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PERCEKEEPER POST PRODUCTION SUPPORT A STANDARD APPROACH

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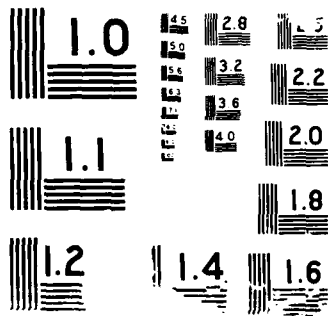
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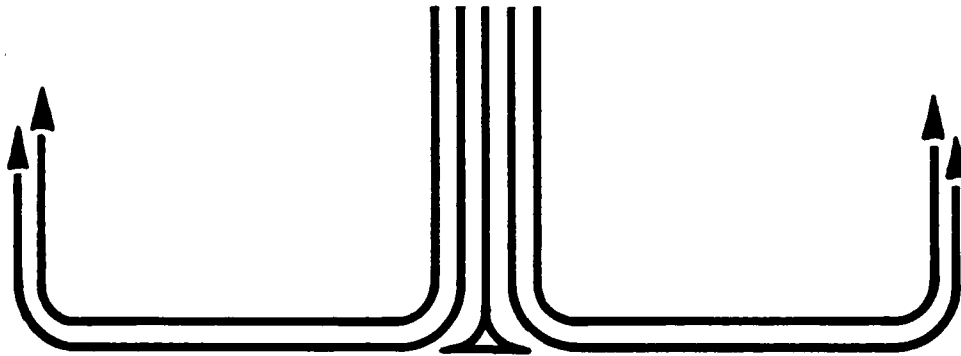
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STUDENT REPORT

PEACEKEEPER POST PRODUCTION SUPPORT,
A STANDARD APPROACH

MAJOR DOUGLAS A. GRANT REPORT # 88-1080

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REPORT NUMBER

88-1080

TITLE

**PEACEKEEPER POST PRODUCTION SUPPORT,
A STANDARD APPROACH**

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**Submitted to the faculty in partial fulfillment of
requirements for graduation.**

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AIR UNIVERSITY
MAXWELL AFB, AL 36112-5542**

8a. NAME OF FUNDING / SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8c. ADDRESS (City, State, and ZIP Code)			10. SOURCE OF FUNDING NUMBERS		
		PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK U ACCESSIC
11. TITLE (Include Security Classification)					
PEACEKEEPER POST PRODUCTION SUPPORT - A STANDARD APPROACH					
12. PERSONAL AUTHOR(S)					
Grant, Douglas A., Major, USAF					
13a. TYPE OF REPORT	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT		
		1988 April	28		
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>Post Production Support (PPS), the process of ensuring weapon system logistics supportability, is mandated through Department of Defense (DoD) Instructions and Directives as well as Air Force (AF) regulations. At present, no standard AF approach to the PPS process exists. This paper analyzes the Peacekeeper PPS Program's potential for use as a model program for standardization among future AF weapon systems.</p>					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT			21. ABSTRACT SECURITY CLASSIFICATION		
<input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			UNCLASSIFIED		
22a. NAME OF RESPONSIBLE INDIVIDUAL			22b. TELEPHONE (Include Area Code)	22c. OFFICE SYMBOL	
ACSC/FDC Maxwell AFB AL 36112-5542			(205) - 293 - 2867		

PREFACE

Post Production Support (PPS), the process of ensuring weapon system logistics supportability after cessation of production, is mandated through Department of Defense (DoD) Directives and Instructions as well as Air Force (AF) Regulations. At present, no standard approach exists to develop and implement a PPS program. This paper uses four steps to analyze the Peacekeeper PPS Program's potential for standardization among future AF weapon systems.

First, to establish the requirement to conduct PPS programs, pertinent DoD and AF guidance is reviewed. Next, parameters are selected for use in identifying other weapon systems' PPS programs for review and analysis. Here, the selected weapon systems are reviewed for program content, adherence to published guidance, and lessons learned. The third step encompasses a review of the Peacekeeper PPS Program. Finally, based upon the above, the author assesses the potential of the Peacekeeper PPS Program as a model for standardization.

The author's knowledge and experience with the Peacekeeper PPS Program plays a major role in the final assessment. During the development of the Peacekeeper PPS Program, Major Grant was the Air Force Logistics Command (AFLC) single point for Peacekeeper and as such directly participated in the development of the Peacekeeper PPS Program. He participated in the selection and review of existing PPS programs. Functioning as the HQ AFLC representative on the Peacekeeper PPS Working Group, he also assisted in the development of the Peacekeeper PPS Plan.

The author wishes to acknowledge those individuals who assisted in developing this paper: Lt Col William Kohler, Deputy Chief, Acquisition Program Management Branch, Hill AFB UT and Mr Juan Vecchione, Chief, Integrated Logistics Support Branch, Ballistic Missile Office, Norton AFB CA.

