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MILITARY HANDBOOK

GUIDELINES FOR THE IMPLEMENTATION OF THE DoD
PARTS CONTROL PROGRAM



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FOREWORD

1. This military handbook is approved for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to the Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-GDS, Warren, MI 48397-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

3. This handbook was developed under the auspices of the U.S. Army Materiel Command's Engineering Design Handbook Program, which is under the direction of the U.S. Army Management Engineering College. This handbook was written by Decisions and Designs, Inc., as a subcontractor to Research Triangle Institute under Contract No. DAAA08-80-C-0247.

4. This handbook provides information on the implementation of the Department of Defense (DoD) parts control program (PCP). The policy, procedures and responsibilities for the PCP which applies to both new designs and modifications of existing designs are contained in Department of Defense Instruction (DODI) 5000.1 (part 6, section R). MIL-STD-965 implements the guidelines and requirements of DODI.

5. The purpose of this handbook is to assist the DOD activities in properly implementing the PCP and contains information considered necessary to:

- a. Attain conformance to the PCP requirements of MIL-STD-965.
- b. Tailor or streamline affectively the PCP requirements to suit specific acquisitions.
- c. Assess and manage the accomplishment of PCP.

6. The format of this handbook was designed in chapters, with each chapter covering a specific topical area. For ease of use all tables, figures and references applicable to a chapter were placed at the end of the chapter. Also, the tables and figures were consecutively numbered, but a numerical suffix was added to indicate the applicable chapter in which they appear.

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CHAPTER 1
INTRODUCTION

This chapter describes the basic purpose of the handbook, explains how to use the handbook, and provides an overview of the handbook on a chapter-by-chapter basis.

1-1 Purpose. This handbook has been prepared as a guide for the implementation of the Department of Defense (DoD) Parts Control Program (PCP) and is intended for use as a reference book by the military departments and other Government agencies (hereafter referred to as Government components) and associated contractors. It is structured specifically for use by program managers and project engineers in the selection and identification of applicable PCP requirements. The handbook contains detailed information, suggested approaches, and examples to assist in determining appropriate PCP requirements on a contract-by-contract basis.

1-2 Scope and application. This handbook is to be used by the Government components in applying the PCP to "contracts for major weapon systems, end-items of equipment where logistics support is required, and in which acquisition managers foresee appreciable life cycle cost savings" (Ref.1). It will be used to identify the various conditions and elements that should be considered for tailoring and applying MIL-STD-965 (Ref. 2) requirements to specific acquisitions. Contract categories, established in MIL-STD-965 and in Table 1-I below, will be used to assist in determining to what extent PCP requirements should be contractually invoked. Also this handbook is to assist in the accomplishment of the major objectives of the PCP and in the establishment of methods, such as reviews, audits, and reports, that may be used to assure conformity with the contractual PCP requirements. Though specifically structured for program managers, standardization, and component engineers; this handbook will assist personnel involved in procurement, standardization, and logistics to understand the philosophy and purpose of parts control.

TABLE 1-I. Contract categories (Ref. 2).

CATEGORIES	REMARKS
<u>CATEGORY A</u> Demonstration and Validation Phases (first phases where part control program could be beneficial)	Parts control may not be effective on contracts that are fundamentally for investigation or study. Application of parts control should be considered in the fabrication of breadboard models or rough experimental prototypes when follow-on contract development phases are anticipated.
<u>CATEGORY B</u> Engineering and Manufacturing Development	A PCP should always be applied to contracts for the design and fabrication of a system or equipment to meet the performance requirements of a specification or to establish technical requirements leading to a production baseline model.

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TABLE 1-I. Contract categories (Ref. 2) - Continued.

CATEGORIES	REMARKS
<u>CATEGORY C</u> Production and Development	A PCP should be applied to contracts for production quantities for which a baseline design is already established and/or for which a change (Class 1 engineering change proposals) or modification occurs during the course of a contract but was not anticipated prior to contract award. It should also be applied to modification contracts where an existing design is modified to satisfy an operational need or to improve performance. In such efforts the existing design package usually serves as the baseline and only parts proposed for use in the modification are subject to parts selection and approval procedures.
<u>CATEGORY D</u> Other	Parts control should be specified in any acquisition for which the selection and use of parts must be controlled to achieve effective life cycle benefits and follow-on logistic support is anticipated.

1-3 Handbook overview. The chapter contains background information pertaining to the PCP. A description of the handbook content on a chapter-by-chapter basis follows:

- a. Chapter 2 - Definition. This chapter contains definitions of acronyms and terms used in this handbook.
- b. Chapter 3 - History. This chapter contains information pertaining to the background and history of the PCP, identification and discussion of DoD-component-peculiar programs that preceded MIL-STD-965, and a few real life events that strengthened the need for a mandatory PCP.
- c. Chapter 4 - Objectives. The five major objectives of the PCP and how these objectives will be met are discussed. The need to standardize parts control procedures is also discussed.
- d. Chapter 5 - General Guidance. Information concerning the determination of the procedure to be used, Government Furnished Baseline (GFB) parts lists, preparation of the scope of work related to parts control, and preparation and submission of the PCP Plan is given. The organization and activities of the Military Parts Control Advisory Groups (MPCAGs), initiation of the PCP for a given weapon system, preparation and submission of the program parts selection list (PPSL), and the organization and activities of the Parts Control Board (PCB) utilizing Modernized Parts Control Automated Support System (MPCASS) are also presented.

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- e. Chapter 6 - Tailoring or Streamlining. This chapter addresses the criteria for the tailoring or streamlining of basic PCP requirements to suit specific acquisition needs. Examples of tailoring or streamlined requirements are given. Information pertaining to part documentation, test data, and timing of events is also included.
- f. Chapter 7 - Reviews and Audits. The reviews and audits that should be conducted to determine compliance with the PCP requirements by both contractor and Government activities are discussed. Comments for the planning and scheduling of the reviews and audits are included.
- g. Chapter 8 - Reporting. The type of reports that should be submitted for effective management of the PCP are identified and discussed. Comments concerning content of the reports and frequency of submission are included also.

References

1. Memorandum, Sparts Parts Acquisition, Secretary of Defense, 29 August 1983.
2. MIL-STD-965, Parts Control Program.

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CHAPTER 2
DEFINITIONS

2-1 Acronyms. The acronyms used in this handbook are defined as follows:

AA	- Acquisition Activity
AR	- Army Regulation
AS	- Acquisition Strategy
CAGE	- Commercial and Government Entity
CDR	- Critical Design Review
CDRL	- Contract Data Requirements List
CI	- Configuration Item
CMSEP	- Contractor Management System Evaluation Program
CSCI	- Computer Software Configuration Item
DAB	- Defense Acquisition Board
DAC	- Days After Contract
DBDD	- Data Base Design Document
DCSC	- Defense Construction Supply Center
DESC	- Defense Electronics Supply Center
DGSC	- Defense General Supply Center
DID	- Data Item Description
DISC	- Defense Industrial Supply Center
DLA	- Defense Logistics Agency
DLAR	- Defense Logistics Agency Regulation
DMSMS	- Diminishing Manufacturing Sources and Material Shortages
DoD	- Department of Defense
DoDI	- Department of Defense Instruction
DoDISS	- Department of Defense Index of Specifications and Standards
ECP	- Engineering Change Proposal
EIC	- Engineering Item Code
EPL	- Equipment Parts List
ER	- Established Reliability
FACI	- First Article Configuration Inspection
FCA	- Functional Configuration Audit
FEDB	- Failure Experience Data Bank
FOE	- Follow-On Evaluation
FQR	- Formal Qualification Review
FSC	- Federal Supply Classification
FSD	- Full-Scale Development
GFB	- Government Furnished Baseline
GFE	- Government Furnished Equipment
GIDEP	- Government-Industry Data Exchange Program
HDBK	- Handbook
HWCI	- Hardware Configuration Item
IDD	- Interface Design Document
I & L	- Installation and Logistics
ILS	- Integrated Logistic Support
IRS	- Interface Requirements Specification
LCC	- Life Cycle Cost
LLT	- Long Lead Time

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MACI	- Military Adaption of Commercial Items
MIL	- Military
MIL-STD	- Military Standard
MNS	- Mission Need Statement
MPCAG	- Military Parts Control Advisory Group
MPCASS	- Modernized Parts Control Automated Support System
NAS	- National Aerospace Standard
NASC	- National Aerospace Standards Committee
NATO	- North Atlantic Treaty Organization
NDI	- Nondevelopment Item
NLT	- Not Later Than
NSN	- National Stock Number
NSP	- Nonstandard Part
O & O	- Operational and Organization
OASD	- Office Assistant Secretary of Defense
OEM	- Original Equipment Manufacturers
OFT	- Operational Flight Trainer
O & S	- Operating and Support
PCA	- Physical Configuration Audit
PCB	- Parts Control Board
PCP	- Parts Control Program
PD	- Preliminary Design
PDR	- Preliminary Design Review
PM	- Program, Project, or Product Manager
PMO	- PM Office
P/N	- Part Number
PPSL	- Program Parts Selection List
PRA	- Parts Review Activity
PRDR	- Production Readiness Design Review
PRR	- Production Readiness Review
QML	- Qualified Manufacturers List
QPL	- Qualified Products List
RFP	- Request for Proposal
R & M	- Reliability and Maintainability
SDR	- System Design Review
SEM	- Standard Electronic Module
SMD	- Standardized Military Drawing
SOP	- Standard Operating Procedure
SOW	- Statement or Scope of Work
SRR	- System Requirements Review
SSR	- Software Specification Review
STANAG	- NATO Standardization Agreement
TDP	- Technical Data Package
TRR	- Test Readiness Review
USAF	- United States Air Force
TT/UT	- Troop Test/User Test

2-2 Definition of terms. The terms used in this handbook are defined as follows:

Acquisition. The act of acquiring military equipment, systems, subsystems, or parts by Government components.

