1) Offers such services to the general public and the Federal government contemporaneously and under similar terms and conditions; and

(2) Offers to use the same work force for providing the Federal government with such services as the source uses for providing such services to the general public;

(f) Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed under standard commercial terms and conditions. This does not include services that are sold based on hourly rates without an established catalog or market price for a specific service performed;

(g) Any item, combination of items, or service referred to in paragraphs (a) through (f), notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries, or affiliates of a contractor; or

(h) A nondevelopmental item, if the procuring agency determines the item was developed exclusively at private expense and sold in

substantial quantities, on a competitive basis, to multiple State and local governments.³⁷

Commercial-Off-The-Shelf (COTS)

- (a) is a commercial item
- (b) is sold in substantial quantities in the commercial marketplace; and
- (c) is offered to the Government, without modification, in the same form in which it is sold in the commercial marketplace. The term "commercially available off-the-shelf item" does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 (46 U.S.C. App. 1702), such as agricultural products and petroleum products.³⁸

Design Specification. A specification that establishes precise measurement, tolerances, materials, in process and finished product tests, quality control, inspection requirements, and other specific details of the deliverable.³⁹

Nondevelopmental Item (NDI).

- (a) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;
- (b) Any item described in paragraph (a) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or
- (c) Any item of supply being produced that does not meet the requirements of paragraph (a) or (b) solely because the item is not yet in use.⁴⁰

Military Specification (MILSPEC). A document used in development and procurement which describes the technical requirements for items, materials, and services including the procedures by which it will be determined that the requirements have been met. Specifications may be unique to a specific program (program-peculiar) or they may be common to several applications (general in nature).⁴¹

NON-MILSPEC item. An item that is either a Commercial-Off-The-Shelf (COTS), Commercial Item (CI) or Non-Developmental Item (NDI).

Performance Specification. In solicitations and contracts, standard management approaches or manufacturing processes shall not be required. Performance specifications shall be used when purchasing new systems, major modifications, and commercial and nondevelopmental items. Performance specifications include DOD performance specifications, commercial item descriptions, and performance-based nongovernment standards. If it is not practicable to use a performance specification, a nongovernment standard shall be used. There may be cases when military specifications are needed to define an exact design solution because there is no acceptable

nongovernment standard or because the use of a performance specification or nongovernment standard is not cost-effective, not practical, or does not meet the user's needs. In these cases, the use of military specifications and standards is authorized as a last resort, with an appropriate waiver or exception from the milestone decision authority (MDA).⁴²

Procurement. Act of buying goods and services for the Government.⁴³

¹Lisa Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," *Government Executive*, January 1995, 1A.

²US Department of Defense, *Defense 96 Almanac* (Washington, DC: US Government Printing Office, 1996), 11.

³US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items* (Washington, DC: General Accounting Office National Security and International Affairs Division, 1989), 8.

⁴U.S.Congress, Senate, National Defense Authorization Act for Fiscal Year 1996, Division D, Federal Acquisition Reform. 104th Cong., 2nd sess., S. 1124, [Document on line], Available from http://thorplus.lib.purdue.edu:8100/gpo/GPOAccess.cgi?104_cong_public_laws/PDF/1756620/3=0%20-1756620%20/diskb/wais/data/104_cong_public_laws/publ106.104;7=%00; Internet; accessed 2 February 1997.

⁵William Perry, Secretary Of Defense, Memorandum For Secretaries of the Military Departments, "SUBJECT: Specifications & Standards -- A New Way of Doing Business," June 1994 [Document on line]; available from <http://www.acq.osd.mil/>; Internet; accessed 16 August 1996.

⁶"Going Commercial," *The Economist*, 3 September 1994, 13.

⁷"Going Commercial," 13.

⁸Office of the Assistant Secretary of Defense (Economic Security), Standardization Program Division, Performance Specification Guide, SD-15, (Washington, DC: Department of Defense, 1995), 6, [Document on line]; available from <http://www.acq.osd.mil/ar/>; Internet; accessed 3 September 1996.

⁹Office of the Under Secretary of Defense for Acquisition & Technology, *Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change*, (Washington, DC: Department of Defense, April 1994), 11.

¹⁰"Going Commercial," 13.

¹¹Roger Smith, "National Issue-Government Acquisition Reform and Streamlining," American Electronics Association News Release, 1995,

[Document on line]; available from <http://www.aeanet.org/>; Internet; accessed 18 February 1996.

¹²Smith, "National Issue-Government Acquisition Reform and Streamlining."

¹³"Going Commercial," 13.

¹⁴"Going Commercial," 13.

¹⁵"Going Commercial," 13.

¹⁶U.S. Congress, National Defense Authorization Act for Fiscal Year 1996, section 4203.

¹⁷Federal Acquisition Regulation, Part 2, October 1996, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, September 1996).

¹⁸Federal Acquisition Regulation, Part 2.

¹⁹Perry, "SUBJECT: Specifications & Standards -- A New Way of Doing Business."

²⁰Office of the Under Secretary of Defense for Acquisition & Technology, *Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change*, 1-202.

²¹US Department of Defense Directive, 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs. 4 November 1996, C. Definitions, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, December 1996).

²²Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 1A.

²³Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 1A-12A.

²⁴Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 5A.

²⁵U.S. Congress, National Defense Authorization Act for Fiscal Year 1996, section 5101.

²⁶U.S. Congress, National Defense Authorization Act for Fiscal Year 1996, section 5101.

²⁷U.S. Congress, National Defense Authorization Act for Fiscal Year 1996, section 5101.

²⁸Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 6A.

²⁹Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 9A.

³⁰Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 10A.

³¹Joseph A. Drelicharz, "Highlights of the Federal Acquisition Streamlining Act of 1994: Lowering government's cost of doing business," Program Manager, November-December 1994, 16.

³²Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 10A.

³³Corbin, "Streamlining Federal Acquisition: A Guide To The New Law," 10A.

³⁴Department of Defense, Defense Systems Management College, Glossary-Defense Acquisition Acronyms And Terms, Sixth Edition, (Fort Belvoir, VA.: Government Printing Office, March 1995), [Document on line] available from <http://www.dsmc.dsm.mil/>; Internet; accessed 2 December 1996.

³⁵Federal Acquisition Regulation, Part 2.

³⁶US Department of Defense Directive, 5000.1, Defense Acquisition, 15 March 1996, Definitions, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, September 1996).

³⁷Federal Acquisition Regulation, Part 2.

³⁸U.S. Congress, Senate, National Defense Authorization Act for Fiscal Year 1996, section 4203.

³⁹U.S. Army, AMC-P 715-3, *The Best Value Approach -- Guide to Best Practices*(Alexandria, VA: Headquarters, United States Army Materiel Command, 16 August 1994), Appendix B, Definitions, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, 31 December 1996).

⁴⁰Federal Acquisition Regulation, Part 2.

⁴¹Department of Defense, Defense Systems Management College, Glossary-Defense Acquisition Acronyms And Terms.

⁴²US Department of Defense Directive, 5000.1, Defense Acquisition, 15 March 1996, Definitions.

⁴³Department of Defense, Defense Systems Management College, Glossary-Defense Acquisition Acronyms And Terms.

CHAPTER TWO

LITERATURE REVIEW

The subject of acquisition reform as a result of the provisions of the Federal Acquisition Streamlining Act is one of great interest in both the DOD and industry. There are numerous articles in periodicals and trade journals regarding this subject. Most, however, only briefly describe the circumstances leading to the requirement for further legislation and explain the provisions of the FASA. Federal agencies definitely produce the most extensive compilation of information on this subject.

A literature review for this study would be incomplete without mention of the Federal Acquisition Streamlining Act itself. This document and some other synopsis documents are available online through the Internet.¹ This is the baseline document for this study.

The Federal Acquisition Regulation is the primary document of the Federal Acquisition Regulations System.² This system operates under the direction of the Office of Federal Procurement Policy (OFPP), in the Office of Management and Budget. The FAR codifies uniform policies and procedures for acquisition by all executive agencies.³ The FAR is the way in which the executive branch has implemented and enforced the provision of FASA.

The process of changing the FAR is a complex process involving extensive coordination among the executive agencies. The Administrator

of OFPP, along with the heads of the Department of Defense, the General Services Administration, and the National Aeronautics and Space Administration, comprise the Federal Acquisition Regulation (FAR) Council. The FAR council is supported by the Civilian Agency Acquisition Council and the Defense Acquisition Regulation Council.

The Civilian Agency Council is a group composed of representatives of the Departments of Agriculture, Commerce, Energy, Health and Human Services, Interior, Labor, State, Transportation, Treasury and Veterans Affairs, the Environmental Protection Agency, and the Small Business Administration. The Defense Acquisition Regulatory Council (DARC) is a group composed of representatives from each Military department, the Defense Logistics Agency and the National Aeronautics and Space Administration.

The Federal Register is another key reference source relating the Federal Acquisition Regulations System. The Federal Register serves two purposes. First it introduces changes to the FAR that are pending approval by the FAR Council. This provides both government and industry a look at the proposed changes to the FAR so they can provide comments before implementation. Second, it provides final rule documents which comprise the Federal Acquisition Circular (FAC). The FACs are the formal revisions to the Federal Acquisition Regulation (FAR) as approved by the FAR council. They are published on a quarterly basis.

The General Accounting Office (GAO) report entitled *Procurement - DOD Efforts Relating to Nondevelopmental Items* is an extremely useful report for this study.⁴ This report evaluates the DOD's efforts to procure NDI after the implementation of the Defense Acquisition

Improvement Act of 1986. It identifies nine claimed impediments to DOD's procurement of nondevelopmental items prior to FASA. The nine impediments identified in this report are: notification and training of DOD acquisition personnel, cost and pricing data, claimed problems relating to FAR, part 11 (Describing Agency Needs), government rights to technical data, use of varying contract provisions, use of military specifications, modification of items to meet NDI needs, and multiple award schedule.