A special acknowledgement to Susan Schoeller, Lead Peacekeeper Integrated Logistics Support Manager, Ballistic Missile Office, Norton AFB, CA whose dedication and expertise is the basis for the Peacekeeper PPS Program and this project.



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ABOUT THE AUTHOR

Major Douglas A. Grant was commissioned into the Air Force in May 1974 through the ROTC program at Southern Methodist University in Dallas, TX. His first duty assignment was as a Minuteman Combat Targeting Team Chief at Whiteman AFB MO. Duties included the periodic targeting and alignment of the 150 Minuteman II missiles surrounding Whiteman AFB. His maintenance experience broadened into management positions as Chief, Vehicle and Equipment Control Branch and Chief, Facilities Maintenance Branch, Whiteman AFB. Duties included management of personnel responsible for 24 hour missile alert critical maintenance response efforts.

Upon completion of a residence Masters program in Logistics Systems Management at the Air Force Institute of Technology, Wright-Patterson AFB OH, Major Grant transitioned into the logistics career field. While stationed at Hill AFB UT, he served as the Program Manager for the Minuteman Propulsion Remanufacture Programs. Additionally, he planned and developed the total AFLC ICBM budget and served as the advocate through the POM process.

Stationed at Wright-Patterson AFB OH, Major Grant served as the first ICBM Logistics Program Manager in the Logistics Operations Center (LOC). While assigned to the LOC, Major Grant functioned as the command advocate for the Peacekeeper and Small ICBM weapon systems. As such, he was directly responsible for the total logistics posture of these systems.

With respect to the Peacekeeper weapon system, Major Grant was the AFLC Headquarters lead for the development of the Peacekeeper Post Production Support (PPS) program. He was an active member of the PPS working group which developed and implemented the Peacekeeper PPS program, about which this paper is written. As a member of this working group, Major Grant directly participated in the development of the PPS plan, including the analyses of other PPS programs.

Major Grant completed SOS in residence in 1982 and is in the ACSC class of 1988.

Major Grant is married to the former Susan J. Schoeller.

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88-1080

AUTHOR(S)

MAJOR DOUGLAS A. GRANT REPORT # 88-1080

TITLE

PEACEKEEPER POST PRODUCTION SUPPORT
A STANDARD APPROACH

I. Problem: Post Production Support (PPS), the process of ensuring weapon system logistics supportability after cessation of production, is mandated through Department of Defense (DoD) and Air Force (AF) guidance. At present, no standard AF PPS approach exists. Instead, each weapon system develops its own program at diverse times in the acquisition phase. This paper analyzes the Peacekeeper PPS Program's potential for use as a model PPS program for standardization among future AF weapon systems.

II. Objective: The author uses four steps to analyze the Peacekeeper PPS Program's potential for standardization. First, the requirement to conduct PPS programs is established through a review of pertinent DoD and AF guidance. Step two identifies parameters used to select existing PPS programs for review and analysis. A cross section of weapon systems is selected for review and benevolent aspects are recognized

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for incorporation into the Peacekeeper program. Lessons learned are also presented. Step three is a thorough review of the Peacekeeper PPS Program, highlighting compliance with published guidance, incorporation of previous programs benevolent aspects, and avoidance of their shortfalls. Finally, step four is an assessment, based upon the preceding steps, as to the Peacekeeper program's potential for use as a standard model.

III. Findings: The Peacekeeper PPS Program satisfies the requirements established in DoD and AF guidance. Parameters established for the development and conduct of a PPS program are fully incorporated. Specifically, the Peacekeeper PPS Program: provides for the development of the PPS Plan prior to production, integrates PPS into the Integrated Logistics Support (ILS) activities, forecasts support problems while developing alternate support strategies, and provides an integrated budget which ensures continued system engineering and logistics supportability of weapon system readiness objectives. The review of the PPS Programs for Minuteman, B-1B, and F-16 provided sound lessons learned in establishing an effective PPS Program for Peacekeeper. Learning from the Minuteman and F-16 programs, a single weapon system database is preferred for accomplishing system level trend analyses and overall reliability and supportability assessments. Recognizing the requirement to integrate PPS with the ILS process, a standard database was adopted for Peacekeeper. This appears to be most cost effective in terms of budget and personnel requirements. Adoption of specific, common criteria for PPS candidate item identification also resulted from the review of other programs.

IV. Conclusions: The Peacekeeper PPS Program embodies all requirements established in DoD and AF guidance. The thorough review performed by the Peacekeeper PPS Working Group resulted in the development of a PPS program combining the positive attributes of existing PPS programs while avoiding repetition of identified shortfalls.

V. Recommendations: The Peacekeeper PPS Program is the first to fully comply with established requirements. The flexibility offered in the program makes it ideal for both new and existing weapon systems and therefore warrants strong consideration for adoption as a model approach. HQ USAF/LEYY, the AF focal point for PPS, should review the Peacekeeper program with the intent of standardized application.