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Acquisition Milestone. The completion of one phase of the acquisition process and the start of the next phase.

Acquisition Strategy (AS). Conceptual framework for conducting materiel acquisition, encompassing broad concepts and objectives that direct and control overall development, production, and deployment of a materiel system. Evolves parallel with the maturation of the system. Must be stable enough to provide continuity but dynamic enough to accommodate change.

Availability. A measure of the degree to which an item is in an operable and committable state at the start of the mission, when the mission is called for at an unknown (random) point in time.

Commercial Part. An article of supply, readily available from established commercial distribution sources, that the Department of Defense of inventory managers in the military services have designated to be obtained directly or indirectly from such sources.

Configuration Control. The systematic evaluation, coordination, approval or disapproval, and implementation of all approved changes in the configuration of a configuration item after formal establishment of its configuration identification.

Configuration Item (CI). An aggregation of hardware and computer programs or any of its discrete portions that satisfies an end-use function and is designated by the Government for configuration management. CIs may vary widely in complexity, size and type, from an aircraft, electronic, or ship system to a test meter or round of ammunition. During development and manufacture of the initial (prototype) production configuration, CIs are those specification items whose functions and performance parameters must be defined (specified) and controlled to achieve the overall end-use function and performance. Any item required for logistic support and designated for separate procurement is a configuration item.

Contract Categories. Specific phases of the acquisition process for which the PCP could be implemented.

Cost Avoidance. A reduction in identified future requirements for which funding has been requested and programmed in the budget year or future budget years.

Defense Acquisition Board (DAB). The senior DoD review body for system acquisition. It provides advice and assistance concerning acquisition matters through the Defense Acquisition Executive to the Secretary of Defense.

Demonstration and Validation Phase. Normally the second phase in the acquisition process. Consists of steps necessary to resolve or minimize logistic problems identified during concept exploration, to verify preliminary design and engineering, to accomplish necessary planning, to analyze fully tradeoff proposals, and to prepare contract required for full-scale development.

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Diminishing Manufacturing Sources. The loss or impending loss of manufacturers or suppliers of items or raw material.

DoD Parts Control Program (PCP). An integrated parts management system that promotes the use of standard parts in the design of defense systems and equipment and considers the engineering, standardization, acquisition, and related integrated logistic support program provisions.

DoD/Industry Task Group. A group that provides assistance in the development of policies and procedures for the PCP and in the implementation and maintenance of the program.

Engineering Item Code. Identification number assigned to electrical/electronic and mechanical component groups.

Established Reliability (ER). A quantitative maximum failure rate demonstrated under controlled test conditions specified in a military specification and usually expressed as percent failure per thousand hours of test.

Established Reliability (ER) Parts. Parts that are identified and/or described in military specifications, such as those for capacitors and resistors, that have met established reliability requirements.

Engineering and Manufacturing Development. Normally the third phase in the materiel acquisition process during which a system, including all items necessary for its support, is fully developed, engineered, fabricated, tested, and initially type classified.

General Application Part. A part approved for listing on the PPSL without restriction on its use.

Government Components. Military departments and other Government agencies.

Government Furnished Baseline (GFB) Parts List. A list of approved standard to be used as an initial source in the generation of a PPSL and for subsequent design selections in equipment, system, or subsystem designs. A GFB is considered a special list (i.e., first order of preference) as defined in MIL-STD-970, and therefore, becomes the primary source for part selection (second only to the approved PPSL) during equipment design. The parts listed in a GFB satisfy the requirements of a general equipment document (such as MIL-STD-454) and hold prior approval status by contract definition. Parts selected from a GFB for system design considerations are added to the PPSL for the specific contract without further evaluation. The goal of a GFB is to minimize the number of part submittals, reduce part procurement problems, and provide standardization guidance to acquisition offices and their contractors.

Integrated Logistic Support (ILS). A composite of all the support considerations necessary to assure effective economical support of a system or for its life.

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Interchangeability. A condition when two or more parts are physically and functionally interchangeable in all possible applications, i.e., when both parts are capable of full, mutual substitution in all directions.

Interoperability. The ability of systems, units, or forces to provide services to and accept services so exchanged to enable them to operate effectively together.

Life Cycle Cost (LCC). Approach to costing that considers all costs incurred during the projected life of the system, subsystem, or component being evaluated. Includes cost to develop, procure, operate, and maintain the system over its useful life.

Limited Application Part. A part approved for listing on the PPSL with restriction on its use.

Logistic Support. Maintenance and supply support to be provided at unit and intermediate and depot levels. Logistical support is influenced by the degree of unitization or modularization, ruggedness, cost, test points, test equipment, tactical employment, and transportation requirements.

Maintainability. A measure of the ease and rapidity with which a system or equipment can be restored to operational status following a failure or retained in a specified condition. It is characteristic of equipment design and installation, personnel availability in the required skill levels, adequacy of maintenance procedures and test equipment, and the physical environment under which maintenance is performed. One expression of maintainability is the probability that an item will be retained in or restored to a specific condition within a given period of time when the maintenance is performed in accordance with prescribed procedures and resources.

Maintenance Floats. Stocks of end-items (not including mobilization stocks) produced as reserve items to be issued when end-items must be returned to depots or shipyards for battle damage repair, overhaul, rebuild, or modernization. Improvements in reliability lower the amount of assets allotted to such reserve stocks wherever carried in the logistical support system.

Military Adaptation of Commercial Items (MACI). Commercial items that are specifically adapted for military use.

Military Parts Control Advisory Group (MPCAG). A Department of Defense organization which provides advice to the military departments and military contractors on the selection of parts in assigned commodity classes and collects data on nonstandard parts for developing or updating military specifications and standards.

Modernized Parts Control Automated Support System (MPCASS). An on-line automated data processing system for interface with the MPCAGs. This system allows for the input and inquiry of information for the DoD Parts Control

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Program, and is available for use by military acquisition activities, equipment contractors, and part suppliers. MPCASS is the preferred method of operation for the Parts Control Program.

National Stock Numbers. The 13-digit stock number replacing the 11-digit Federal Stock Number. It consists of the 4-digit Federal Supply Classification code and the 9-digit National Item Identification number.

Nonstandard Part. Any part that does not meet the definition of standard part.

Operational Effectiveness. The manner and or degree of efficiency in which a ship, weapon system, or equipment performs the missions or functions for which it is designed.

Parts Control Board (PCB). A formal organization established by contract to assist the prime contractor and acquisition activity in controlling the selection and documentation of parts used in equipment, system, or subsystem designs.

PCP Plan. A document that describes the policies and procedures used in a contractor's parts control program.

Product Improvement. Effort to incorporate a configuration change involving engineering and testing effort on end-items and depot-repairable components or changes on other than developmental items to increase system or combat effectiveness or to extend the useful military life.

Program Parts Selection Lists (PPSL). A list of all parts approved for design selection in a specific contract.

Qualified Manufacturers List. A list of manufacturers and processes that have met the qualification requirements stated in the applicable specifications including identification of qualified processes and facilities, product identification, and qualification references with the name and plant address at the manufacturer and distributor, as applicable.

Qualified Products List. A list of products that have met the qualifications requirements stated in the applicable specifications including appropriate product identification and tests or qualification references with the name and plant address of the manufacturer and distributor, as applicable.

Reliability. The ability of an item to perform a required function under stated conditions for a specified period of time.

Standard Part. A part listed on an applicable GFB identified for a specific program. If GFB is tailored from the acquisition, then the acquisition activity must provide a specific definition of standard part by contract definition.

Statement of Work. A statement within a contract that describes all work to be performed.

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Streamlining. Any action that results in more efficient and effective use of resources to develop, produce, and deploy quality defense systems and products. This includes insuring that only cost-effective requirements are included, at the most appropriate time, in solicitations and contracts for systems and equipment.

System Effectiveness. The probability that a system can meet successfully an operational demand within a given time when operated under specified conditions.

Tailoring. The process of evaluating individual potential requirements to determine their pertinence and cost-effectiveness for a specific system or equipment acquisition and modifying these requirements to insure that each contributes to an optimal balance between need and cost. The tailoring of data requirements shall consist of determining the essentiality of potential Contract Data Requirements List items and shall be limited to the exclusion of information requirement provisions.