The evaluation of both government and industry acquisition activities is the strength of this report. The weakness of this report as it relates to this study is that the information may be somewhat dated. This is a 1989 report initiated in response to a requirement of the Defense Acquisition Improvement Act of 1986.

The Office of the Secretary of Defense wrote the documents that establish the requirement for procurement of NON-MILSPEC items in the DOD. Mr. William Perry, the Secretary of Defense, published two directives, in the form of memorandums to the secretaries of the military departments, which are key to this study.

The first Perry memorandum is "Specifications & Standards-A New Way of Doing Business."⁵ In this memorandum, Mr. Perry directs the addressees to use performance and commercial specifications and standards in lieu of military specifications and standards, unless no practical alternative exists to meet the user's needs.⁶ This memorandum started a fury of documentation streamlining and the exploration of ways to make greater use of NDI items.

The second Perry memorandum is "Common Systems/ISO-9000/Expedited Block Changes."⁷ This directive requires unification of government management and manufacturing requirements on current contracts within contractor facilities. The thrust of this memorandum is to prevent contractors from having to operate multiple, government-unique management and manufacturing systems, within a given facility.⁸

The *Defense Acquisition Deskbook* was an immensely useful reference tool for this thesis.⁹ The Deskbook is a compact disk (CD) containing full text versions of the many volumes of defense directives and regulations. The Defense Acquisition Deskbook Joint Program Office developed this tool under the sponsorship of the Deputy Under Secretary of Defense (Acquisition Reform) and the Office of the Under Secretary of Defense (Acquisition and Technology). The *Defense Acquisition Deskbook* states that the "deskbook" is now the primary reference tool for the entire DOD acquisition work force."¹⁰

While the *Defense Acquisition Deskbook* was useful, it does have limitations. One minor limitation is that while the documents in the Deskbook are full text, they are not exact duplicates of the original documents. Documents in the Deskbook do not contain page numbers nor do they contain signature or authorization pages found in the original. This limitation is evident in this thesis by the lack of page numbers in citations from documents found in the Deskbook.

The two most important documents on the Acquisition Deskbook CD for this study are the Department of Defense Directive (DODD) 5000.1 entitled *Defense Acquisition* and the Federal Acquisition Regulation (FAR). The DODD 5000.1 provides policies and principles for all DOD

acquisition programs and identifies the Department's key acquisition officials and forums.¹¹ It also defines many acquisition terms and concepts.

The Internet contains some of the most current and informative sources of NON-MILSPEC procurement information. The DOD acquisition community has very successfully harnessed the capabilities of the internet to share information. The Deputy under Secretary of Defense (Acquisition Reform) and the Office of the Under Secretary of Defense (Acquisition and Technology) have very useful homepages. This is the source of *MILSPEC Reform Results of the First Two Years* and many other DOD reports on NON-MILSPEC procurements. The DOD updates these sites regularly with the latest directives and reports. The reader must, however, understand that most of this information only proclaims the successes of DOD acquisition reform.

Symposiums and trade shows are another excellent source of information. With the rapidly changing laws and policy in acquisition reform, symposiums and trade shows provide current information on implementation issues. The limitation of this source is that many of the papers and presentations are program or industry unique and do not present a DOD perspective. This limitation is easily overcome through analysis to identify trends and common issues among programs and industries.

There have been several symposiums and trade shows sponsored by government and industry over the past two years. The most recent symposium, sponsored by the Naval Undersea Warfare Center Division, Keyport, WA., was held 9 September 1996 through 12 September 1996. This

symposium was entitled "NDI/COTS Support Strategies As A Function Of DOD Acquisition Reform."¹² Numerous prominent members of the government acquisition community and their industry counterparts presented briefings and white papers at the symposium. This study uses information from two presentations at this symposium.

The first presentation is a white paper entitled "Ideas for the Facilitation of Specifications Standards Acquisition Reform from the Army's Command, Control, Communications, Computer, Intelligence, Electronic Warfare and Sensors (C4IEWS) Community."¹³ It discusses this organization's approach to implement acquisition reform. The focus of the study is a methodology and plan to utilize COTS and NDI.

The second source of information from this symposium is the "Final Report for the Flexible Sustainment Sub-Panel."¹⁴ This report offers a host of recommendations to overcome the sustainment barriers associated with the use of NON-MILSPEC items. This report and the C4IEWS white paper provide a good view of how different DOD program offices, in conjunction with industry are striving to go commercial.

¹U.S. Congress, Senate, Federal Acquisition Streamlining Act of 1994, 103rd Cong., 2nd sess., S.1587, [Document on line], Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

²Federal Acquisition Regulation, Part 1, October 1996, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, September 1996).

³Federal Acquisition Regulation, Part 1.

⁴US General Accounting Office, Procurement - DOD Efforts Relating to Nondevelopmental Items, (Washington, DC: General Accounting Office National Security and International Affairs Division, 1989).

⁵William Perry, Secretary Of Defense, Memorandum For Secretaries Of The Military Departments, "SUBJECT: Specifications & Standards -- A

New Way of Doing Business," June 1994 [Document on line]; available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

⁶Perry, "SUBJECT: Specifications & Standards -- A New Way of Doing Business."

⁷William Perry, Secretary Of Defense, Memorandum For Secretaries Of The Military Departments, "SUBJECT: Common Systems/ISO-9000/Expedited Block Changes," November 1995 [Document on line]; available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

⁸Perry, "SUBJECT: Common Systems/ISO-9000/Expedited Block Changes."

⁹Defense Acquisition Deskbook [CD-ROM], (Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, September 1996).

¹⁰Defense Acquisition Deskbook [CD-ROM].

¹¹US Department of Defense Directive, 5000.1, Defense Acquisition, 15 March 1996, Definitions, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, September 1996).

¹²Non-Government Standards Integrated Product Team on Acquisition Reform Alternatives Using Non-Government Standards, "Final Report for the Flexible Sustainment Sub-Panel," report presented at the Naval Undersea Warfare Center NDI/COTS Support Strategies Symposium, Keyport, WA., 10-12 September 1996, 1.

¹³Kenneth Brockel, Guiseppe Sgroi and Bradley Cheney, "Ideas for the Facilitation of Specifications Standards Acquisition Reform from the Army's Command, Control, Communications, Computer, Intelligence, Electronic Warfare and Sensors (C4IEWS) Community," paper presented at the Naval Undersea Warfare Center NDI/COTS Support Strategies Symposium, Keyport, WA., 10-12 September 1996.

¹⁴Non-Government Standards Integrated Product Team on Acquisition Reform Alternatives Using Non-Government Standards, "Final Report for the Flexible Sustainment Sub-Panel," 1.

CHAPTER THREE

RESEARCH METHODOLOGY

The goal of this study, as stated earlier, is to contribute to the Department of Defense's effort to adopt commercial products and practices. The focus of this study is to identify the barriers that exist to accomplishing this goal, in the aircraft related avionics systems market, after the passage of FASA.

The research methodology involves an analysis and synthesis of numerous forms of data. Analysis of the historical background and current legislation, as well as analysis of a case study, is necessary to understand what barriers to procuring NON-MILSPEC aviation related avionics exist within the DOD.

The research for this thesis starts with a thorough historical study of barriers that existed to procuring NON-MILSPEC items prior to the passage of FASA. This historical study includes the analysis of other legislation or directives intended to eliminate the barriers to NON-MILSPEC item procurement by DOD prior to FASA and how successful they were. This information becomes the baseline against which the DOD implementation issues are compared.

After understanding why FASA exists, the study shifts to an analysis of FASA itself and how the DOD implements it. The analysis of FASA determines which barriers that existed prior to FASA were intended to be eliminated by the new legislation. There is a synthesis of pieces

of legislation and preexisting barriers to understand how DOD program offices should operate under the new rules.

This study uses an acquisition program with aviation avionics requirements as case a study for the effectiveness of FASA. The analysis of the experiences of the government and industry participants in this program will determine what aviation avionics unique barriers still exist after FASA.

The program selected for study is the Joint Primary Aircraft Training System (JPATS). The JPATS program is a joint (Air Force/Navy) Acquisition Category (ACAT) 1C project to replace the Air Force T-37B and Navy T-34C aircraft and related ground based training systems. The program is managed by the Air Force Program Executive Officer for Airlift and Trainers (AFPEO/AT).

The primary contractor for the program is the Beech Aircraft Division of Raytheon, Inc. The avionics package, however, is a commercial-off-the-shelf package supplied by AlliedSignal, Inc. This study draws upon the experiences of the AlliedSignal personnel involved with this program.

The JPATS program was selected by the DOD as one of the five pilot programs authorized to test alternative procurement procedures under the provisions of the Federal Acquisition and Streamlining Act in January 1994. One of the requirements of this act was to report on streamlining metrics to Congress. The program is seeking to maximize the benefits of allowing the prime contractor to operate using commercial practices with its subcontractors and vendors. The program will be conducted using a commercial style of practices to the greatest extent possible; however,

due to the nature of the program's acquisition strategy, some current government policies regarding auditing and domestic content still apply.¹

There is a synthesis of the experiences and recommendations of both the government and industry representatives to determine if barriers to procuring NON-MILSPEC avionics exist in this program. Emphasis is on identifying those barriers and soliciting recommended fixes. The results may yield a better way to do business that the current regulations do not permit. The FASA authorizes the use of alternative procurement procedures in this program.