Chapter One

INTRODUCTION

Post Production Support (PPS), the process of ensuring weapon system logistics supportability after cessation of production, is mandated through Department of Defense (DoD) Instructions and Directives as well as through Air Force (AF) regulations. At present, no standard Air Force approach to the post production support process exists; instead each weapon system develops its own program at diverse times in the acquisition phase. The Peacekeeper ICBM weapon system, based in existing Minuteman III silos at F E Warren AFB, Wyoming, is our newest major, weapon system with initial operating capability achieved in December 1986 and full deployment scheduled for December 1989. This paper analyzes the Peacekeeper Post Production Support Program's potential for use as a model PPS program for standardization among future Air Force weapon systems.

The author uses four steps to analyze the Peacekeeper PPS Program's potential for standardization. First, a review of pertinent DoD and AF guidance is conducted. The requirement to conduct PPS programs is established and guidance relative to PPS program content is presented. Second, parameters are identified to select other weapon systems' PPS programs for review and analysis. The Peacekeeper PPS Working Group (PPSWG) reviewed other weapon systems' PPS programs to develop a strawman program for Peacekeeper. Weapon systems were selected for review based on similarities in system complexity or design similarity and their close alignment with the directed parameters contained in DoD and AF guidance. The author, as a member of the PPSWG, participated in these reviews. Three programs (Minuteman, B-1B, and F-16) were selected for review. Lessons learned developed as a result of implementing these programs were also reviewed. The third step is a review of the Peacekeeper PPS Program, including an analysis of previous lessons learned. Interviews with management officials at OO-ALC (Hill AFB UT) and the Ballistic Missile Office (Norton AFB CA), reviews of the Peacekeeper PPS Plan, and the author's knowledge of the subject is the basis for this review. Step four is the author's assessment of the

degree to which the Peacekeeper PPS Program adheres to DoD and AF guidance and incorporates previous lessons learned. Based on this, a determination is made relative to the suitability of the Peacekeeper PPS Program as a model program for standardization and use throughout the Air Force. The author's knowledge and experience, gained through his direct participation in the development of the Peacekeeper PPS Program, is the basis for this final assessment.

Chapter Two

APPLICABLE GUIDANCE

This chapter, through a review of applicable DoD and AF guidance, substantiates the requirement for developing and conducting a PPS program. This review consolidates the basis for the requirement as well as presents any guidance, relative to how a PPS program should be structured and what content is desirable.

DoD DIRECTIVE 5000.39

The first document reviewed was DoD Directive 5000.39, 17 November 1983, Acquisition and Management of Integrated Logistics Support for Systems and Equipment. DoDD 5000.39 provides broad guidance concerning the requirement for post production planning. As defined in this directive, post production support will be incorporated into the Integrated Logistics Support (ILS) program and represents the "systems management and support activities necessary to ensure continued attainment of system readiness objectives with economic logistics support after cessation of production of the end item (weapon system or equipment)." (7:2-2) No guidance is given concerning the content of a post production program, only the time-phasing required to ensure adequate implementation. Specifically, "plans shall be developed beginning at the production decision point and updated periodically.... A DoD Component post production support review shall be held... [in sufficient time to ensure an effective post production support program is in place]." (7:4-4) The post production support plan is to be finalized during Milestone III - Production. Again, no guidance as to program content is offered.

AF/CV POLICY LETTER

A 15 April 1985 AF/CV letter, Air Force Policy of Post Production Support, outlines the Air Force's position on PPS. In this letter, General Welch stated "we must do a better job in planning for the transition of those activities or

functions performed by the weapon system contractor(s) that will be assumed by the government after cessation of production, i.e. post production support." (5:1) The policy goes on to say that "post production planning will be initiated for all weapon systems during the acquisition stage of the program. It will be performed in conjunction with the Logistics Support Analysis (LSA) process." (5:1) The policy further states that post production support plans will be incorporated into the Program Management Responsibility Transfer (PMRT) and Integrated Logistics Support Plan (ILSP) documents. Finally, the policy would be incorporated into AFR 800-8. (5:1)

AFR 800-8

Air Force Regulation 800-8, 25 June 1986, Acquisition Management, Integrated Logistics Support (ILS) Program, implements DoD Directive 5000.39, the above referenced AF/CV letter, and establishes the policy for conducting the ILS program, of which PPS is a part. The ILS program

provides management and technical activities a disciplined, unified, and iterative approach (a) to integrate support requirements into system and equipment design; (b) to develop support requirements that are related consistently to readiness objectives; and (c) to acquire and provide the required support at an affordable lifecycle cost. The ILS Plan (ILSP) and the Logistics Support Analysis (LSA) process are the basic management tools of the ILS program... (6:1)

The objective of the ILS program therefore is to deploy systems that are supported in such a way to meet the mission support requirements. An integral part of the ILS program, per AFR 800-8, is the development of the PPS program.