REFERENCES

1. MIL-STD-454; Electronic Equipment, Standard General Requirements for
2. MIL-STD-970; Standards and Specifications, Order of Preferences for the Selection of

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CHAPTER 3
HISTORY

This chapter reviews the conditions that existed within Department of Defense (DoD) components prior to establishments of the DoD Parts Control Program (PCP), identifies documents that were superseded by MIL-STD-965, and relates "lessons learned" by some DoD components.

3-1 Background (Ref 1)*. The need for a PCP evolved over a period of more than 20 years. In 1957 the results of a study on reliability, in which parts were identified as a major factor in field failures, were reported by the Advisory Group on the Reliability of Electronic Equipment. Complying with the recommendations of the report, a task group conducted a more detailed study and issued a Parts Specification Management Report (The Darnell Report) in 1960. This report recommended updating parts specifications to establish measurable reliability requirements. The parts covered by the revised specifications, which were called established reliability (ER) specifications, had to be capable of a specified life without failure. The updated specifications were then suitable for design to meet end-item reliability requirements.

The Task Group said "Standardize [Parts] During Design" to achieve quality, reliability, and to reduce proliferation of parts. Subsequent studies by a DoD Parts Control Task Group and other Government committees reached the same conclusion. To implement the task group's recommendation, the Office of the Assistant Secretary of Defense for Installations and Logistics (OASD) (I&L) directed the military departments to adopt by 1 July 1971 the PCP recommended by the DoD Task Group for the acquisition of weapon systems and equipment.

Around 1967 the U.S. Air Force (USAF) initiated the parts control board concept and described it in MIL-STD-891 (USAF), Contractor Parts Control and Standardization Program. Under this concept the prime contractor for a weapon system was delegated the responsibility of standardizing parts during design. To avoid uncontrolled operating and support costs, the contractor was also required to assure the Air Force that only parts of acceptable quality were used. Thus although standardization of parts during development of the system was the primary objective of the PCP, quality and reliability were also major considerations.

During much of the same 20-year period (1957-77), a second parts control document was extensively used: MIL-STD-749, Preparation and Submission of Data for Approval of Nonstandard Parts. Although the nonstandard part approval procedures of the two documents, MIL-STD-891 and MIL-STD-749, basically conformed, the procedures of MIL-STD-749, other standards, specifications, and contract exhibits introduced variations. These varying procedures caused variations in the quality of parts used in design. Along

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with the different procedures, the nonstandard part approvals varied greatly. A contractor might receive approval for a part from one procuring activity but have the same part disapproved by another procuring activity. However, this is understandable when the different kinds of applications are considered. A part that is acceptable for an environmentally controlled ground site may not be acceptable in an aircraft that subjects the part to different environments and stresses. From a quality and standardization aspect, however, parts used in similar applications should have been approved regardless of the procuring office making the evaluation.

When the OASD (I&L) order was given to apply parts control to all electronic system contracts, the Defense Electronics Supply Center (DESC) was assigned the task of evaluation of nonstandard parts for the Army and Navy. (DESC had been conducting part evaluations for the Air Force for several years.) During these evaluations by DESC, it was determined that more than 50% of the nonstandard parts proposed by contractors could have been replaced by parts covered by military specifications. In most cases the nonstandard parts were of poorer quality than the specification parts, and in only a few instances did contractors attempt to justify the nonstandard parts on the basis of quality. The usual justification was "no standard part available", which means, of course, that no standard part existed exactly like the nonstandard part.

Moreover, some designers mistakenly believed that any part covered by a military specification was "standard" or that any part that was "standard" to industry was also "standard" to the military. Thus many so-called "standard" parts were used without approval of the procuring activity even though they did not measure up to the Government's expectations of quality. This situation existed during the early days of parts control under MIL-STD-891 (USAF) and MIL-STD-749.

The parts standardization performed for the Air Force under MIL-STD-891 (USAF) required listing parts in a Program Parts Selection List (PPSL), which was divided into a Standard Parts Section and a Limited Application Section. Of the so-called "standard" parts proposed by contractors for listing, many were obsolete, or their quality was inadequate to meet contractual requirements. In these latter cases the parts had been selected from military specifications and had been chosen on the basis of lower costs. Sometime the contractors were exhausting stocks left over from previous contracts. Although such decisions may have been economically justifiable to contractors, the fact is the lower quality equipment increased the life cycle costs, and these costs more than offset the savings.

Another factor that affected identifying standard parts was the variety of meanings for the term "standard" part as used within the DoD. Prior to clarification of the term, it was possible to have parts that were "standard" for design, and parts that were "standard" for production, and parts that were "standard" for supply and maintenance. After the difficulty in achieving a universal definition of "standard" was recognized, MIL-STD-749 and MIL-STD-891 (USAF) left the definition to the governing general military equipment specification or contract. MIL-STD-891 (USAF) complicated the

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definition of "standard" part by stating that any part contractually acceptable for use throughout the entire weapon system was "standard" for that system. Once the part was listed as "standard" in a General Application Section of the PPSL, it could be used without further justification, even though it might be a commercial part. Thus parts control focused on standardizing parts within a particular system and minimizing the variety of parts used within that system.

After more than 10 years of acquiring data on the quality of parts used in design of military systems and after seeing the problems created by the existence of so many parts approval documents, the decision was made to establish a single parts control program and to issue MIL-STD-965 (Ref. 2) with definitions and control procedures for both standard and nonstandard parts. Further, experience with logistic and quality problems on other parts, such as fasteners, mandated expanding parts control to include other parts, not just electrical and electronic parts. MIL-STD-965 issued in 1977, established a voluntary parts control program.

Clarification should be made about the term "other parts" MIL-STD-965 excludes structural members and machined parts that are specifically fabricated for a particular application and are not adaptable to other applications in the judgment of the acquisition activity. For example, a bracket made to mount a headlight assembly on a single type of vehicle is exempt from the parts control program.

MIL-STD-965 resolved the problems associated with the definition of standard parts that resulted in part from MIL-STD-891 by renaming the two sections of the PPSL. Section I is titled "General Application Parts", which allows any part to be listed regardless of whether it is a commercial or military specification part; the title is consistent with the intent of the section. Also the title of Section II, "Limited Application Parts", is consistent with the intent of that section.

Another significant change from previous part approval procedures has taken place in MIL-STD-965. Contractors are encouraged to contact Military Parts Control Advisory Group (MPCAG) parts specialists at the Defense Supply Centers to discuss parts requirements. This procedure has been effective for some time in reducing the number of nonstandard part submittals and in improving the quality of parts selected.

More significantly, design and MPCAG engineers and parts specialists now communicate with one another about the characteristics of parts and about problems that might be encountered with some parts. This communication gives the designer more information pertaining to the quality and reliability of parts to use in making a decision to:

- a. Design around the deficiencies in parts.
- b. Specify requirements for quality in part procurement specification that will assure receiving acceptable parts.
- c. Select other parts.

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Product failure reporting and analysis systems within a single corporation now have several avenues for such communication and support. Professional and industrial societies recommend changes to standards or develop new standards and specifications to keep military documents current. Test and failure information exchange networks, such as the Government Industry Data Exchange Program (GIDEP), keep both Government and industry parts specialists up-to-date on problem parts.

In order to improve the acquisition of spare parts, the Secretary of Defense and the Deputy Secretary of Defense issued memorandums (Refs. 3 and 4, respectively) that contained specific direction to make contractual application of the PCP mandatory.

As directed by Secretary of Defense, the PCP was converted from a voluntary to a mandatory program with the issuance of DoD instruction, dated 27 June 1984 (see Appendix A). The instruction requires the mandatory application of the PCP as an integral part of the acquisition process for support of military systems, subsystems, and equipment. The instruction also requires conformance to MIL-STD-965, which contains the detailed requirements for the PCP.

Table 3-1 provides a chronology of events in the development of the parts control program.

3-2 Service-Peculiar Programs. MIL-STD-965 superseded the following documents:

1. MIL-STD-749, Preparation and Submission of Data for Approval of Nonstandard Parts.
2. MIL-STD-891 (USAF), Contractor Parts Control and Standardization Program.
3. MIL-STD-1631 (NAVY), Procedure for Selection of Electronic and Electrical Parts During Design of Military Items.
4. MIL-STD-1652 (NAVY), Procedure for Prescreening of Nonstandard Mechanical Fasteners and Bearings During Design of Military Items.

The DoD components, especially the Air Force and Navy, which had been performing on a selected basis, in accordance with the requirements of the superseded documents, successfully accomplished the transition to the requirements of MIL-STD-965. Other DoD components, especially the Army, accepted the MIL-STD-965 program to varying degrees; this was primarily due to the voluntary status of the program. Many, if not most, of the Army commands continued to use their peculiar parts control programs, which they believed were equal or superior to the MIL-STD-965 program. However, in response to the mandatory status of the PCP (as directed in DOD Directive 5000.1, all DoD components have converted to the requirements of MIL-STD-965.

3-3 Ineffective Parts Control Approaches. A few parts control approaches have been ineffective. The examples that follow are two such approaches.