This methodology is basically deductive in nature. After laying out the experiences of the participants in this program, observations derived from the analysis is made. These observations are compared to other observations from the DOD acquisition community obtained through a literature search. From these observations and the literature search, conclusions are drawn and recommendations are made.

The primary weakness in this methodology is that the validity of the findings related exclusively to aviation avionics depend heavily on the experiences of one aviation acquisition program. The JPATS program, however, is the only major aviation acquisition program with data available to answer the research question of this study. The usefulness of this study depends on the author's ability to distinguish program unique issues from those that are applicable to the entire community.

Thorough research and the diverse experiences of the personnel interviewed for this study mitigates this weakness. The strongest and most valuable resource for this study is the availability of literature

and of professional aviation avionics acquisition subject matter experts from both the government and industry. AlliedSignal Aerospace has graciously provided the author access to their subject matter experts for this study. These experts provide an invaluable industry perspective on JPATS and other aviation avionics programs.

¹Department of the Air Force, Joint Primary Aircraft Training System (JPATS) input to the 1996 Compendium of Pilot Program Reports, Wright-Patterson Air Force Base, OH, (Joint Primary Aircraft Training System (JPATS) Office, 31 December 1996), 3-1.

CHAPTER FOUR

ANALYSIS

Analysis Structure

This chapter presents an analysis of the barriers that exist to procuring NON-MILSPEC aviation avionics in the DOD after the passage of FASA. This analysis is derived from the research methodology described in chapter three. The results of this analysis form the conclusions and recommendations presented in chapter five.

The results of the comparative analysis of barriers existing prior to FASA yield three categories of barriers that remain to procuring NON-MILSPEC avionics in the DOD after FASA. These categories are specifications, logistics, and management and training.

Research found that the specifications category is significantly improved as a result of FASA. Many of the barriers which existed prior to FASA are significantly decreased. While the new law decreased the barriers in this category, it did not eliminate all of them. As in the logistics area, some new issues have arisen that may become barriers.

In converse, many of the current logistics and management and training barriers were the same ones identified as barriers prior to FASA. The law did not direct change in these areas, so many of the old issues still exist. In the case of logistics, FASA has actually created new barriers to procuring NON-MILSPEC items.

The last section of this chapter analyzes the impact FARA may have on correcting barriers that remain after FASA. Since FARA is not fully implemented, the analysis must focus on only the provisions of the law and not on their implementation.

Specifications

As stated in chapter one, the NDI Act of 1986 first established a preference for NON-MILSPEC items within the DOD. With this, the DOD implemented measures to state requirements in terms of performance rather than design. For example, the DOD revised Military Standard 970, Order of Preference for the Selection of Standards and Specifications in October 1987.¹ This revision stated that DOD personnel should use non-governmental standards when designing an item, unless: (1) a specification is required by law or multinational treaty or (2) nongovernmental standards are technically or economically unsuitable.²

Industry was not satisfied with the DOD's progress in Milspec reform. Industry officials pointed out that the inappropriate use of MILSPECS by the DOD still restricted the procurement of commercial products even after the NDI Act.³ The problem with the NDI Act relating to specifications is one of interpretation of the law and definition of terms.

The DOD uses military specifications to describe in exact detail not only the end product but also the specific processes required to successfully deliver that product. The most common justification for the Milspec approach is that items operating in a hostile or life threatening environment must function properly. This approach ensures

the satisfaction of the user's needs and results in consistently high quality products at low risk to both the supplier and the procuring activity. The problem though is that this stifles new and possibly better industry solutions and in many cases eliminates consideration of existing commercial items.

Many industry representatives began to raise the issue that the DOD inappropriately used MILSPECS and did not have realistic performance requirements, especially for products that do not need to operate in a hostile environment.⁴ They pointed out that this created burdens on industry and increased costs to the government.⁵ Many commercial items could not meet all government requirements without some modification. This would then subject the item to becoming technically or economically unsuitable in the eyes of DOD agencies.

This led to a call for acquisition reform not only within the DOD, but the federal government as a whole. Recognizing the need for change, the Deputy Under Secretary of Defense for Acquisition Reform, under the direction of the Deputy Secretary of Defense, chartered the Military Specifications and Standards Process Action Team (PAT).⁶ The PAT was tasked to develop a strategy to change the way DOD defines its requirements and specifies its needs to permit greater reliance on the commercial market and manufacturing base.⁷ Many of the recommendations made by this PAT in the Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change were instrumental in developing the provisions of FASA.

The PAT made the following performance specification recommendation: "all acquisition category (ACAT) programs for new

systems, major modifications, technology generation changes, nondevelopmental items, and commercial items shall state needs in terms of performance specifications."⁸ This recommendation became the rule for the DOD acquisitions. This recommendation also influenced the wording of FASA as well as the wording of the FAR.

The FASA has completely changed the way the government expresses its requirements to industry. As a result of FASA, Part 12, Acquisition Of Commercial Items, was added to the Federal Acquisition Regulation (FAR). This new part contains the implementation procedures of Title VIII of the Federal Acquisition Streamlining Act of 1994. It for the first time prescribes policies and procedures unique to the acquisition of commercial items and establishes acquisition policies more closely resembling those of the commercial marketplace.⁹ The FAR also clarifies the requirement to use performance specifications. Part 11 of the FAR now states:

To the maximum extent practicable, ensure that acquisition officials-

- (i) State requirements with respect to an acquisition of supplies or services in terms of -
 - (A) Functions to be performed;
 - (B) Performance required; or
 - (C) Essential physical characteristics¹⁰

The DOD further restricts the use of specifications by its acquisition agencies. The DOD Directive 5000.1, Defense Acquisition, now essentially "outlaws" the use of MILSPECS in the DOD. The directive states the following in reference to the use of specifications:

In solicitations and contracts, standard management approaches or manufacturing processes shall not be required. Performance specifications shall be used when purchasing new systems, major modifications, and commercial and nondevelopmental items. Performance specifications include DOD performance specifications,

commercial item descriptions, and performance-based nongovernment standards. If it is not practicable to use a performance specification, a nongovernment standard shall be used. There may be cases when military specifications are needed to define an exact design solution because there is no acceptable nongovernment standard or because the use of a performance specification or nongovernment standard is not cost-effective, not practical, or does not meet the user's needs. In these cases, the use of military specifications and standards is authorized as a last resort, with an appropriate waiver or exception from the milestone decision authority (MDA).¹¹

This policy in the DOD Directive 5000.1 is an abrupt change to the past procurement process within the DOD. The DOD can no longer draw upon the thousands of established MILSPECS and MILSTDS that it has developed and used for the past forty years. In fact, the DOD is aggressively attempting to replace MILSPECS and MILSTDS with performance specifications and standards and non-governmental standards (NGS) in order to allow better use of commercial products and practices.

The DOD recognizes three types of performance specifications. The first and most commercial type of performance specification is the commercial item description (CID). The CID is an indexed, simplified product description managed by the GSA.¹² It describes the functional or performance characteristics of available, acceptable commercial products that will satisfy the government's needs.¹³ The CID is used to purchase commercially available items from industrial sectors that do not use non-governmental standards.¹⁴

The second type of performance specification is the military performance specifications (MIL-PRF). The MIL-PRF is used for CI, NDI, and COTS items. It describes military unique product performance requirements and is the primary replacement for the MILSPEC. The MIL-PRF is also used for commercial products when modifications not of the

type normally made for commercial customers is required to meet military needs.¹⁵

The third type of performance specification is the commercial specification. The commercial specification is also referred to as a non-government performance specification by the DOD. This specification is essentially the commercial equivalent of the MIL-PERF. The difference is that it is developed by a private sector association, organization, national standards board, or technical society.

There are two forms of standards accepted by the DOD. The first standard and the most preferred, is the non-government standard (NGS). The NGS is for commercial products or practices that are used industry wide. It is developed by a private sector association, organization, or technical society which plans, develops, establishes, or coordinates standards, specifications, handbooks, or related documents.¹⁶ Standards of individual companies are not recognized as valid non-governmental standards. Non-Government standards adopted by the DOD are listed in the Department of Defense Index of Specifications & Standards (DoDISS).¹⁷

The second form of standard is the handbook. Is a compilation of lessons learned by the government provided as guidance only for a particular commodity. It offers an opportunity to preserve institutional knowledge and provide possible solutions that have worked in the past, without mandating those solutions. The handbook is good for lessons learned, describing processes, providing definitions of terms, offering different technical approaches, and providing guidance information.¹⁸

Over the past three years, the DOD has been conducting a major review of all MILSPECS and MILSTDS to determine which should be retained and which should be converted to performance specifications or non-government standards. To date, 2,676 MILSPECS and MILSTDS have been canceled, and 207 performance specifications have replaced MILSPECS.¹⁹

The blanket ban placed on the use of the old MILSPEC and MILSTD in the DOD has created some barriers to procuring NON-MILSPEC avionics. The DOD placed a ban on the use of MILSPECS and MILSTDS without first determining which should be retained and before any performance specifications or standards were created. While this approach forced DOD agencies to move to performance based specifications and standards, it also created new barriers to procuring NON-MILSPEC items. Research of the JPATS program and the literature review found three main barriers related to specifications remaining after FASA.

The first barrier is the increase in the time required by the government to produce requests for proposals (RFP) as a result of converting from MILSPECS and MILSTDS to performance specifications requirements. The JPATS RFP took over four and one half times longer to prepare than one for a similar Air Force program.²⁰ This delay is largely attributed to efforts required to conform to the new acquisition streamlining initiatives.