Initially managed by the Air Force Systems Command (AFSC) Program Manager, the PPS program is to be instituted early in the acquisition process, involving a joint effort between the contractor and the government. AFR 800-8 requires the use of the LSA process, specifically, MIL-STD-1388-1A, tasks 402 and 403, early in the acquisition process as a means of developing up-front PPS requirements. Tasks 402 and 403 are to be incorporated into full scale

development contracts and require the contractors to consider PPS problems early in the design phase and offer alternative strategies where problems are anticipated. (6:4)
Specifically, these two tasks require the contractor to

assess the expected useful life of the system/equipment. Identify support items associated with the system/equipment that will present potential problems due to inadequate sources of supply after shutdown of production lines. Develop and analyze alternative solutions for anticipated support difficulties during the remaining life of the system/equipment. Develop a plan that assures effective support during its remaining life along with the estimated funding requirements to implement the plan. As a minimum, this plan shall address manufacturing, repair centers, data modification, supply management, and configuration management. (6:47)

The PPS program, therefore, remains an integral part of the ILS program, is reviewed regularly, and is transitioned to the Air Force Logistics Command (AFLC) Program Manager upon weapon system Program Management Responsibility Transfer (PMRT). (6:2-3)

DoD INSTRUCTION 4000.26

The most direct guidance concerning policy and procedures is found in DoD Instruction 4000.26, 19 August 1986, Post Production Support. The purpose of this document is to "provide guidance on the implementation of Post Production Support (PPS) policies established in [DoD Directive 5000.39]". (8:1) Policy is presented which requires the development of the program early in the acquisition phase, with completion by Milestone III, Production. Additionally, the PPS program is to be included in the ILS planning activities and should have as its basis the support requirements established, known as ILS elements, in the ILS plan. (8:2) These basic elements include supply support, support equipment, maintenance planning, and manpower.

The procedural approach, or more specifically program content, is also discussed in DoDI 4000.26. The requirement

to include PPS projections as part of the contractor's early trade studies is further recognized. These projections are to be reviewed by the government as part of the ILS review process. (8:3) DoDI 4000.26 presents some guidance for the basic content of the PPS plan. These requirements are expressed in four parameters.

First, a ten-year projection of expected production phase-outs, changes in design or obsolescence, and the associated impact assessments are required. Second, an evaluation of alternate support strategies, in light of the above assessment, is also required. The evaluation should include such alternatives as life of type buys, design changes, and joint contractor/government repair efforts. Third, a strategy to ensure continued system level engineering coverage is also required. Finally, the budgetary and management requirements to support the PPS program are to be identified. (8:2-3)

To summarize, this chapter establishes the requirement to conduct PPS planning for all weapon systems. A review of DoD Directive 5000.39 defined PPS planning as those activities "to ensure continued attainment of system readiness objectives." (7:2-2) Beyond establishing a timeframe for PPS planning, no specific programmatic guidance is provided in this directive. Air Force policy appears in two forms, the AF/CV policy statement and AFR 800-8. Here, the PPS program is further established as a part of the ILS program with specific guidance to make the program a joint AF/contractor effort. Parameters for the development of a PPS program are presented in AFR 800-8 and DoDI 4000.26. They are: the implementation of MIL-STD-1388-1A tasks 402 and 403 (6:2); the development of a ten-year item phase-out projection to include associated impact; the development of support strategies; the development of a strategy to ensure system level engineering; and budget and management requirements to support the PPS program. (8:2-3)

Chapter Three

PROGRAM REVIEWS

A Post Production Support Working Group (PPSWG) was established at the outset of the Peacekeeper PPS Program's development. The group determined that, to enhance the development of the Peacekeeper PPS Program, existing programs should be reviewed and analyzed. The PPSWG, represented by AFSC and AFLC staff agencies, selected the Minuteman, B1-B, and F-16 PPS programs for review. Selection of these programs was based upon two parameters. The first was adherence to the DoD and AF guidance described in Chapter Two. The review of selected weapon systems indicated that the Minuteman, B-1B, and F-16 most closely adhered to this guidance. Second, these programs represented a cross section of weapon systems which was desired by the PPSWG. Consequently, these systems were selected for analysis and became the basis for the formulation of the Peacekeeper PPS Program. (11:--)

The goal of the review was to analyze the PPS process of each of these weapon systems with respect to published guidance and extract lessons learned from each program. The group believed that combining benevolent aspects of each program and incorporating lessons learned resulted in a more effective program for Peacekeeper. This chapter presents a brief overview of each of these three programs, the rationale for selection, and then focuses on the lessons learned from each program.

MINUTEMAN

The Minuteman ICBM weapon system was originally deployed in the mid 1960s. Being one of the oldest weapon systems in the field with initial production cessation occurring over twenty years ago, post production support has been and continues to be a real time readiness issue. Furthermore, the configuration similarities of the Minuteman with the Peacekeeper ICBM weapon system were considered relevant from the PPS standpoint. The two systems use the same launch facility and associated ground electronics, are monitored and commanded through similar communications lines, and are managed by the same organization at Hill AFB Ut. These

similarities formed a sound basis for exploring the Minuteman PPS approach.