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3-3.1 Lack of Government Furnished Baseline Parts Lists. Early instances of contractor submission of proposed PPSLs without the constraints of a contractually invoked Government Furnished Baseline (GFB) parts list resulted in excessively long lists of unscreened parts being delivered to the MPCAG or the parts review activity (PRA). The high volume of screening effort made it difficult to meet contractual evaluation deadline dates. To avoid these peak workloads, the use of GFB parts lists was initiated.

3-3.2 Lack of Parts Control. Parts control efforts have been omitted in some medium-sized acquisitions, e.g., the purchase of 300-400 armored cars. Presumably, the cost of acquiring as-built documentation and of reviewing the proposed repair parts was considered excessive for the small fleet of commercially developed items. As a result, both the initial buy and later buys of repair parts were sole source. The cost burden quickly grew to the point that a Government crew found it necessary to disassemble one of the vehicles, and a belated provisioning and as-built parts list was created to support further repair parts buys.

TABLE 3-I. Chronology of PCP developments.

DATE	EVENT
1967	Use of MIL-STD-891 (USAF), Contractor Parts Control and Standardization Program, and MIL-STD-749, Preparation and Submission of Data for Approval of Non-standard Parts.
1971	OASD (I&L) ordered parts control by DESC for all electronic systems contracts.
Apr 1977	MIL-STD-965 issued to supersede MIL-STD-749, MIL-STD-891 (USAF), MIL-STD-1631 (NAVY), and MIL-STD-1652 (NAVY).
Dec 1978	Notice 1 to MIL-STD-965 issued; contained substantial changes; appendix expanded.
Feb 1981	Notice 2 to MIL-STD-965 issued; minor changes.
Aug 1983	Notice 3 to MIL-STD-965 issued; minor changes.
Aug 1983	Secretary of Defense directs mandatory application of PCP (Ref. 3).
Dec 1984	Deputy Secretary of Defense directs expansion in use of PCP (Ref. 4).
Oct 1985	DoDI 4120.19 issued; PCP mandatory.
Dec 1985	MIL-STD-965 issued.
Feb 1991	DoDI 5000.2 issued; cancelling 4120.19.
Jan 1993	MIL-STD-965B.

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3-3.3 Modernized Parts Control Automated Support System (MPCASS).

MPCASS was developed to provide on-line access for contractors, subcontractors, vendors, and the appropriate Government acquisition offices. This on-line access provides input and query capabilities and includes tutorial viewing.

Information is entered and accessed via a telecommunication link utilizing a telephone modem, the DLANET (nodal site) and the mainframe at each MPCAG center. The MPCASS user will be assigned a nodal site for DLANET entry at the point closest to this location. Note: Data for all parts submissions may be entered at any center to which the user has acquired access. Due to the dial-back security system employed by the DLA net nodal site, the connection cost for MPCASS operations is absorbed by DLA. It is anticipated that future system changes will result in user connect charges.

MPCASS files are controlled for access by authorized users (you cannot look at contract data other than those authorized to your organization) and the DLA nodal site is equipped with dial back authenticator's number to verify proper access.

REFERENCES

1. Donald L. Kear, "Parts Control - A Management Tool for Quality", 32nd Annual Technical Transactions, American Society for Quality Control, Milwaukee, WI, 1978, pp. 167-71.
2. MIL-STD-965, Parts Control Program, 13 December 1985.
3. MEMORANDUM, Spare Parts Acquisition, Secretary of Defense, 29 August 1983.
4. MEMORANDUM, DoD Parts Control Program, Deputy Secretary of Defense, 12 December 1984.

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CHAPTER 4
OBJECTIVES

This chapter discusses five objectives of the Department of Defense (DoD) Parts Control Program (PCP) and gives rationale for these objectives.

4-1 Introduction. "The DoD Parts Control Program has as its objective the achievement of design to cost and life cycle cost savings and cost avoidances.". To achieve this objective, it is necessary to reduce the proliferation of parts by promoting the use of standard parts to assure that military materiel uses reliable parts purchased at an economical price. By reducing the proliferation of parts, operational effectiveness will be improved, resources will be conserved, and costs will be avoided. These objectives, as well as standardizing the procedure for applying parts control among DoD components and contractors, are discussed in this chapter.

4-2 Reduce Proliferation of Parts. The overall reduction in parts enhances substitutability, simplifies logistic support, and in many instances improves system or equipment reliability. Fewer parts translates to savings in procuring, testing, warehousing, transporting parts, and data management, which includes the costly preparation and maintenance of engineering drawings and other required parts information.

4-3 Improve Operational Effectiveness. The increasing complexity of military electronic, mechanical, and energy conversion systems has forced acquisition activities to include specific reliability, maintainability, and interoperability goals in system specifications and test plans. These goals have broadened the scope of design tradeoff decisions to include operational effectiveness rather than be limited to production costs.

This improvement in operational effectiveness should permit reduction in operating and support (O&S) costs of military equipment and systems, which were frequently 10 to 20 times the original acquisition costs. The PCP increases system reliability through its increased use of standard, proven reliable parts. Standard reliable parts and equipment improve maintainability, interoperability, and reduce training through supply system simplification. Interchangeability is also enhanced.

System effectiveness has been described as a function of performance, reliability, and availability. As part of an acquisition strategy insuring an effective blend of optimization incentives, standardization, and life cycle cost analyses, parts control has proven to be an extremely effective program for improving operational effectiveness.

4-3.1 Maintainability*. Maintainability is defined in DoD-HDBK-791 (Ref. 1) as "a measure of the ease and rapidity with which a system or equipment can be restored to operational status following a failure or retained in a specified condition.". Many specialty areas of development effort impact the maintainability characteristic of a specific item. They include design standards for ease of maintenance, environmental aids, safety

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and human factors input, self-correcting characteristics, redundancy, standardization, minimizing downtime, life cycle costing, logistic supportability, test, diagnostic and training aids, mobility and recovery characteristics, and parts control.

4-3.2 Availability. Operational availability, which includes the availability of parts, subsystems, and systems, is increased through a series of events that results when proliferation of parts is reduced. Reduced proliferation means larger buys of fewer part types. These larger buys of fewer part types result in more parts of higher reliability being available to maintenance technicians. This availability of reliable parts means fewer failures. Having reliable repair parts available when there are failures mean increased subsystem availability. Additionally, transportation and handling delays are reduced when there are fewer parts, a fact which in turn also increases availability.

4-3.3 Interoperability. Interoperability requirements are important in joint command operations and in operations with allied forces. Improvements in system interoperability can result if cross-servicing problems and ideas for solutions are fed back to the parts control and system design personnel. The system requirement documentation can then be modified to insure that the problems are overcome.

In the area of parts standardization, fuel delivery nozzles should be compatible with allied fuel filler receptacles; slave cables should fit the slave receptacles on allied vehicles; tractor fifth wheels and electrical and brake connections should be compatible with allied semitrailer king pins and electrical and brake connectors and systems.

4-4 Maintain Sources of Supply. Maintaining sources of supply for repair parts is essential for effective operation of the military supply system. Failure to procure required parts in a timely manner can have extremely adverse effects on the maintenance of systems or equipment. For example, systems or equipment could become inoperative, and in an attempt to make the system or equipment operable, inferior parts could result in possible safety hazards or field failures. Also failure to procure parts competitively results in excessive cost. Past experience shows that sources of supply for large volume buys of parts can always be found, but sources for small volume buys of parts may vanish.

4-5 Cost Avoidance. One way to obtain significant cost avoidance is by application of the PCP as an integral part of the acquisition process for support of systems and equipment. As stated by the Secretary of Defense in his memorandum (Ref. 3) entitled Spare Parts Acquisition, "The PCP fosters standardization, which leads to greater demand for standard parts, reduction in varieties of parts in inventory, resultant increased production runs, and competition through multiple sourcing."

*This subparagraph has been adapted from Ref. 2.

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Cost avoidance stemming from reduced proliferation of nonstandard parts is generated by elimination of the series of events following the acceptance of a new part. Sample avoided costs follow:

- a. Documentation (drawings and specifications).
- b. Testing (functional capability and reliability).
- c. Cataloging.
- d. Obtaining a national stock number and establishing logistic records.
- e. Separate procurement actions.
- f. Separate product assurance handling.
- g. Separate warehouse space in supply depots and in the locations of parts in the field.
- h. Transportation.
- i. Maintenance training.
- j. Maintenance manuals.

Average cost figures for various federal supply classes have proven useful in working out cost-benefit analyses and cost avoidance reports. Methodology for calculating first year and life cycle cost benefits will be discussed in Chapter 8.

As stated previously, by using the PCP, the cost of documentation, testing, logistics, and maintenance of nonstandard parts can be kept to a minimum. Also, since the Military Parts Control Advisory Group (MPCAG) support is funded by the Defense Logistics Agency (DLA), MPCAG support is a free service to the military services and their contractors. This valuable resource can be instrumental in saving millions of dollars annually by showing how existing standard documentation can be reapplied to defense programs.