Part of the increased RFP preparation time was because FASA was implemented during the proposal process. This meant the original RFP, which contained numerous MILSPECS and MILSTDS, had to be streamlined. Because JPATS was designated as a pilot program, the reporting and review of streamlining efforts required time that other programs would

not incur. These particular problems are unique to this program and should not occur in other programs.

However, the JPATS program also reported increased RFP preparation time attributed to creating performance specifications and obtaining waivers from the MDA²¹. These are not program unique problems. Rather than simply quoting an existing MILSPEC or MILSTD, the JPATS team had to create all new performance specifications or obtain a waiver to use an existing MILSPEC or MILSTD. Some of this excessive time can be attributed to the fact that this was a pilot program and very few performance specifications existed at the time the JPATS RFP was put together.

However, even today there are over 28,000 of the original 31,000 MILSPECS and MILSTDs that have not been converted to performance specifications.²² In addition, the DOD has only adopted 1,700 NGS since June 1994. This means that any program requiring any of these 28,000 remaining MILSPECS or MILSTDs must request a waiver or translate them to performance specifications themselves. Either way, the program will expend unplanned resources and stretch proposal preparation time.

The second barrier relating to specifications is the lack of the streamlining initiative benefit flow down from the prime contractor to subcontractors. While the DOD is no longer authorized to use MILSPECS or MILSTDs, industry can and often does require subcontractors to comply with their own specifications and standards.²³ The prime contractor tends to add standards similar to military specifications and standards in their RFPs to subcontractors in order to ensure they get the exact product from their vendors.

There is no government requirement for the prime contractor to adopt the acquisition streamlining procedures when dealing with their subcontractors. The subcontractors are still burdened with the same costs associated with DOD MILSPECS and standards except they are called industry specifications and standards. Additionally, the DOD is burdened with the increased government labor hours it takes to write new performance specifications rather than using an existing MILSPEC. This lack of benefit flow down from prime contractor to subcontractor deprives the DOD of full cost benefits for its efforts.

If this practice is deemed necessary in industry, it calls into question some of the original industry issues related to DOD's use of MILSPECS. Industry stated that DOD's use of MILSPECS and standards created burdens on industry and increased costs to the government. If the government gives industry a performance specification and they translate it back into a design specification for subcontractors, where is the cost savings? It could be argued that there is in fact a cost increase.

The final barrier identified relating to specifications is caused by the blanket ban placed on the use of all MILSPECS by the DOD. While it makes sense to ban the MILSPECS and MILSTDS that limit government access to commercial products and practices, not all MILSPECS and MILSTDS are bad. The DOD did not conduct a review of the existing MILSPECS to first determine which ones should be retained or given priority for conversion to MIL-PERF. Many DOD items have no commercial equivalent or are required to operate in environments unique to only the DOD. An example from the JPATS program is the ejection seats.

Although the JPATS airframe is essentially a commercial variant, it has components, such as ejection seats, that are unique to military requirements. There are no commercial equivalent specifications for ejection seats because commercial aircraft are not equipped with ejection seats. Because of the blanket ban on MILSPECS, the government program office had to request a waiver to keep MILSPECS relating to ejection seats.²⁴ This waiver process for a clearly unique military requirement wastes time and creates unnecessary paperwork.

There are two types of waivers which can be granted to use MILSPECS and MILSTDS. The first type of waiver is granted on a program basis. Program waivers are only valid for the proposal for which they were granted. In the JPATS case, the waivers are only valid for the manufacturing development and low rate initial production (LRIP) contract. If JPATS decides to solicit the follow-on production contract, new waivers will be required for the same MILSPECS.

Program waivers are granted by the milestone decision authority (MDA). In most programs, the MDA is the program executive officer (PEO) who works for the component acquisition executive. Normally, there is no sharing of the circumstances requiring this waiver outside of the PEO. Other programs may also have similar requirements to obtain a waiver for the same MILSPEC or MILSTD. Because there is no standard means to find out if another acquisition program is requesting a program waiver, they will repeat the waiver process within their own organization. This lack of coordination leads to duplicated efforts within the same service as well as outside the service.

The second type of waiver is the department wide or agency wide exemption from waiver. These waivers eliminate the duplication of efforts required to obtain program waivers within a particular service. Department wide waivers are a blanket waiver for a specific MILSPEC or MILSTD within one branch of service. In the DOD, these waivers are granted by the component acquisition executive. The component acquisition executive works for the Under Secretary of Defense (Acquisition and Technology) and is charged with oversight of all acquisition programs within their service. The component acquisition executive is also the MDA for major acquisition programs designated as ACAT IC.

There are currently only six MILSPECS and forty four MILSTDs with department waivers.²⁵ The problem with department waivers, like the program waivers, is that if there is justification for a waiver in one service it should apply to all services. The way it works now is that only the service listed on the department waiver can use the MILSPEC or MILSTD without obtaining program waivers. If another service that is not listed on the department waiver needs to use that MILSPEC or MILSTD, they will have to obtain a program waiver or request a department waiver.

The waiver process is a barrier to procuring NON-MILSPEC aviation avionics in the JPATS program. Similar unique military requirements to the ejection seat of the JPATS exist in aircraft avionics and should not require a waiver. Military aircraft designed to operate in hostile environments often require electromagnetic pulse resistance. An Electromagnetic pulse is typically associated only with nuclear weapons

detonation and has no commercial equivalent requirement. As with ejection seats, obtaining a waiver for this requirement wastes time and creates an additional paperwork burden.

Logistics

FASA did not specifically address logistics issues related to NON-MILSPEC items. However, since its implementation, logistics has become one of the largest areas of concern in DOD acquisition programs. Among those concerns are the effect of contractors not relinquishing the rights to technical data, increased logistics tail to support multiple variations, and premature obsolescence due to producers going out of business.

Prior to FASA, the DOD procured technical data whenever possible. Technical data was deemed essential in order to establish maintenance and support programs for new equipment as well as increase competition for production contracts. Technical data for logistics support includes specifications, drawings, technical manuals, calibration procedures, and other data required to test and inspect, perform preventive and corrective maintenance, operate, and repair the item or its parts. It is also used when a production contract is competed.

The technical data for logistics is a major concern in maintenance community. The DOD has historically maintained equipment using organic maintenance activities. In order to do this maintenance, detailed drawings and sub-assembly information was procured with the equipment, even if it was commercial. In the absence of technical data, the repair

activities either had to procure the data after the fact or reverse engineer the item in order to repair it in-house.

A similar technical data requirement exists for reprocurments and spare parts procurements. The DOD, unlike the commercial market, is required by law and federal regulation to promote full and open competition in the acquisition process.²⁶ The philosophy is that competition reduces prices and maintains multiple sources. Technical data has played a major role in allowing the DOD to promote competition.

Without technical data, the developer has a distinct advantage over any competition in manufacturing or providing spare parts that equipment. The DOD customarily procured technical data in order to facilitate competition. Prospective bidders were provided technical data, in enough detail to manufacture exactly what the DOD required. Without this type of data, the only alternative was to reverse engineer the item.

This practice of procuring technical data is no longer authorized as standard procedure within the DOD for commercial items. The FAR now states the following in reference to technical data for commercial items:

Except as provided by agency-specific statutes, the Government shall acquire only the technical data and the rights in that data customarily provided to the public with a commercial item or process. The contracting officer shall presume that data delivered under a contract for commercial items was developed exclusively at private expense.²⁷

While the FAR only specifically limits the acquisition of technical data for commercial items, it also applies to NDI and COTS acquisitions. The intent of the law is to eliminate the unnecessary

expense to the government and to protect the competitive advantage of industry.

This FAR provision could create problems for programs utilizing NON-MILSPEC items when they need to procure additional items or spares. Lack of technical data could lock the DOD into a single supplier for the life of that item. As stated earlier, the DOD wants to avoid sole source situations as much as possible. A sole source situation also creates extra paperwork and increases proposal preparation time.

Before an agency can award a sole source contract it must prove there is only one responsible source and no other supplies will satisfy the agency requirements. If this is not the case, the agency must write a justification for a sole source contract.²⁸ While limited data rights is one of the authorized reasons to award a sole source contract, that provision may not apply when there is more than one supplier of avionics with essentially the same external physical appearance. In this case there is a strong argument that adequate competition exists.

If adequate competition exists, the agency must write a justification before entering into a sole source contract.²⁹ This justification process adds additional time to the proposal preparation process. As part of the justification, the procuring agency must explain why technical data packages, specifications, engineering descriptions, statements of work, or purchase descriptions are not suitable for full and open competition.³⁰ In this case, it is almost as if the agency is punished for using a NON-MILSPEC item.

Lack of standardization is of particular concern in the electronics and avionics field. Many of these components are not only

complex but, have interface issue involved. Aircraft weight and space is a major concern in the aerospace community. In an effort to reduce aircraft weight, minimal space and weight is allocated for avionics. Therefore it is critical that the avionics meet strict requirements to properly fit in the designated space, are equipped with the proper connectors, and use the proper power supply.

Another issue associated with avionics and many other items in the DOD is the concern for uniformity. This is particularly important in the avionics area. Each radio and instrument must look essentially the same in each aircraft within a particular model and series. Unlike commercial pilots, military pilots must fly in low cockpit light conditions wearing night vision goggles. While flying these missions, pilots must be able to quickly look at an instrument and interpret the reading. They must also operate radios by touch rather than having to look down. The lack of technical data may lead to differences in avionics which could cause accidents.

Beyond the physical characteristics of avionics is the spare parts issue. Avionics spare parts in general are very expensive. Technical data along with MILSPECS were used in the past to ensure interchangeability of spare parts. Now NON-MILSPEC avionics procured under performance specifications, with no technical data, may perform the same by different manufacturers but contain entirely different components. This may cause the DOD to stock higher levels of very expensive repair parts to accommodate the different manufacturers of the same avionics piece.