(10:--; 11:--)

Post production support for the Minuteman weapon system is accomplished through the Parts Control Board, an internally operated organization administered solely by the System Program Manager at Hill AFB. Specific focus is applied to the availability of spare parts for Minuteman, the coverage of the ILS element of supply support. (10:--)

A drawback to the Minuteman PPS program is that it is reactive in nature, responding to a real time lack of available spare parts vice forecasting long-term supply support issues as called for in DoDI 4000.26. PPS efforts are accomplished through a support contractor. This contractor maintains and manages an equipment database which monitors failure rates versus supply availability. The basic operation of the Minuteman PPS program is centered around repair parts and system readiness. When a need for a particular repair part has been identified and no bids from manufacturers are received, the Parts Control Board is activated and an item history detailing past usage and failure trends is generated by the support contractor. In addition, the database is queried to determine if the item is used elsewhere in the weapon system. (10:--)

This allows a more complete impact assessment to be developed. Once the complete item history is prepared, the equipment item is considered a PPS candidate or a PPS problem. The Parts Control Board, consisting of technical representatives, determines what action should be taken to satisfy the PPS problem. Such alternative support strategies as remanufacture organically, reverse engineering, or substitute with like parts are considered. At this time funding requirements are established and input into the Minuteman budget program. Foremost to the PPS initiative is to satisfy the immediate supply support need and therefore meet weapon system readiness requirements. (10:--; 11:--)

Lessons Learned

Long-term requirements (i.e., 10-year projections) with associated budget forecasts for such things as life of type buy and modification projections, two of the parameters set forth in DoDI 4000.26 and AFR 800-8, are not fully addressed in the Minuteman PPS process. A direct result of not addressing these two parameters is the inability to develop strategies for ensuring the future availability of critical parts. Forecasting is therefore limited to a much shorter

period of time. (10:--)

In short, the Minuteman PPS Program, while accomplishing its prime objective -- that of meeting supply support needs -- fails to be proactive in its approach and thus is not an adequate tool for continued attainment of readiness and sustainability objectives, the thrust of PPS initiatives.

B-1B

The B-1B PPS Program was selected by the Peacekeeper PPSWG for analysis for two reasons. First, the B-1B PPS Program most closely aligned itself with the requirements established in Air Force and DoD guidance. The B-1B PPS Program was, at the time, the most recently developed program, and thought to be the most advanced. Secondly, a mix of weapon systems was desired in the PPSWG review process. In this way, universal procedures could be reviewed and/or developed for application across weapon system lines. The B-1B PPS was signed and implemented in May 1986, after the full-scale development phase of the program elapsed but prior to production cessation. (11:--)

The B-1B PPS Program utilized MIL-STD-1388, tasks 402 and 403 as tailored for the weapon system. Although implemented later than called for in AFR 800-8, these tasks form the basis of the program. A three-phased approach was instituted for B-1B PPS, with Phase One requiring the various contractors to develop a list of potential PPS candidates for review by the government. No common methodology or criteria for candidate selection was developed for use by all contractors. The government had no benchmark against which to compare contractors' inputs. Furthermore, each contractor developed and maintained their own databases, utilizing unique data input requirements. (1:1) This resulted in an inability to establish a single, government maintained, database from which weapon system trends, budget requirements, and forecasts could be derived.

Phase Two was characterized by a joint AFSC/AFLC review team analyzing each of the contractor's inputs. This screening process continued until a final list of PPS items was developed. This list was then returned to the contractor for further review and the development of alternate support strategies, such as life of type buy, design

changes, or the use of suitable substitutes. During this process, the contractor was tasked to include an assessment of the impact of each strategy on support equipment, technical orders, configuration management, supply support, and maintenance. (1:2) In this way all ILS elements were considered in the PPS candidate selection process as required by AFR 800-8.

Phase Three constitutes a continuous review cycle not only of those items already considered candidates but also of any new items recognized by the contractor for possible PPS attention. Budget requirements are also identified on a continuous basis. (3:2-3)

Lessons Learned

The PPS program for the B-1B weapon system embodies the intent of DoD and Air Force guidance and in fact is a viable program. The PPSWG, in reviewing the PPS program, derived certain lessons learned. First, standard criteria, applied by each contractor, is required during the Phase One initial screening for potential PPS candidates. This allows the government technical review team to review all inputs on a comparable basis. Second, standard data input requirements and a central PPS database should be used to ease data reduction and enable the Air Force to conduct weapon system level trend analyses. Finally, there is no requirement levied on the B-1B contractors to project long-term PPS problems. While alternatives spanning 20 years of support are required during Phase Two, no initial projection period is required for Phase One inputs. (11:--)

F-16

The F-16 was selected for review primarily because it closely approximates the intent of DoD and AF guidance and, while managed by the government, the program is conducted largely by the civilian prime contractor. This mix allowed a different perspective to be reviewed for possible adoption for Peacekeeper.