Examples of cost avoidances that have been adapted from Ref. 2 follows.

4-5.1 Documentation. If nonstandard parts are used in the design of new equipment, the original equipment manufacturers (OEMs) are required to submit all documentation on the parts. Through parts control efforts, design contractors are offered an opportunity to use standard parts lists already documented in federal, military, industrial, or other related specifications and standards. This will save the contractor time and money in preparing new drawings. For example, a representative from the Air Force Systems Command stated that "without the parts control effort, the F-15 program would have required development of over 8,200 contractor detailed part drawings at a cost of about 8 million dollars. Since military specifications were available, this cost was avoided."

4-5.2 Testing. Testing of nonstandard parts is a cost driver that can be minimized through the use of standard parts. The military services often require their contractors to test or have tested those nonstandard parts used in a new design to assure that such parts will meet the performance requirements of the equipment. Part manufacturers have indicated that their investment in testing a new part can range anywhere from \$5000 to \$75,000. For example, the testing of a new integrated circuit device has been

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estimated to cost up to \$100,000. However, items described in military specifications are required to perform satisfactorily under military operating conditions, stress, and environments. Normally, the cost of testing military standard parts is included in the price of the part since manufacturers voluntarily test their parts for Government approval and listing in the Qualified Products List (QPL). Since military specification parts are widely used, the cost of testing is amortized over thousands of standard parts produced and sold by the manufacturer.

4-5.3 Logistics. A new drawing of a nonstandard part brings with it specific parts to be eventually entered and maintained in the logistic system to support military equipment in the field. Proliferation occurs when the same or similar nonstandard parts are described in different contractor or service agency specifications or drawings and the parts are assigned different National Stock Numbers (NSNs). To combat this situation, a centralized effort to control selection of parts for new designs will avoid the cataloging of unnecessary items in the Government supply system and the periodic need for item reduction studies to purge the supply system.

Drawings for nonstandard parts list an average of seven different items per drawing, according to a survey performed by the National Aerospace Standards Committee (NASC) in 1971. This is the result of the tendency for drawings of part types to be tabulated lists of similar parts differing slightly because of lead lengths, plating, antifungal coatings, or mounting dimensions. The entry of only one new item into the DoD inventory through the provisioning process can be a long-term supply investment because the average life of an item in the supply system is over 10 years. According to a Navy study performed in 1978, management of one NSN including bin space for that 10-year period would be \$3080, or \$308 per year, plus the initial cost of the item. When a nonstandard part type is approved, it adds at least three of the seven new supply items to the inventory.

However, when standard parts are used, new documentation is not needed, i.e., potential NSNs are prevented by avoiding nonstandard parts. Therefore, the three supply items from the nonstandard part drawings will not enter the DoD system.

4-5.4 Maintenance. The variety and quantity of different nonstandard electronic part types used in an electronic system can significantly increase field failures and drive life cycle support costs up when failed devices must be located, removed, and replaced. Estimates of the cost of a field maintenance action range from \$225 to \$408 per action. Improved quality through parts control could significantly avoid substantial maintenance costs.

4-6 Standardize Procedures for Parts Control. For many years DoD components have had their own peculiar procedures pertaining to contractual requirements. This practice is unpopular with many DoD contractors because they have contracts with different components, e.g., Army, Navy, or Air Force, and must perform the same requirement to several different procedures. This practice inherently results in preparation of unnecessary documentation, confusion due to procedural differences, and unwarranted

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expenditure of funds. To avoid this practice in the application of the PCP, standard procedures must be established among the DoD components. This can be accomplished by following the guidelines of this handbook when applying the requirements of MIL-STD-965 (Ref. 4) to acquisitions.

REFERENCES

1. DOD-HDBK-791, Maintainability Design Techniques, Metric.
2. Project Managers' Cost Cutter Pamphlet for the DoD Parts Control System, MPCAG, undated. (Prepared by the Defense Electronic Supply Center, Dayton, OH.)
3. MEMORANDUM, Spare Parts Acquisition, Secretary of Defense, 29 August 1983.
4. MIL-STD-965, Parts Control Program.

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CHAPTER 5
GENERAL GUIDANCE

This chapter provides guidance for attaining conformance to the Department of Defense (DoD) Parts Control Program (PCP) requirements of MIL-STD-965. Guidance is provided for both Government and contractor personnel engaged in the PCP.

5-1 Introduction. Acquisition strategies for military items vary. Commercial trucks specially equipped for administrative applications in climatic extremes are an obvious alternative to trucks designed for military operations. Also military land mines, aircraft, and submarines normally cannot be bought "off-the-shelf" except from allied or neutral sources. Time, cost, and, perhaps, political considerations shape the reviews and analyses that precede the selection of a strategy for a specific acquisition. Development, product improvement, adoption of an existing (foreign) item, or an adaptation of a commercial item might be selected to meet a particular requirement. Understanding the requirement details, the operating environment, the anticipated service life, and the rationale for the acquisition strategy set the stage for PCP decisions.

5-2 Determination of Procedure to be Used. MIL-STD-965 (Ref. 1) identifies two procedures for the submission, review, and approval of Program Parts Selection Lists (PPSL) and for changes thereto. Procedure I is applicable to those contracts that do not require a Parts Control Board (PCB), whereas Procedure II is applicable to those contracts for which a PCB is required. The selection of the appropriate procedure is based on the anticipated contractor-subcontractor structure. Procedure I will be applicable to the majority of contracts; however, Procedure II should be considered when there is more than one prime contractor or many subcontractors. See Table 5-I for a guide to assist in determining the appropriate procedure to be used. The final decision on the procedure to be used is the responsibility of the acquisition activity (AA). However, the scope of the project and the number of subcontractors should always be considered before selection.

TABLE 5-I. Procedure selection.

REQUIREMENT	CONTRACT CATEGORY				
	A	B1	B2	C	D
Procedure I, No PCB	P	Y	Y	Y	P
Procedure II, With a PCB	N	Y	N	N	N

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Legend:	Contract Category (See Note 1):
N - No	A - Demonstration and validation
P - Possibly	B - Engineering and manufacturing development
Y - Yes	1 - With subcontractor
	2 - Prime contractor only
	C - Production and development
	D - Other

NOTES

1. See Table 1-I for contract category descriptions.
2. This table is intended only as a guide. The final decision on the procedure to be used is the responsibility of the acquisition activity.

5-3 Establishment of Government Baselines. Government Furnished Baselines (GFB) parts lists, such as the GFB-01 (Ref. 2) from the Defense Electronics Supply Center (DESC) for electrical and electronic parts and the Defense Industrial Supply Center's (DISC) GFB-02 (Ref. 3) for mechanical parts, have evolved over the years. They are updated periodically as parts become obsolete, new technology offers advantages, or Government-Industry Data Exchange Program (GIDEP) reports disclose problems. Also parts may be removed from the GFB parts lists if sources are rapidly diminishing.

The AA may specify that a GFB parts list be used by the contractor in his design of the system or equipment because all the parts listed in a GFB parts list are, by definition, standard parts approved for design selection in the specific acquisition without the documentation or justification required for proposed nonstandard parts. To avoid claims of conflicting or ambiguous contractual requirements, all GFB parts lists contain the disclaimer "The selection and use of this baseline does not relieve the contractor(s) from the responsibility of meeting the requirements of specific system or equipment contracts on which this baseline parts list has been applied."

5-4 Identification of Requirements.

5-4.1 Scope of Work or Statement of Work (SOW). To assure a complete parts control effort, it is essential that MIL-STD-965 be called out in the SOW and that all work required in the performance of the PCP should be fully and clearly defined in the SOW. The SOW will vary to satisfy the different requirements of the four contract categories described in Table 1-I. Some acquisitions will require a PCP Plan, parts documentation, test data, and a GFB parts list; other acquisitions may have any combination of these requirements or none of them. See table 5-II for possible combinations of PCP requirements and table 5-III for an explanation of the various data item descriptions (DIDs) that are available to support requirements described in the SOW. The information in tables 5-II and 5-III is furnished to aid in structuring the SOW to define fully the desired PCP requirements.

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5.4.1.1 Test data. The requirement for test data should be an option that an acquisition activity may use to verify that a part complies with its documentation. The contractor's submittal of evidence for part compliance with its documentation shall be considered an extra-cost, out-of-scope effort. Each acquisition activity request for such data shall be bid by the contractor on a case-by-case basis.

The three SOW samples provided in Appendix B are similar relative to basic PCP requirements, but each one has a few peculiarities. Basic PCP requirements addressed by all three follow:

- a. Establishment of a PCP.
- b. Implementation and limitations of the PCP.
- c. Parts selection and application.
- d. Parts control meetings.
- e. Program Parts Selection List.
- f. Nonstandard parts review and appeal.
- g. Documentation for nonstandard parts.
- h. Test data for nonstandard parts.

Samples 1 and 3 would be applicable to the majority of acquisitions, whereas Sample 2 applies specifically to the full-scale development (FSD) phase.