Technical data requested to complement the government's maintenance and supply support strategies is still a valid request. When suppliers claim proprietary rights to data, as is normally the case for commercial items, the logistics manager needs to carefully evaluate the requirements for the technical data to avoid buying unnecessary and expensive data rights. The DOD is encouraged to consider alternatives to acquiring commercial technical data rights.³¹

Many DOD agencies elect to procure the technical data for NON-MILSPEC items as a risk reduction in case the vendor should go out of business or discontinue production of the item.³² Rather than procure this data as a risk reduction, the DOD could include contract provisions providing for the transfer of the data package and rights to the government in the event that the original manufacturer goes out of business or drops the particular item from production.³³ The DOD may also consider including contract provisions allowing the government use of data as necessary but not for procurement purposes.³⁴ These options will significantly reduce the cost of procuring unnecessary data within the DOD.

The DOD is actively exploring logistics strategies to take advantage of NON-MILSPEC items. An example of the DOD's commitment in this area is the work of the Flexible Sustainment Sub-Panel under the Joint Aeronautical Commanders Group. This organization, comprised of government and industry representatives has been working to identify and solve logistics issues associated with procurement of NON-MILSPEC items.

Management and Training

Research of the JPATS program and the literature review found that management and training issues are directly affected by each other and should be discussed as interrelated topics. The term management as used in this analysis relates to the promotion of policies and efforts to insure the accomplishments intended. Management develops training in order to effect the desired change.

Training in this study describes an education and information dissemination process used to notify acquisition personnel of the statutory requirements to effect the desired changes. There is an array of formal and informal training programs. Formal programs include structured training, such as schooling and seminars. Informal training is provided in media, such as publications and electronic media.

Prior to FASA, private industry officials maintained that DOD did not place the appropriate management emphasis on procurement of NON-MILSPEC items.³⁵ The DOD responded in part by publishing numerous publications and directives further clarifying a preference of NON-MILSPEC items. The DOD also incorporated blocks of instruction in its formal training programs through the Defense Acquisition University.³⁶

Despite the efforts on the part of management in the DOD to try to maximize NON-MILSPEC items, the laws prior to FASA did not permit the effect industry desired. The senior acquisition leadership in DOD became proactive in providing input to legislators in order to formulate effective legislation which would allow the DOD to adopt commercial practices and products. *The Report of the Process Action Team on*

Military Specifications and Standards - Blueprint for Change is an example of this effort.

This report was instrumental in providing legislators and senior DOD leadership with the details of existing problems and recommendations to fix them. This level of involvement allowed the DOD to begin informing the acquisition workforce of the upcoming changes which would result from FASA before it was enacted into law. The DOD actually published and distributed to the field a draft DOD Directive 5000.1, *Defense Acquisition*, and DOD Directive 5000-2R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs*, before the law was enacted in order to familiarize the workforce with upcoming changes.

This early involvement by DOD senior level management in developing FASA produced one piece of legislation which addressed the many barriers to procuring NON-MILSPEC items as opposed to the past evolutionary legislative process of many different and contradicting pieces of legislation. The effectiveness in this approach is evident in the fact that the follow-on legislation, such as FARA, only clarifies FASA requirements and does not introduce significant changes.

The DOD is also making tremendous headway in educating the acquisition workforce. The frequent changes in acquisition policy and law, however, present a challenge in getting the word out. Acquisition organizations raise the issue that they need more time to properly implement existing acquisition reforms, to include conducting the training of customers and contractors that is essential to success.³⁷

While this study classifies management emphasis and training as a barrier, it is not necessarily because of problems with the provisions in the laws and regulations, but rather because of the constant changes in them. The FAR and many DOD directives underwent major revisions in a short period of time in order to comply with the one-year implementation suspense set by FASA.

The implementation regulations, such as the FAR and some other DOD Directives, have been in a constant state of flux since FASA was enacted into law in 1994. The FASA has resulted in a cascading effect of changes to federal regulations and DOD directives which provide the implementation instructions for the laws. Because of the dramatic nature of the changes directed by law and the short suspense for compliance, the implementation instructions are rapidly changing. These changes place challenges on management to insure adequate training of acquisition personnel.

The number of changes to mandatory regulations, such as the FAR, are now beginning to level off. Management emphasis and training efforts related to FASA implementation are currently a strong point within the DOD. The DOD has taken advantage of numerous resources to spread the word about acquisition reform to both the DOD workforce and industry. The most notable informal source of training and information dissemination is the Internet.

The Deputy Under Secretary Of Defense (Acquisition Reform)³⁸ and the Office of the Under Secretary of Defense for Acquisition & Technology³⁹ maintain acquisition reform homepages on the internet. These sites include all policy memos pertaining to acquisition reform,

frequently asked questions and their answers, lists of canceled documents, newsletters, key policy guidance documents, and links to other related sites. Each branch of the military service also maintains similar acquisition reform sites with information unique to its service. These tools are immensely useful in providing timely information exchange among the acquisition community.

The Defense Acquisition University (DAU) provides the majority of the formal education for the DOD. It provides mandatory and assignment position specific acquisition courses for military and civilian personnel. The DAU also has fifteen consortium member institutions from the military services which offer DAU and non-DAU education and training unique to their service or agency mission.

The DOD also conducts formal training in the form of road shows and other special training courses. Senior managers from the military departments and defense agencies conduct road shows across the country to show their commitment to acquisition reform and to provide a forum for sharing acquisition experiences and for increasing an understanding of acquisition reform. Over 13,300 people have attended these road shows since FASA was passed.⁴⁰ Additionally, over 6,500 received formal training on writing performance oriented documentation to take advantage of NON-MILSPEC items.⁴¹

The acquisition reform acceleration day is another very successful government formal training event. The training for acquisition reform acceleration day is centrally managed by the DAU with decentralized execution by each service's acquisition agencies. Acquisition reform

acceleration day is an annual event in its second year. The most recent one held was held in March of 1997.

On the acquisition reform acceleration day all government acquisition agencies cease normal activities to conduct training and share information and ideas. The DAU supplies the core training materials which are then taught by select members of each acquisition to the employees of that activity. The government also invites members of industry to participate and instruct classes.

While the DOD has established standardized training and information dissemination procedures, this is not the case with industry. Most major defense contractors have their own training programs which are not always fully aware of the latest DOD acquisition reform initiatives. A recent survey of DOD acquisition personnel identified the education of contractors on acquisition reform initiatives as one of the top five acquisition reform initiatives that is not working well.⁴² They stated that "a vehicle is needed for education of contractors on acquisition reform initiatives."⁴³

FARA

The Federal Acquisition Reform Act (FARA) is the latest acquisition reform legislation. The provisions of this law are still in the process of being incorporated in the FAR and other DOD directives so effectiveness of changes under this law are not yet known. The intent of this section of analysis is to identify the provisions of FARA that apply to NON-MILSPEC procurements. This analysis will be used to formulate conclusions and recommendations in chapter five.

The FARA contains four sections directly applicable to NON-MILSPEC items. All four sections are further clarifications of FASA provisions or refined requirements to the original FASA language.

The first section of FARA, which applies to NON-MILSPEC procurements, exempts commercial items from the Truth in Negotiations Act requirement for certified cost or pricing data. The Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council have agreed on a final rule to amend the FAR to implement this section of FARA with an effective date of 1 January 1997.⁴⁴

The Government requires cost and pricing data to insure the price to the Government is fair and reasonable. Many potential suppliers of commercial items were hesitant to provide this detailed information to the DOD on commercial products. In many cases this data is very closely held by companies because it could reveal enough information to competitors to damage competitiveness in the commercial market.

Suppliers of commercial items may now submit data other than certified cost or pricing data as long as it provides enough information to determine price reasonableness. Acceptable forms of commercially available pricing data now include catalogs, brochures, data showing past sales prices of the item or similar items to commercial customers, or any other information as long as the data is sufficient to determine price reasonableness.⁴⁵

The second section of FARA relating to NON-MILSPEC items is already approved for incorporation into the FAR. The new FAR language will permit the use of simplified acquisition procedures for procurements expected to exceed the simplified acquisition threshold of

\$100,000, but not to exceed \$5 million, when the contracting officer reasonably expects, based on the nature of the property or services and market research, that offers will include only commercial items.⁴⁶

The FASA originally established a \$100,000 threshold for use of simplified acquisition procedures. This low threshold was mainly intended to facilitate the use of credit card and other small business purchases. However, it did not effectively encourage larger dollar NON-MILSPEC purchases. The new simplified acquisition procedure for commercial items should correct this problem by expediting the acquisition process for commercial items.

Simplified acquisition procedures provide relief from some of time consuming and paperwork intensive contracting procedures required in the formal invitation for bid or the request for proposal. Simplified acquisition procedures are intended to reduce government administrative costs, improve opportunities for small business, promote efficiency in contracting, and avoid unnecessary burdens for the government and contractors.⁴⁷ The greatest benefit of simplified procedures is the ability of the contracting officer to tailor the amount of time given to contractors to respond to solicitations.

Under the formal invitation for bid or request for proposal, the government must give contractors at least thirty days to respond to a solicitation. This time is usually increased even more for research and development or other complex solicitations to ensure the contractor has adequate time to prepare a thorough and accurate proposal or bid. With commercial item procurements, this time can be significantly reduced because the design is already mature.