The F-16, fielded many years ago, is an out-of-production weapon system which requires the continuous process of supply support and system engineering attention. The PPS program was implemented well after full scale development, even well into deployment. This late

implementation forces, at least for an initial period, the PPS program to be reactive in nature; addressing itself to real time shortages vice forecasting those shortages and thus shortening the lead time to recovery. (11:--)

The F-16 PPS is a jointly conducted program combining System Program Office (AFSC), System Program Manager (AFLC), and prime contractor expertise into a central planning team. The planning team used a three-phased approach to develop corrective action strategies which would address no-bid situations, non-availability of vendors, excessive lead times, and unreasonable support costs as they apply to items in short supply. (2:1-2)

The F-16 PPS Program uses a standard Reprocurement Identified Problem (RIP) sheet to record anticipated PPS problems with the objective of developing a database which will forecast supply support problems as well as give real time data. The RIP sheet contains reasons for nonsupport, spares status, urgency codes, failure histories, and predicted availability throughout the life of the item. The submission of the RIP constitutes Phase One, problem identification, of the PPS program. (2:6)

Phase Two, problem solution, involves the systematic efforts required to review and resolve the problem. Examples of solutions include life-of-type buys, establishment of a new source, and item redesign. Phase Three, problem correction, implements the solution developed in Phase Two. (2:6-7)

Lessons Learned

The use of standard criteria for candidate evaluation and impact assessment, embodied in the F-16 program, is a significant advancement in PPS planning and was adopted for the Peacekeeper program. The late implementation of the plan, however, forced the program to be reactive in nature, negating the possibility of logistics supportability projections. As the database matures, forecasting will occur. The F-16 PPS database is managed by the prime contractor. This is a costly approach, vulnerable to budget constraints. Finally, budget projections addressing system engineering and replacement parts are lacking, further jeopardizing system support. (9:--; 11:--)

Chapter Four

PEACEKEEPER PPS PROGRAM REVIEW

The joint AFSC/AFLC Peacekeeper PPSWG developed the current Peacekeeper PPS program based upon the requirements established in DoD and AF guidance and the analyses of other PPS programs. Chapter Three presented a review of the programs which formed the basis for developing the Peacekeeper PPS Program. This chapter reviews the Peacekeeper PPS Program in detail. The review of the Peacekeeper PPS Program covers two topics: the Peacekeeper PPSWG Charter and the Peacekeeper PPS Plan (PPSP).

PPS WORKING GROUP (PPSWG) CHARTER

The first step in developing the Peacekeeper PPS Program was the creation of a working group comprised of members and advisors from the Ballistic Missile Office (BMO), HQ USAF, HQ SAC, HQ AFLC, OO-ALC (the System Program Manager), and other affected Air Logistics Centers. A working group charter was developed, which established a co-chairperson relationship between the BMO/AL (Deputy Program Manager for Logistics) and OO-ALC/MMG (System Program Manager) offices. The purpose of the charter was to assign responsibilities for the development and conduct of the Peacekeeper PPS program. (4:App 1, pg 1)

The BMO, along with OO-ALC/MMG, co-chairs the working group. BMO is responsible for coordinating and publishing the PPSP. BMO is also tasked with providing logistics, engineering, and reliability/maintainability expertise in the development of the PPSP as well as in the determination of immediate PPS candidate items. Furthermore, necessary funding for Associate Contractor (ASCON) support prior to weapon system PMRT is provided by BMO. (4:App 1, pg 2) A discussion of ASCON participation is included later in this chapter.

OO-ALC/MMG, as a co-chair, is the focal point for all PPS matters concerning AFLC. All funding required to conduct the PPS program in the post-PMRT timeframe is identified by OO-ALC/MMG. As is the case with BMO, technical expertise in the same areas is supplied by OO-ALC. Combined, these

technical experts form the Technical Evaluation Team (TET) which is responsible for reviewing PPS candidate items. (4:App 1, pg 2) A more detailed review of the TET functions is presented later in this chapter.

Members of the PPSWG, both permanent and ad hoc, were required to meet periodically during the development of the Peacekeeper PPSP. In this way, all agencies concerned with the acquisition (AFSC), operation (SAC), and logistics management (AFLC) of the Peacekeeper system were represented during all phases of the PPSP formulation. Additionally, PPSWG members from each major command participated in the review and analysis of the three PPS programs discussed in Chapter Three. During this analysis, specific attention was given to incorporating previous lessons learned from other weapon systems.

In summary, the Peacekeeper PPSP was created from the outset by a multi-command working group comprised of representatives from the acquisition, logistics, and operations disciplines. A review of the PPS plan now follows.