Peculiarities of the samples are:

- (1) Sample 1 includes coverage for both the parts control and standardization programs. It contains requirements for both Procedures I and II, of which one will be selected for inclusion in the SOW. It also addresses a contractor prepared PPSL, final approval authority, and subcontractor requirements.
- (2) Sample 2 addresses just the PCP, contains requirements for Procedure I, and invokes a GFB parts list. It also covers verification of parts status, deliverable data items, and final approval authority.
- (3) Sample 3 addresses just the PCP, contains requirements for Procedure II, including submission of a PCP Plan, and invokes a GFB parts list. It also covers material and processes, microcircuit documentation, and an overview of general PCP requirements.

5-4.2 Selection of Appropriate Data Item Descriptions (DID) and DD Form 1423. Once the parts control requirements for a program have been determined, the appropriate DIDs will be selected and structured to fit the particular contract, be it the contract for design, for modification, or for production. See tables 5-II and 5-III for guidance in selecting DIDs for specific contract categories. Table 5-II shows the relationship of PCP requirements and contract categories, and table 5-III identifies all DIDs applicable to the PCP and explains their use. Selected DIDs for a specific contract will be listed on the Contract Data Requirement List (CDRL), DD Form 1423. A sample CDRL, depicting how the DIDs are listed in Fig. 5-1.

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TABLE 5-II. PCP requirement selection.

REQUIREMENT	DATA ITEM DESCRIPTION	CONTRACT CATEGORY			
		A	B	C	D
PPSL - Contractor Prepared	DI-MISC-80072	P	Y	Y	P
Part Approval Requests	DI-MISC-80071	P	Y	Y	P
TDP - Contractor Prepared	DI-CMAN-80776	N	P	N	P
TDP - Acquisition Activity Prepared	DI-CMAN-80776	N	N	Y	P
Part Documentation	DI-DRPR-81000 DI-DRPR-81001 DI-DRPR-81002	P	Y	P	P
Test Data	DI-MISC-81058	P	Y	P	P
PCP Plan	DI-MISC-80526	P	Y	P	P
Cost Avoidance Reports	None	P	Y	Y	P
Feedback Reports	None	P	Y	Y	P
Standardization Status Report	DI-GDRQ-80941	P	Y	Y	P

Legend: Contract Category (See Note 1):
 N - No A - Demonstration and validation phases.
 P - Possibly B - Engineering and manufacturing development.
 Y - Yes C - Production and development.
 D - Other.

NOTES:

1. See Table 1-I for contract descriptions.
2. This table is intended only as a guide. The final decision on the procedure to be used is the responsibility of the acquisition activity.

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TABLE 5-III. Data item descriptions (Adapted from Ref. 4).

This table explains each DID that may be used in the PCP for structuring the contract to fit the needs of the equipment or system and when the DIDs are used.

DATA ITEM	TITLE	COMMENTS
DI-MISC-80526	Parts Control Program Plan	Usually used only with Procedure II, but can be requested in all requests for proposals (RFPs).
DI-MISC-80072	Program Parts Selection List	May be tailored to specify input format, e.g., DD Form 2052, DD Form 2053, or magnetic tapes.
DI-MISC-80071	Part Approval Requests	Used on all Parts Control Programs and describes the preparation of the request to use nonstandard parts and to propose addition to an approved PPSL.
DI-MISC-81058	Non-Standard Parts Test Data Report	Should be tailored to reflect realistic requirements and specify sample size. Required only when requested by procuring activity. (see par. 6-8).
DI-DRPR-81000	Product Drawings and Associated Lists	Used only for contracts that require drawings be completed for all approved nonstandard parts in accordance with MIL-STD-100.
DI-DRPR-81001	Conceptual Design Drawings and Associated Lists	
DI-DRPR-81002	Developmental Design Drawings and Associated Lists	
DI-GDRQ-80917	Standardization Program Plan	Used in accordance with MIL-STD-680. Describes the standardization actions to be taken under the terms of the contract.
DI-GDRQ-80941	Standardization Accomplishment Report	Used in accordance with MIL-STD-680. Describes how to summarize the contractor's standardization program accomplishments, problems, and recommendations.

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DIDs for specific contract categories. Table 5-II shows the relationship of PCP requirements and contract categories, and Table 5-III identifies all DIDs applicable to the PCP and explains their use. Selected DIDs for a specific contract will be listed on the Contract Data Requirement List (CDRL), DD Form 1423. A sample CDRL, depicting how the DIDs are listed, is Fig. 5-I.

5-5 Parts Control Program Plan. The PCP Plan is an essential subset of the Standardization Program Plan. It should define the scope and depth of the contractor's efforts including the management approach, organization, and the relationship of the parts program to the contractor's other technical and management programs. DI-MISC-80526, shown in Fig. 5-2, lists the minimal coverage of a PCP Plan. Essentially the plan spells out the management structure, responsibilities, procedures, and controls (including subcontractor efforts) for the prime contractor's PCP. Management objectives, to insure that parts control and standardization objectives are not subverted, should provide PCP visibility as depicted in table 5-IV. The plan is needed early in or prior to an engineering development or major modification contract to assure common understanding of what is to be done and by whom. It is of particular importance in complex efforts that fit into Procedure II. Sample plans are included in Appendices C and D.

The sample plans are generic documents that have developed over the years of operating PCP efforts. Appendix C provides a concise and complete description of a PCP effort managed under a PCB chaired by the acquisition activity. PCP organization and procedures are treated in depth. Fig. C-2 in Appendix C depicts standardization and parts control data flow relationships. Appendix D concentrates on PCB procedures, as its title indicates, because the Parts Control and Standardization Plan is incorporated as a part of the contract. The PCB is chaired by the prime contractor's representative; the minutes of the meeting are signed by the PCB chairman and the acquisition activity representative. The coverage of the "procedures" example includes objectives, PCB responsibilities, and documentation for approved parts. When a plan is required as a deliverable item under a contract, perhaps in the demonstration and validation phase, the SOW in the RFP will so state and the CDRL will reference DI-MISC-80526. Fig. 5-1 shows that the plan is to be available for review 15 days after initiation of the contract and that it is scheduled to be approved at the PCP organizational meeting.

ATCH NR		TO EXHIBIT		CONTRACT DATA REQUIREMENTS LIST					SYSTEM/ITEM	
TO CONTRACTOR/PR				CATEGORY					CONTRACTOR	
1 SEQUENCE NUMBER	2 TITLE OR DESCRIPTION OF DATA 3 SUBTITLE			6 TECHNICAL OFFICE			18 FREQUENCY	12 DATE OF 1ST SUBMISSION	14 DISTRIBUTION AND ADDRESSEES (Address - Regular copies/Items Codes)	
4 AUTHORITY (Data Item Number)		5 CONTRACT REFERENCE		7 DO 478	8 APP CPOOL (A)	9 INPL 10/1	11 AS OF DATE	13 DATE OF SUBSEQUENT SUBMITTAL ID		
1	Parts Control Program Plan						one time	15 DAC	14 AA offices on distribution DESC-EP 1/0 DISC 1/0 15 TOTAL	
4 DI-SDMP-80584		5 SOW paragraph number(s)		7	8	9	11	13		
16 REMARKS The plan will be approved at the organizational meeting convened 30 DAC										
1	Program Parts Selection List						one time	60 DAC	14 AA offices on distribution DESC-EP 1/0 DISC 1/0 15 TOTAL	
4 DI-MISC-80072		5 SOW paragraph number(s)		7	8	9	11	13		
16 REMARKS The Government will respond within sixty (60) days.										
1	Part Approval List						as reqd	as reqd	14 AA offices on distribution DESC-EP 1/0 DISC 1/0 15 TOTAL	
4 DI-MISC-80071		5 SOW paragraph number(s)		7	8	9	11	13		
16 REMARKS The Government will respond within sixty (60) days.										
1	Military Detail Specification and Specification Sheets						as reqd	as reqd	14 AA offices on distribution DESC-EP 1/0 DISC 1/0 15 TOTAL	
4 DI-SDMP-80584		5 SOW paragraph number(s)		7	8	9	11	13		
16 REMARKS Drafts of specifications and specification sheets are <u>required only when specifically requested</u> by the AA. The Government will respond within sixty (60) days.										
17 PREPARED BY				18 DATE		19 APPROVED BY				20 DATE

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FIGURE 5-1. Sample contract data requirements list.