The third FARA change is approved for publication in the FAR but is on hold at the Office of Federal Procurement Policy (OFPP) direction.⁴⁸ This section of FARA directs that the FAR shall include a list of provisions that are inapplicable to contracts for the procurement of commercially available off-the-shelf items. Since it is not yet released, the impact of this provision is unknown.

The final section of FARA exempts contracts and subcontracts for commercial items from the application of the cost accounting standards. This section of FARA is approved but has not yet been incorporated in the FAR.⁴⁹ The amendment to the FAR will state in effect that the statutory requirements for mandatory cost accounting standards will not apply to contracts or subcontracts for the acquisition of commercial items. This change should significantly reduce paperwork and costs to contractors.

Conclusion

The analysis in this chapter identified three categories of barriers to procuring NON-MILSPEC aviation avionics in the DOD which remain after FASA. They are specifications, logistics, and management and training. These three categories were derived using the thorough comparative analysis research methodology described in chapter three.

The research methodology first included a comparative analysis of barriers which existed prior to FASA and those that remain after FASA. Research found that while FASA succeeded in eliminating many barriers, it did not eliminate them all. In fact, some new barriers emerged as a result of acquisition streamlining initiatives related to FASA.

Once the comparative analysis yielded the barriers, each category was thoroughly and individually analyzed. This analysis starts with a description of the condition which existed prior to FASA and then the current conditions. The goal was to describe the facts in enough detail to facilitate the deductive reasoning process which will formulate the conclusions and recommendations in chapter five.

Chapter five will draw conclusions based on this analysis as well as make recommendations, when appropriate, to remove these barriers. Chapter five will also make recommendations for future studies in this area.

¹US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, (Washington, DC: General Accounting Office National Security and International Affairs Division, 1989), 42.

²US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, 42.

³US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, 42.

⁴US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, 39.

⁵US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, 40.

⁶Office of the Under Secretary of Defense for Acquisition & Technology, *Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change*, (Washington, DC: Department of Defense, April 1994), 11.

⁷Office of the Under Secretary of Defense for Acquisition & Technology, *Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change*, 11.

⁸Office of the Under Secretary of Defense for Acquisition & Technology, *Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change*, 23.

⁹Federal Acquisition Regulation, Part 12, 12.000, October 1996, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson

AFB, OH: Defense Acquisition Deskbook Joint Program Office, December 1996).

¹⁰Federal Acquisition Regulation, Part 11, 11.002.

¹¹US Department of Defense Directive, 5000.1, Defense Acquisition, 15 March 1996, Section D. 1. (i), reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, September 1996).

¹²Department of the Air Force, AF Acquisition Policy 95A-003, Specifications and Standards - A New Way of Doing Business, Appendix B, Document Definition, 22 Jun 1995, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, December 1996).

¹³Department of the Air Force, AF Acquisition Policy 95A-003, Specifications and Standards - A New Way of Doing Business.

¹⁴Walter B. Bergmann II, Director of Acquisition Practices, Department of Defense, Memorandum for DOD Standardization Management Activities, "Subject: Non-Government Standards Policies," 7 July 1995; reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, December 1996).

¹⁵Bergmann II, "Subject: Non-Government Standards Policies."

¹⁶Department of the Air Force, AF Acquisition Policy 95A-003, Specifications and Standards - A New Way of Doing Business.

¹⁷Department of the Air Force, AF Acquisition Policy 95A-003, Specifications and Standards - A New Way of Doing Business.

¹⁸Walter B. Bergmann, II, Director of Acquisition Practices, Department of Defense, Memorandum for Standardization Improvement Executives, "Subject: Policy Memo 95-6, Processing DOD Standards and Handbooks," 11 October 1995; reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, December 1996).

¹⁹Office of the Under Secretary of Defense for Acquisition & Technology, *MILSPEC Reform Results of the First Two Years*, (Washington, DC: Department of Defense, June 1996), 6.

²⁰Department of the Air Force, Joint Primary Aircraft Training System (JPATS) Acquisition Reform Metrics, Wright-Patterson Air Force Base, OH., (Joint Primary Aircraft Training System (JPATS) Office, 31 December 1996), 9.

²¹Randy Brown, Deputy Program Manager, Joint Primary Aircraft Training System (JPATS), Interview by author, 27 January 1997, Wright Patterson AFB, Telephone Interview and Electronic Mail correspondence, JPATS Program Office, Wright Patterson AFB.

²²Office of the Under Secretary of Defense for Acquisition & Technology, *MILSPEC Reform Results of the First Two Years*, 6.

²³Danny L Gullet, Flight Training System Program Office, Joint Primary Aircraft Training System (JPATS), Interview by author, 27 January 1997, Wright Patterson AFB, Telephone Interview and Electronic Mail correspondence, JPATS Program Office, Wright Patterson AFB, OH.

²⁴Gullet, Interview by author, 27 January 1997.

²⁵Department of Defense, *Military Standardization Documents Exempted From The Waiver Process*, 29 January 1997 [Document on line], available from <http://www.acq.osd.mil/es/std/exempt.html>; Internet; accessed 3 April 1997.

²⁶Federal Acquisition Regulation, Part 6, 6.000, Competition Requirements.

²⁷Federal Acquisition Regulation, Part 12, 12.211 Technical data.

²⁸Federal Acquisition Regulation, Part 6, 6.302-1, Competition Requirements.

²⁹Federal Acquisition Regulation, Part 6, 6.303-1, Competition Requirements.

³⁰Federal Acquisition Regulation, Part 6, 6.303-2, Competition Requirements.

³¹U.S. Department of Defense, *Buying Commercial & Nondevelopmental Items: A Handbook*, reproduced in Defense Acquisition Deskbook [CD-ROM] (Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, December 1996), chapter 4.

³²U.S. Department of Defense, *Buying Commercial & Nondevelopmental Items: A Handbook*, chapter 4.

³³U.S. Department of Defense, *Buying Commercial & Nondevelopmental Items: A Handbook*, chapter 4.

³⁴U.S. Department of Defense, *Buying Commercial & Nondevelopmental Items: A Handbook*, chapter 4.

³⁵US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, (Washington, DC: General Accounting Office National Security and International Affairs Division, 1989), 13.

³⁶US General Accounting Office, *Procurement - DOD Efforts Relating to Nondevelopmental Items*, 16.

³⁷Defense Acquisition University, *Acquisition Reform Acceleration Day Summary Report*, (Washington, DC: Department of Defense, 23 July 1996). [Document on line], Available from <http://www.acq.osd/dau/dau.html>; Internet; accessed 3 September 1996.

³⁸Deputy Under Secretary Of Defense (Acquisition Reform), *Acquisition Reform Homepage* [Document on line], Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 4 February 1997.

³⁹Office of the Under Secretary of Defense for Acquisition & Technology, *Acq-Web* [Document on line], Available from <http://www.acq.osd.mil/>; Internet; accessed 4 February 1997.

⁴⁰Office of the Under Secretary of Defense for Acquisition & Technology, *MILSPEC Reform Results of the First Two Years*, 3.

⁴¹Office of the Under Secretary of Defense for Acquisition & Technology, *MILSPEC Reform Results of the First Two Years*, 3.

⁴²Defense Acquisition University, *Acquisition Reform Acceleration Day Summary Report*.

⁴³Defense Acquisition University, *Acquisition Reform Acceleration Day Summary Report*.

⁴⁴Federal Register, *Federal Acquisition Regulations; Final Rules*. Vol. 61, No. 1, 2 January 1997, [Document on line], available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.

⁴⁵Federal Register, *Federal Acquisition Regulations; Final Rules*. Vol. 61, No. 1.

⁴⁶Federal Register, *Federal Acquisition Regulations; Final Rules*. Vol. 61, No. 1.

⁴⁷Federal Acquisition Regulation, Part 13, 13.102, *Simplified Acquisition Procedures*.

⁴⁸*Open FAR Cases As of January 7, 1997*, [Document on line], available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.

⁴⁹Federal Register, *Federal Acquisition Regulations; Final Rules*. Vol. 61, No. 246, 20 December 1996, [Document on line], available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This chapter draws upon the information presented in the previous four chapters in order to formulate conclusions and recommendations. Chapter one contains the baseline information for this study. It begins by presenting a historical study of the barriers that existed to procuring NON-MILSPEC items prior to the passage of FASA. It also describes other significant legislation and regulations prior to FASA which were intended to promote the procurement of NON-MILSPEC items within the DOD.

Chapter one then moves to a brief description of the provision of FASA. This description is necessary in order to determine how effective the law is in removing the historical barriers to procuring NON-MILSPEC items. This leads to the primary question of this study: what barriers to procuring nonmilitary specification aircraft related avionics systems, in the Department of Defense, remain after the passage of the Federal Acquisition Streamlining Act of 1994?

In order to answer this primary question, the study must first answer the following important subordinate questions: Has the DOD effectively implemented the provisions of FASA in aviation avionics? Does the DOD have an effective information dissemination and training program for NON-MILSPEC avionics procurement? What barriers to

procuring NON-MILSPEC aviation avionics identified prior to FASA were not addressed in FASA? Are there still barriers after FASA? What anticipated effect will FARA have in removing barriers that remain after FASA?

Chapter two describes some of the most important information sources which contribute to this study. These sources include legislation, DOD directives, federal regulations, periodicals, white papers, and various government documents. The intent is to provide the reader with an understanding of validity of these sources and how they contribute to this study.

Chapter three details the research methodology for this study. It outlines both a comparative analysis and deductive reasoning methodology. The comparative analysis yields the remaining barriers to procuring NON-MILSPEC aviation avionics in the DOD after FASA. Those barriers are then analyzed using a deductive reasoning methodology.