THE PEACEKEEPER PPS PLAN (PPSP)

The PPSP is a coordinated AFSC/AFLC document detailing the PPS approach to be used for the Peacekeeper weapon system. Signed by the AFSC Program Manager and the AFLC System Program Manager, the Peacekeeper PPSP was formally implemented in May 1987. (4:1) The plan "covers the methodology that will be used for the Peacekeeper weapon system to provide a support capability after production ceases. A phased approach will be implemented coordinating the activities [of the PPSWG, the ASCONs, and the TET]". (4:1) The PPSP contains a four-phased implementation strategy. The first phase addresses PPS initiatives prior to the cessation of production. Phases Two and Three deal with the selection and review process of candidate PPS items. The fourth phase is a continuous review of potential PPS candidate items throughout the operational life of the system. (4:10)

Use of the Logistics Support Analysis (LSA) process was baselined for the program management of PPS activities. Documentation of these PPS activities was accomplished through a centralized government owned database system.

Integral to the ILS program, Peacekeeper development contractors, referred to as ASCONs, use the government Logistics Management Information System (LMIS) to document and record all design, development, and support data for their particular portion of the system. (11:--)

This integrated ILS/LSA approach for PPS management fulfills the requirements in DoD 5000.39, AFR 800-8 and DoD 4000.26, and assures the initial PPS planning objectives and concepts are continually addressed throughout the development process. This integrated data system becomes the baseline for future system engineering and weapon system changes as operational readiness requirements dictate and institutionalizes PPS for the operational life of the weapon system.

This LSA record (LSAR) on-line system became the repository for all PPS data for candidate equipment items. The objective of the common database was to provide a single source of information, accessible to all organizations involved in the planning, programming, and implementation activities of the Peacekeeper PPS Program. This link to the LSA process also satisfies the intent of MIL-STD-1388-1A, tasks 402 and 403. (12:--)

Phase I of Peacekeeper PPS began while the weapon system was in its early stages of production. Since most equipment items had been designed, developed, and produced in initial quantities by the ASCONs, they were already provisioned into the Air Force inventory. Phase I was conducted by a government team (PPSWG and TET) to review these items and determine which could be eliminated as PPS candidates. Expertise within the TET included the disciplines of supply support, engineering, and logistics resource management, all of which were required to make this determination. The TET membership was varied to ensure most effective technical representation for the equipment being reviewed. The PPSWG membership remained constant to provide consistent top-level coordination of all PPS efforts.

The purpose of the TET screening activity was two-fold. The first was to eliminate items with known multiple sources of supply, commonly used items (nuts, bolts, washers), or items already identified for pre-planned improvements or modifications. Secondly, the TET screening was designed to reduce costs by reducing the scope of contractor review requirements. The resultant lists of items, or the potential PPS candidates, were then provided to the contractors for the second phase of the PPS program. (4:7,10)

Phase II began with the ASCONs reviewing the lists of government generated potential candidates. All ASCONs were tasked to perform a review of their items to determine if in fact the items were anticipated to experience support problems. A minimum support period of 15 years beyond the end of the final production contract was established as the basis for the contractor projection. Standard criteria were established for the contractors to accomplish their screening and analyses task. Criteria included diminishing sources, material shortages, production lead times exceeding 18 months, sole source items, projected design changes, special manufacturing/repair requirements, minimum lot quantity buying requirements, and programmed price increases. The ASCONs recorded their analyses and rationale in the LSAR on-line system using a standard data sheet developed by the PPSWG. This information was then used by the PPSWG and TET to select those candidate items for further analysis. (4:11-13)

Phase III is currently underway for the Peacekeeper PPS program. In Phase III the ASCONs conduct in-depth technical analyses of PPS candidates to identify alternate support strategies. As required by DoDI 4000.26, these alternate support strategies must address all ILS elements and the PPS impact to all facets of support. In addition, the ASCONs are tasked to recommend the optimal support option for implementation by the government. Analyses contain such alternatives as possible redesign or modification to eliminate the PPS problem item, a life of type buy while the production line is still open, maintenance of a warm base production line, remanufacture or reverse engineering of the item, and development of a second source of supply. The evaluation also contains the costs associated with each alternative strategy as well as the impact and related funding requirements on other ILS elements such as technical data, training requirements, manpower resources, and maintenance requirements. For the optimal alternative recommended by the ASCON, a long-range forecast with associated budget requirements, life cycle costs, and milestone implementation schedule is provided for government review. This implementation schedule is designed to provide total program visibility and satisfy the DoDI 4000.26 requirement for a long-term system engineering strategy. Phase Three ends when the PPSWG and the TET complete the review of the support recommendations and determine how a PPS candidate should be supported for the life of the weapon system. Phase III therefore is a series of contractor

analyses and government reviews. When complete, these reviews result in the development of a long-term weapon system supportability plan to meet readiness objectives throughout the operational life of the system. (4:14-16)