ATCH NR		TO EXHIBIT		CONTRACT DATA REQUIREMENTS LIST						SYSTEM/ITEM	
TO CONTRACTOR/PR				CATEGORY						CONTRACTOR	
1. SEQUENCE NUMBER	2. TITLE OR DESCRIPTION OF DATA 3. SUBTITLE			6. TECHNICAL OFFICE			10. FREQUENCY	12. DATE OF 1ST SUBMISSION	14. DISTRIBUTION AND ADDRESSES <i>(Addresses from 4a control/Agency Control)</i>		
4. AUTHORITY (Data Item Number)	5. CONTRACT REFERENCE			7. DC	8. APP CDG	9. INFLU	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMITTAL ID			
	1. Non-Standard Parts Test Data Report						as reqd	as reqd	14. AA		
DI-MISC-81058	SOW paragraph number(s)								offices on distribution		
16 REMARKS Test data are <u>required only when specifically requested</u> by the AA. The Government will respond within sixty (60) days.									DESC-EP	1/0	
									DISC	1/0	
									GIDEP	11 TOTAL	
	1. Product Drawing, and Associated Lists						as reqd	as reqd	14. AA		
DI-DRPR-81000	SOW paragraph number(s)								offices on distribution		
16 REMARKS Drawings are required only when specifically requested by the AA. The Government will respond within sixty (60) days.									DESC-EP	1/0	
									DISC	1/0	
									11 TOTAL		
	1. Conceptual Design Drawings and Associated Lists						as reqd	as reqd	14. AA		
DI-DRPR-81001	SOW paragraph number(s)								offices on distribution		
16 REMARKS Drawings are required only when specifically requested by the AA. The Government will respond within sixty (60) days.									DESC-EP	1/0	
									DISC	1/0	
									11 TOTAL		
	1. Developmental Design Drawings and Associated Lists						as reqd	as reqd	14. AA		
DI-DRPR-81002	SOW paragraph number(s)								offices on distribution		
16 REMARKS Drawings are required only when specifically requested by the AA. The Government will respond within sixty (60) days.									DESC-EP	1/0	
									DISC-	1/0	
									11 TOTAL		
PREPARED BY				DATE		APPROVED BY				DATE	

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FIGURE 5-1. Sample contract data requirements list - Continued.

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DATA ITEM DESCRIPTION		Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.			
1. TITLE Parts Control Program Plan		2. IDENTIFICATION NUMBER DI-MISC-80526B	
3. DESCRIPTION/PURPOSE 3.1 The Parts Control Program Plan describes the policies and procedures used in a contractor's parts control program.			
4. APPROVAL DATE (YYMMDD) 930111	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR) AF-10	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
7. APPLICATION/INTERRELATIONSHIP 7.1 This Data Item Description contains the format and content preparation instructions for data resulting from the work task described by 5.1 of MIL-STD-1546B or 4.2j of MIL-STD-965B. 7.2 This data item is not applicable when MIL-STD-680 is contractually specified. (Continued on Page 2)			
8. APPROVAL LIMITATION		9a. APPLICABLE FORMS	9b. AMSC NUMBER F6859
10. PREPARATION INSTRUCTIONS 10.1 <u>Reference documents</u> . The applicable issue of the documents cited herein, including their approval date, and dates of any applicable amendments, notices, and revisions shall be as specified in the contract. 10.2 <u>Format</u> . The plan shall be in contractor's format. 10.3 <u>Content (MIL-STD-965B)</u> . The plan shall detail the contractor's parts control program in accordance with MIL-STD-965B as contractually specified. It shall include provisions for optimizing part reliability and standardization through all phases of the system, subsystem or equipment life cycle. It shall also include coverage in the following areas or subjects: a. Management and organization structure for standardization functions. b. Authority and responsibility for standardization policy. c. Responsibilities for policy making and action flow. (Continued on Page 2)			
11. DISTRIBUTION STATEMENT Distribution Statement A. Approved for public release; distribution is unlimited.			

FIGURE 5-2. DID for PCP plan.

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DI-MISC-80526

Block 7, Application/Interrelationship (Continued)

7.3 This data item is used in conjunction with DI-MISC-80071C, DI-MISC-80072B, DI-MISC-80594, and DI-MISC-81058. When MIL-STD-1546B is invoked, this data item is typically used in conjunction with DI-MISC-81277, Parts, Materials, and Processes Selection List.

7.4 When MIL-STD-1546B is invoked, the contractors control plan shall be expanded to include materials and processes.

7.5 This data item supersedes data item DI-MISC-80526A.

Block 10, Preparation Instructions (Continued)

- d. Support and participation in the parts control program.
- e. Procedures for collection of data and preparation of Program Parts Selection List (PPSL).
- f. Provision for test and application data on proposed candidate parts.
- g. Provisions for conducting in-plant surveys of parts manufacturer's production and quality facilities.
- h. Provision for failure information on parts on the PPSL.
- i. Preparation of documentation on proposed nonstandard parts.
- j. Controls on the selection of and use of approved parts.
- k. Procedures for recommending changes to military standardization documentation.
- l. Procedures for changing control drawings where necessary.
- m. Procedures for controlling subcontractors' parts control efforts.

10.3.2 Content (MIL-STD-1546B). The plan shall detail the contractor's parts, materials, and processes control program in accordance with MIL-STD-1546B, as contractually specified.

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TABLE 5-IV. Management objectives realized through reviews and audits
(Adapted from Ref. 3).

STANDARDIZATION MANAGEMENT OBJECTIVES	METHOD OF IMPLEMENTATION	METHOD OF EVALUATION OR VERIFICATION
1. Minimize duplication of effort and unnecessary	PPSL, supporting standard parts lists, and supporting specifications.	Monitored constantly by standardization organization. Essentially self-verifying.
2. Reduce or eliminate costs through the standardization program.	Costs tracked by contractor's accounting system. Significant cost reduction or avoidance will be documented.	Costs available from contractor's cost accounting records. Documented costs savings will be maintained on file. All cost savings will not be documented. However, contractor will be in a position to justify any standardization action if required.
3. Apply a continuous standardization approach throughout all program phases.	Effort implemented at outset of long lead time item design by SOW and CDRL requirements. Standardization program plan will insure standardization effort throughout all program phases. Any internal contractor procedures required will be released when need is identified.	Self-verifying. The level of standardization effort at any stage is readily visible
4. Control standardization assignments.	Each organization having functional responsibilities in standardization operations will be assigned tasks in accordance with Objective 6 of this table. Within each organization, individual assignments will be made by supervisory personnel in keeping with the requirements of the standardization organization.	Performance will be evaluated continuously by the standardization organization personnel and by the supervisory personnel of all participating organizations.

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TABLE 5-IV. Management objectives realized through reviews and audits
 (Adapted from Ref. 3) - Continued.

STANDARDIZATION MANAGEMENT OBJECTIVES	METHOD OF IMPLEMENTATION	METHOD OF EVALUATION OR VERIFICATION
5. Determine effectiveness of standardization program.	Implemented by the standardization organization.	Periodic evaluation of selected key factors. Factors include general application parts usage versus limited application parts, evidence of poor selection criteria as identified by high failure rates or unduly high costs, significant cost savings or avoidance, effectiveness of standardization documents and data used on the program, and other significant parameters.
6. Insure that all contractor departmental elements are aware of standardization requirements and the impact on their operations.	Contractor will release internal operating procedures to implement the requirements of MIL-STD-680 (Ref. 8) is used, MIL-STD-965, and the standardization program plan. All affected contractor departments will be oriented on impact and responsibilities and will sign off on these procedures for their organizations.	Self-verifying. Each organization (design, procurement, manufacturing, etc.) will either have specific functional responsibilities in standardization operations or will be user of the output of the standardization. Any breakdown will be visible.

5-5.1 Preparation. PCP activities and processes can be described accurately in a few generalized SOWs such as Appendices C and D. For any specific development or modification effort, the timing of the PCP activities must be phased into the total project schedule. The bulk of the PCP activities must occur early in any large-scale program to avoid repetitious and costly calculations and test programs. The proven and standard parts must be selected before detailed projections of training, maintenance ratios, reliability, and life cycle costs can be made. Tests of prototypes are of little value unless the parts used are identical or very similar in performance to those planned for the final product. The planning must be done before or at the start of full-scale development so that the organizational approach and the scheduling insures that initial PPSLs are available when needed. Otherwise, parts decisions will be made by the design