Chapter four contains the analysis of the barriers that exist to procuring NON-MILSPEC aviation avionics in the DOD after the passage of FASA. It also analyzes the provisions of FARA applicable to this study. This analysis is derived from the research methodology described in chapter three.

The results of the comparative analysis of barriers existing prior to FASA yield three categories of barriers that remain to procuring NON-MILSPEC avionics in the DOD after FASA. These categories are specifications, logistics, and management and training. Chapter four uses a deductive reasoning methodology to analyze these barriers.

The results of the analysis in chapter four form the conclusions and recommendations contained in chapter five. This chapter answers the primary and subordinate questions posed in chapter one.

Conclusions

The results of thorough research and analysis support the following conclusion: The barriers to procuring NON-MILSPEC aviation avionics in the DOD after FASA fall into three general categories: specifications, logistics and management/training. Research also supports the conclusion that while FARA may eliminate some logistics barriers, it will not likely effect specifications, or management and training.

While distinct barriers to procuring NON-MILSPEC aviation avionics in the DOD exist, the analysis supports the conclusion that further legislation is not required to remove them at this time. Instead, more effort must be put into the clarification and refinement of the existing laws. This can only happen if the DOD and industry work together. Both must communicate to identify barriers and recommend changes in DOD policies or federal regulations to correct them.

Recommendations

Specifications

The DOD must take a realistic approach to eliminating MILSPECS and standards. While it does make sense in most cases to eliminate DOD unique specifications and standards, leadership must realize that there are justifiable exceptions. The DOD will always have legitimate unique

requirements which must be conveyed to industry. Time has shown that the MILSPECS and MILSTDS are the most effective way to do this.

The DOD will always have unique military requirements that have no commercial application. The MILSPECS and MILSTDS for areas such as ejection seats, night vision lighting, and munitions should be closely examined for possible DOD waivers. If there are no suitable commercial equivalents or it may be unsafe to use performance specifications, the DOD should waive the MILSPEC or MILSTD for all services.

The DOD should continue to screen all existing MILSPECS and MILSTDS to determine candidates for performance specifications or NGS. This screening process should be a closely coordinated effort among all services. The blanket ban on MILSPECS and MILSTDS creates a great opportunity for one company or one sector of industry to exert undue influence in the conversion to NGS.

The DOD agencies must remember that the NGS is for commercial products or practices that are used industry wide. There have been attempts from certain industry sectors to develop NGS for products that are not commercial.¹ There are also cases of NGS developing organizations offering to cover sheet existing MILSPECS and MILSTDS in order to expedite document conversion.²

Many of these attempts to circumvent the system can be attributed to lack of planning on the part of DOD acquisition program offices. The DOD is advertising significant reductions in MILSPECS and MILSTDS as a way to cut time in acquisition programs. That simply is not the case and is not the intent of eliminating MILSPECS and MILSTDS. Performance

documents are intended to increase access to commercial products and practices.

In order to increase this access, the DOD is producing performance documents or adopting commercial documents. The initial investment to make this process work is going to be a longer solicitation preparation effort on the part of DOD. This will likely hold true until all needed MILSPECS and MILSTDS are converted to performance specifications or NGS.

While the DOD is striving to increase access to existing commercial products and practices, industry must be encouraged to do the same with subcontractors. The DOD will not reap full benefit from streamlining practices if prime contractors continue to convert DOD performance specifications to design specifications with subcontractors. Further legislation or regulations should be implemented to direct mandatory flow-down of certain government performance specifications.

The DOD must also put more effort in identifying MILSPECS and MILSTDS which have no commercial equivalents. While this process is already ongoing in the DOD, in some cases it is not very efficient. When any service recommends a MILSPEC or MILSTD for retention, all military services should accept that waiver.

Currently, the DOD maintains a list of MILSPECS and MILSTDS which do not require further waivers by the service that requested and was granted a blanket waiver.³ Despite this list, some services still require service waivers to use those specifications and standards. None of the department waivers for the six MILSPECS and forty-four MILSTDS discussed in chapter four are applicable to more than one service.⁴ This unnecessary duplication of waiver requests defeats the intent of

this streamlining initiative by lengthening program time and increasing paperwork.

Logistics

If the DOD truly wants to adopt commercial products and practices, it must also accept and take advantage of commercial logistics practices. The procurement of technical data packages for commercial items is not a standard commercial practice.

Instead, industry relies more on describing interface and functional requirements. The DOD must also use this philosophy. In avionics, it is not always important that every component is the same size or looks exactly the same, as long as it meets the performance requirement. Performance requirements can be written to describe interfaces with the air vehicle as well as required physical characteristics.

Even some of the unique military requirements can be effectively described in performance specifications. For instance, in case of cockpit radios or instrumentation that need to look the same from cockpit to cockpit, the performance specification can describe the desired location and feel of controls and switches. This is only possible though if the DOD properly describes interface and performance requirements.

Another aspect of commercial logistic practices that the DOD needs to explore is commercial warranties and contract logistics for NON-MILSPEC items. The DOD has not had much success in utilizing commercial warranties in the past. The first problem the DOD had with warranties

was successfully making claims on them. It was often difficult for the DOD to make warranty claims on MILSPEC items. If the DOD required a MILSPEC, the supplier could always claim it was a faulty design specification that caused a failure. With NON-MILSPEC items this is not a problem. The manufacturer is solely responsible for the design of the item.

Warranties that expired before the item reached the user was another problem the DOD had in the past. This problem was caused mainly by the amount of time military equipment spends in warehouses or in contingency stocks. This problem could be solved by utilizing contract logistics for NON-MILSPEC items. The DOD could contract with the supplier to either deliver on a just in time basis or maintain stocks near DOD facilities. If this is done, the DOD would save millions of dollars by reducing inventories. The DOD would also have useful warranties that begin when the part is put in use by the DOD customer.

As the DOD continues to draw down, contract logistics makes even more sense. This is especially true for avionics. The DOD could eliminate specialized avionics repair personnel and specialized repair equipment. As technology advances, more and more avionics repairs are circuit card replacements or depot repairs. In either case, the radio or instrument is typically down for extended periods awaiting parts or transportation.

A more commercial approach to avionics repair would be to take advantage of on site repair contracts or utilize existing company repair facilities. Both AlliedSignal and Rockwell International already operate a large chain of customer service centers at many major

airports. The DOD could either utilize these facilities or contract for similar or tailored services on site. The reduction in military labor and special capital equipment would likely save the DOD millions of dollars.

Management/Training

The DOD has a very effective information dissemination and training program. This program must continue to educate the DOD acquisition workforce and exploit the use of the internet and other electronic media for rapid information dissemination. The DOD must now focus on aggressively involving industry in training programs and target industry for information dissemination.

Many defense industry contractors tend to hire former military personnel who understand the military process.⁵ The military process, however, has changed dramatically as a result of FASA. These former military personnel do not always receive the same level of training on the changes in acquisition policy. The DOD should target industry to share lessons learned and pass on the latest changes in DOD regulations and policy.

Future Studies

Topics requiring further study include the feasibility of creating commercial specifications for unique military requirements; barriers to procuring NON-MILSPEC aviation avionics in the DOD after FARA; the use of contract logistics to reduce requirements for technical data; and the use of integrated and cooperative government and industry training programs.

The DOD would prefer to use commercial specifications to the maximum extent practicable. However, the DOD does have unique military requirements for which there are no commercial equivalents. It may be to industry's advantage to convert some of these unique military specifications to commercial specifications in order to create dual use technologies.

Since FARA is not fully implemented at the time of this study, it warrants study. That study could follow the same methodology as this study except to use FASA as the baseline. The focus would be to determine if the provisions of FARA eliminated barriers after FASA which are identified in this study.

Another study to determine what barriers to procuring NON-MILSPEC aircraft related avionics systems, in the DOD, remain after the passage of FASA is also recommended. While this study draws from numerous current sources related to barriers to NON-MILSPEC items, very little aviation avionics information other than JPATS was available. This topic warrants further study when more aviation avionics programs begin reporting data on commercial products and practices.

Many of the logistics issues with NON-MILSPEC items relate to supportability and producibility. Contract logistics and maintenance may eliminate logistics concerns. A study should examine the effect of contract logistics and maintenance for NON-MILSPEC items in the DOD. The applicability of commercial warranties for these NON-MILSPEC items should also be examined.

Training and information dissemination between the DOD and industry is a vital area of concern for NON-MILSPEC procurements. This

area would warrant future study to determine the best way to develop a cooperative training and information sharing system.

¹Andrew D. Certo, Chief of Standardization Program Division, Department of Defense, Memorandum for DOD Standardization Management Activities, "Subject: Guidance on Development and Adoption of Non-Government Standards (NGS)," 18 March 1997; [Document on line], available from <http://www.acq.osd.mil/>; Internet; accessed 3 April 1997.

²Certo, "Subject: Guidance on Development and Adoption of Non-Government Standards (NGS).".

³Department of Defense, *Military Standardization Documents Exempted From The Waiver Process*, 29 January 1997 [Document on line], available from <http://www.acq.osd.mil/es/std/exempt.html>; Internet; accessed 3 April 1997.

⁴Department of Defense, *Military Standardization Documents Exempted From The Waiver Process*.

⁵Danny L Gullet, Flight Training System Program Office, Joint Primary Aircraft Training System (JPATS), Interview by author, 27 January 1997, Wright Patterson, Telephone Interview and Electronic Mail correspondence, JPATS Program Office, Wright Patterson.

BIBLIOGRAPHY

Books

Turabian, Kate L. A Manual for Writers of Term Paper, Theses, and Dissertations. 6th ed. Chicago: University of Chicago Press. 1996.