Responsibility for the PPS Program transfers from the acquisition command (AFSC) to the supporting command (AFLC) at weapon system PMRT. Phase IV is that transition point in the program where this activity occurs. The Peacekeeper PPSP becomes part of the weapon system PMRT plan and a recognized instrument for evaluating long-term support resources and ensuring weapon system readiness. Phase IV is designed as a continuous review process of PPS candidate items based on technological advances, weapon system mission changes, and continuous system engineering reviews. This review of PPS candidate items is accomplished on a schedule to support the Air Force planning, programming, and budgeting system. Utilization of the LSAR database provides the baseline for continued system engineering throughout the operational life of the weapon system. (4:16)

Chapter Five

This chapter assesses the suitability of the Peacekeeper PPS Program for use as a model for Air Force adoption. An analysis of the Peacekeeper PPS Program's compliance with DoD and AF guidance is first presented. Incorporation of previous lessons learned and an explanation of how they were addressed is also presented. Finally, based upon these assessments, conclusions are drawn and recommendations are given relative to the suitability of the Peacekeeper PPS program as a model for future use.

COMPLIANCE WITH DoD AND AF GUIDANCE

The Peacekeeper PPS Program satisfies the guidance established in DoD 5000.39, AF/CV Policy Letter, AFR 800-8, and DoDI 4000.26. Parameters established for the development and conduct of a PPS Program are fully incorporated in the Peacekeeper PPS Program. Specifically, the Peacekeeper PPS Program: provides for the development of the PPS prior to production, integrates PPS into the ILS and LSA activities via a tailored version of MIL-STD-1388, forecasts support problems beyond the ten-year requirement while developing alternate support strategies addressing each of the ILS elements, and provides an integrated budget which ensures continued system engineering and logistics supportability of weapon system readiness objectives. Additionally, the Peacekeeper PPS Program is a joint AFSC/AFLC effort combining technical and management expertise from both commands. As required, a government/contractor team relationship is established to enhance program effectiveness. Early joint participation allows a smooth transition to AFLC at weapon system PMRT.

INCORPORATION OF LESSONS LEARNED

The review of PPS Programs for the Minuteman, B-1B, and F-16 weapon systems provided sound lessons learned in establishing an effective PPS program. A common lesson learned from all three of these programs was the need to establish a specified forecast period used to identify PPS problems and project support options. A minimum of 10 years should be used per DoDI 4000.26. The Peacekeeper program is

based upon production plus 15 years. (4:11-13) This increased time provides greater visibility and opportunity to ensure all resource requirements (funds, manpower and material) are identified and in place prior to when the actual need occurs. Another common lesson extracted from the programs under review was the benefit of a common database for identifying, storing, and forecasting support problems. Learning specifically from the Minuteman and F-16 programs, a single weapon system database is preferred for accomplishing system level trend analyses and overall weapon system reliability and supportability assessments. Recognizing the requirement to integrate PPS with the ILS/LSA process, the LSA database was baselined for Peacekeeper. This use of an already established data system appears to be the most cost effective in terms of budget and personnel requirements as well as satisfying the need to have a single weapon system database. Standard criteria is used in the F-16 program for PPS identification, where the criteria varies with the B-1B contractors. The common criteria philosophy was incorporated in the Peacekeeper PPS program. Finally, the benefit of a phased program approach as seen in both the B-1B and F-16 PPS Programs was believed to be more manageable and thus more effective to a sound PPS program. Peacekeeper adopted a four-phased approach which can easily be tailored to any weapon system dependent upon acquisition strategy and PPS initiatives.

CONCLUSIONS

The Peacekeeper PPS Program embodies all requirements established in DoD and AF guidance. Innovative, effective measures are also present which often exceed established guidance and serve to better enhance program effectiveness. The use of a government managed, central LSA database for information tracking and system availability forecasting provides a less costly approach to continued system engineering. The adoption of a 15-year forecast period ensures support strategies are implemented prior to system impact. Additionally, the incorporation of a four-phase program adds flexibility when applied to other systems. Should this approach be applied to a new weapon system, Phase One should be conducted by the ASCON, satisfying the requirement for pre-production analysis. Should the approach be applied to existing, deployed weapon systems, a methodology now exists to succinctly address supportability issues through a joint AF/ASCON effort.

The thorough review performed by the PPSWG resulted in the development of a PPS program combining the positive attributes of existing PPS programs while avoiding repetition of identified shortfalls. The lessons learned from the Minuteman, B-1B, and F-16 programs were methodically and reasonably incorporated.

RECOMMENDATIONS

The Peacekeeper PPS Program is the first program to fully comply with established program requirements. The flexibility offered through the four-phased approach makes this program ideal for both new and existing weapon systems and therefore warrants strong consideration for adoption as a model approach. HQ USAF/LEYY, the Air Force focal point for PPS, should review the Peacekeeper PPS program with the intent of standardized application.

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