Dissertations, Papers, and Theses

Brockel, Kenneth, Guiseppe Sgroi, and Bradley Cheney. "Ideas for the Facilitation of Specifications Standards Acquisition Reform from the Army's Command, Control, Communications, Computer, Intelligence, Electronic Warfare and Sensors (C4IEWS) Community." Paper presented at the Naval Undersea Warfare Center NDI/COTS Support Strategies Symposium, Keyport, WA, 10-12 September 1996.

Donahue, Thomas III, and Jack Michelson. "Logistics and the Perry Initiative: Applying Commercial Processes to Military and Government Projects." Paper presented at the Naval Undersea Warfare Center NDI/COTS Support Strategies Symposium, Keyport, WA, 10-12 September 1996.

Non-Government Standards Integrated Product Team on Acquisition Reform Alternatives Using Non-Government Standards. "Final Report for the Flexible Sustainment Sub-Panel." Report presented at the Naval Undersea Warfare Center NDI/COTS Support Strategies Symposium, Keyport, WA, 10-12 September 1996.

Petrovic, Joseph J., and Kent J. Kogler. "Assessment of COTS Technology Impact on Weapon System Support." Paper presented at the Naval Undersea Warfare Center NDI/COTS Support Strategies Symposium, Keyport, WA, 10-12 September 1996.

Journals and Magazine Articles

"Aviation Modernization is Crucial." *Association Of The United States Army News* (March 1996): 12.

Bishop, Jay. "Navy Plays Its 'ACE' For Acquisition." *Acquisition Reform Today* (August-September 1996): 2.

- Corbin, Lisa. "Streamlining Federal Acquisition: A Guide To The New Law." *Government Executive* (January 1995): 1A-12A.
- Dellinger, Lyn. "Secretary Preston Addresses DAU (Defense Acquisition University) Training And Education Conference." *Program Manager* (November-December 1994): 19-21.
- Drelicharz, Joseph A. "Highlights of the Federal Acquisition Streamlining Act of 1994: Lowering government's cost of doing business." *Program Manager* (November -December 1994): 12-16.
- "Going Commercial." *The Economist* (September 1994): 13.
- Kriskorian, George K. "Defense Acquisition Corps Takes Shape Via Training." *National Defense* (November 1993): 38-39.
- Landry, Robert L., Major, and Capt Gregory A Garret. "Improving The Acquisition Work Force-An IDEA (Industrial Development Education In Acquisition) Whose Time Has Come." *Program Manager* (September - October 1991): 28-29.
- Math, Paul. "Acquisition Reform: Three Guiding Principles." *Armed Forces Comptroller* (Winter 1990): 7-10.
- Spreng, Robert C. "Trickle-Down Procurement Laws And Commercial Companies." *National Defense* (January 1993): 12-13.
- Turk, J. Brian, Major. "Industrial Development Education In Acquisition (IDEA) Program." *Program Manager* (November-December 1993): 24-25.

Government Documents

- Defense Acquisition Deskbook [CD-ROM]. Wright-Patterson AFB, OH: Defense Acquisition Deskbook Joint Program Office, September 1996.
- Defense Acquisition University. Acquisition Reform Acceleration Day Summary Report. Washington, DC: Department of Defense, 23 July 1996. Document on line. Available from <http://www.acq.osd>; Internet; accessed 3 September 1996.
- Department of the Air Force. Joint Primary Aircraft Training System (JPATS) Acquisition Reform Metrics. Wright-Patterson Air Force Base, OH: Joint Primary Aircraft Training System (JPATS) Office, 31 December 1996.
- Federal Acquisition Regulation. Part 2. October 1996. Reproduced in Defense Acquisition Deskbook [CD-ROM]. Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, September 1996.

- Federal Register. Federal Acquisition Regulations; Introduction of Miscellaneous Amendments; Final and Interim Rules. Vol. 61, No. 154. 8 August 1996. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.
- Federal Register. Federal Acquisition Regulation; Payment by Electronic Funds Transfer and Small Entity Compliance Guide; Rules. Vol. 61, No. 169. 29 August 1996. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.
- Federal Register. Federal Acquisition Regulations; Final Rules. Vol. 61, No. 246. 20 December 1996. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.
- Federal Register. Federal Acquisition Regulations; Final Rules. Vol. 61, No. 252. 31 December 1996. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.
- Federal Register. Federal Acquisition Regulations; Final Rules. Vol. 61, No. 1. 2 January 1997. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 19 February 1997.
- Office of the Assistant Secretary of Defense (Economic Security). Standardization Program Division. Performance Specification Guide, SD-15. Washington, DC: Department of Defense, 1995, 2. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 3 September 1996.
- Office of the Secretary of Defense. Reengineering the Acquisition Oversight and Review Process. Vol. 1. Washington, DC: Department of Defense, 1994.
- Office of the Secretary of Defense. Reengineering the Acquisition Oversight and Review Process. Vol. 2. Washington, DC: Department of Defense, 1994.
- Office of the Under Secretary of Defense for Acquisition & Technology. Report of the Process Action Team on Military Specifications and Standards - Blueprint for Change. Washington, DC: Department of Defense, April 1994.
- Office of the Under Secretary of Defense for Acquisition & Technology. MILSPEC Reform Results of the First Two Years. Washington, DC: Department of Defense, June 1996.
- U.S. Congress. House. Federal Acquisition Reform Act of 1995. H.R.1530. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 13 November 1996.
- U.S. Congress. Senate. Federal Acquisition Streamlining Act of 1994. 103d Cong., 2d sess., S.1587. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

- U.S. Department of Defense Directive, 5000.1. Defense Acquisition. 15 March 1996. Reproduced in Defense Acquisition Deskbook [CD-ROM]. Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, September 1996.
- U.S. Department of Defense Directive, 5000.2-R. Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs. 4 November 1996. Reproduced in Defense Acquisition Deskbook [CD-ROM]. Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, December 1996.
- U.S. Department of Defense Systems Management College. Glossary-Defense Acquisition Acronyms And Terms. Sixth Edition. Fort Belvoir, VA.: Government Printing Office, March 1995. Document on line. Available from <http://www.dsmc.dsm.mil/>; Internet; accessed 2 December 1996.
- U.S. Department of Defense. Defense 96 Almanac. Washington DC: U.S. Government Printing Office, 1996.
- U.S. Department of Defense. Buying Commercial & Nondevelopmental Items: A Handbook. Reproduced in Defense Acquisition Deskbook [CD-ROM]. Wright-Patterson AFB, OH.: Defense Acquisition Deskbook Joint Program Office, December 1996.
- U.S. General Accounting Office. Procurement - DOD Efforts Relating to Nondevelopmental Items. Washington, DC: General Accounting Office National Security and International Affairs Division, 1989.

Interviews

- Brown, Randy, Deputy Program Manager, Joint Primary Aircraft Training System (JPATS). Interview by author, 27 January 1997, Wright Patterson AFB, OH. Telephone Interview and Electronic Mail correspondence. JPATS Program Office, Wright Patterson.
- Evans, Bob, Program Manager, Contracts Group, AlliedSignal Aerospace. Interview by author, 27 January 1997, Lenexa, KS. Telephone Interview and Electronic Mail correspondence. AlliedSignal Aerospace, Lenexa, KS.
- Gullet, Danny L., Flight Training System Program Office, Joint Primary Aircraft Training System (JPATS). Interview by author, 27 January 1997, Wright Patterson AFB, OH. Telephone Interview and Electronic Mail correspondence. JPATS Program Office, Wright Patterson AFB, OH.
- Summers, Rhonda S., Manager, Government Compliance, Allied Signal Aerospace. Interview by author, 27 February 1997, Lenexa, KS.

Telephone Interview and Electronic Mail correspondence. Allied Signal Aerospace, Lenexa, KS.

Other Sources

Defense Systems Management College Executive Institute. Critical Issues in the Defense Acquisition Culture (December 1994).

Kelley, Gerald T. "A Summary of Industry Responses to the Defense Conversion Commission." Bethesda, MD: Logistics Management Institute, January 1993.

Department of the Navy. "Key Provisions of FARA 1996." Document on line. Available from <http://www.acq-ref.navy.mil/fasta.html>; Internet; accessed 13 November 1996.

Perry, William. Secretary Of Defense. Memorandum For Secretaries Of The Military Departments. "SUBJECT: Common Systems/ISO-9000/Expedited Block Changes." November 1995. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

Perry, William. Secretary Of Defense. Memorandum For Secretaries Of The Military Departments. "SUBJECT: Specifications & Standards - A New Way of Doing Business." June 1994. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

Preston, Colleen. Deputy Under Secretary Of Defense (Acquisition Reform). "Acquisition Reform." Statement Before Committee On Government Reform And Oversight United States House Of Representatives, 21 February 1995. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

Preston, Colleen. Deputy Under Secretary Of Defense (Acquisition Reform). "Acquisition Reform." Statement Before Subcommittee On Acquisition And Technology Committee On Armed Services. United States Senate, 6 April 1995. Document on line. Available from <http://www.acq.osd.mil/ar/>; Internet; accessed 16 August 1996.

Sigle, Rod L., Group Manager, Business Development, Government Programs, AlliedSignal Aerospace, Inc. FASA Overview Briefing Slides, AlliedSignal Aerospace, Lenexa, KS, January 1996.

Smith, Roger. "National Issue-Government Acquisition Reform and Streamlining." American Electronics Association News Release, 1995. Document on line. Available from <http://www.aeanet.org/>; Internet; accessed 18 February 1996.

U.S. Army. Audit of Implementation of Public Law 87-653 (Truth in Negotiations). St. Louis, MO: U.S. Army Mobility Equipment Command, 1971.

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