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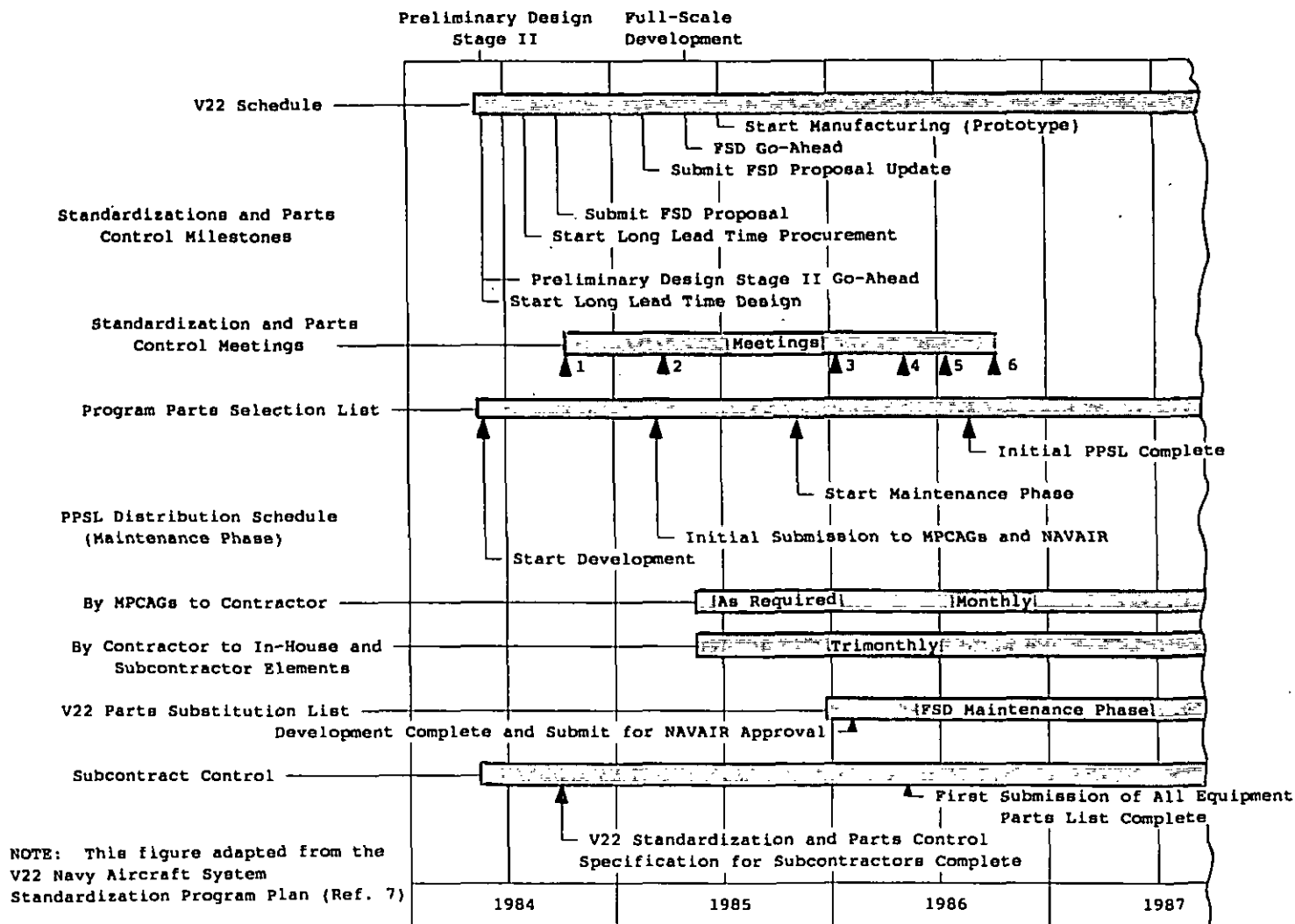
engineers, and PCP efforts will be burdened by having to prove why "acceptable" parts should be replaced. A useful check of project milestone interfaces and preliminary PCP schedules can be achieved by perusing the appendices of MIL-STD-1521 (Ref. 5) to see whether the PCP schedule will support the technical reviews of the total project and audits of designs, hardware, and software. Fig. 5-3 graphically emphasizes the need for a PPSL or GFB parts list early in full-scale development. Fig. 5-4 shows how the PCP effort was merged into the project schedule for the V22 aircraft. The upper horizontal line on the chart shows the basic project milestones running from "Start Long Lead Time (LLT) Design" through "Airframe Fatigue Tests Completed". Everything beneath the V22 schedule is standardization and parts control milestones.

Organizational management authority lines, subcontractor monitoring, failure analysis, part evaluation testing, tradeoff analyses, and gathering of data for reviews, audits, and reports must be covered in the PCP Plan schedule whether or not such a plan is a deliverable item under the contract. A PCP Plan is included as part of a Standardization Program Plan in accord with MIL-STD-680 (Ref. 8). Appendix D provides an example of PCP activities and procedures when the PCP Plan has been integrated into a Standardization Program Plan.

Conceptual	Validation	Engineering and Manufacturing Development		Production and Deployment
		Engineering	Prototype	
MNS	DAB I	DAB IIA	DAB IIB	DAB III
	PCP Plan			
		- PPSL Implementation (Parts Control Board)		- - - Monitoring
Program Design Reviews	PDR	CDR	PRDR	FACI

Note: See List of Abbreviations and Acronyms for definition of acronyms

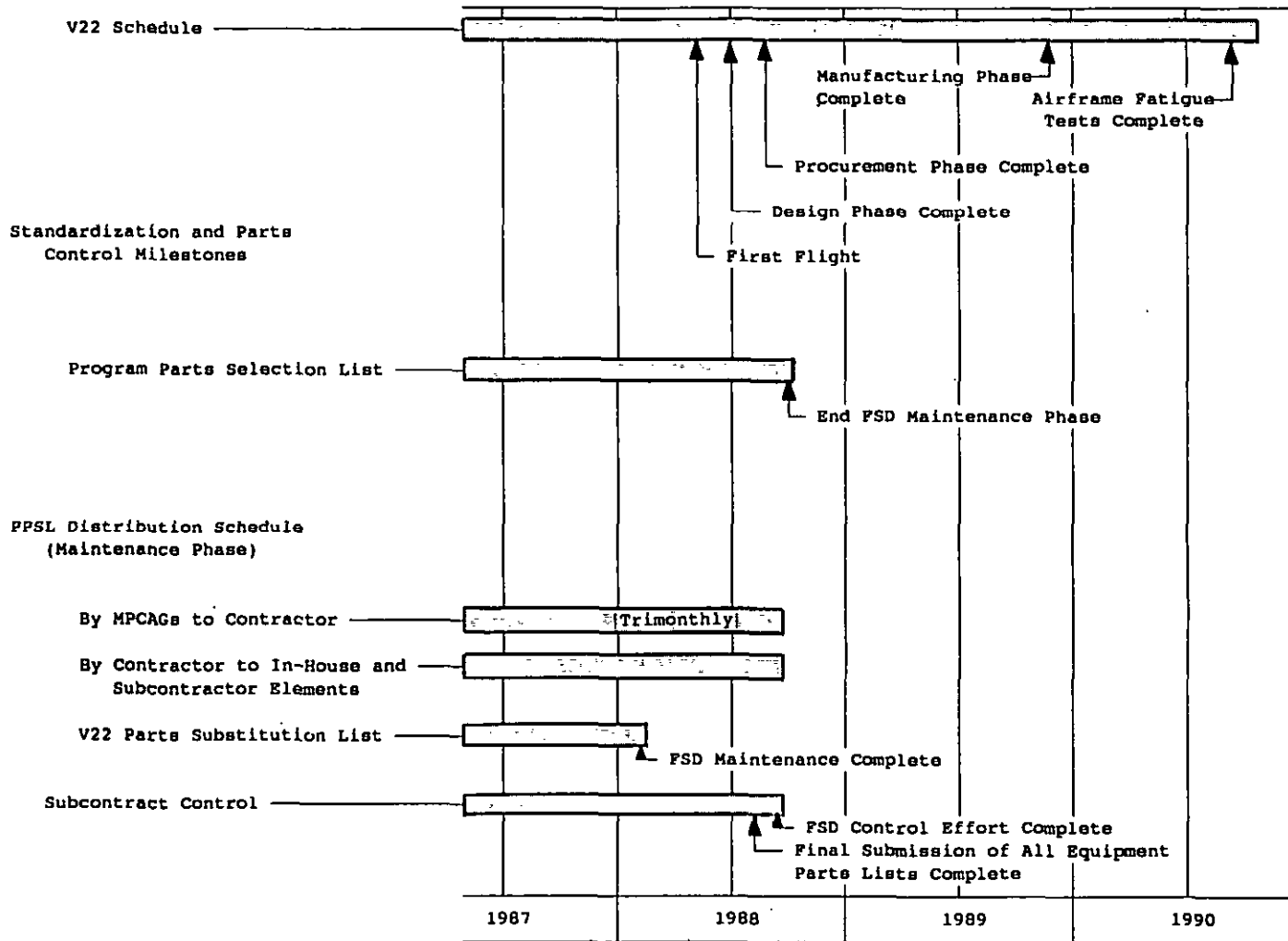
FIGURE 5-3. PCP plan implementation (Adapted from Ref. 6).



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FIGURE 5-4. Standardization and parts control milestones (adapted from ref. 7).



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FIGURE 5-4. Standardization and parts control milestones (adapted from ref. 7) - Continued.

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5-5.2 Submission Procedures. The contractor's PCP Plan or a description of it is essential to source selection and contract administration. In view of the cost of developing a PCP Plan, it is seldom requested as a part of the proposals for development efforts unless the plan(s) is (are) expected to copy earlier efforts and lack schedules or milestones to suit the specific acquisition. If appropriate for the acquisition under consideration, the PCP Plan, separately or as a required part of the Standardization Program Plan (Ref. 8), should be obtained as a deliverable item early in the demonstration and validation phase. As an alternative on nonmajor programs, the RFP can request a description of PCP organization, procedures, and controls for consideration by the source selection authorities. The technical team elements concerned with reliability, standardization, and life cycle cost tradeoff studies should be involved in the evaluation of the contractor proposed PCP approaches during source selection. The evaluation summary report or presentation to the acquisition activity should emphasize PCP organization, objectives, and their broad impact on the acceptability and effectiveness of the resulting system to insure that PCP activities are given proper weight in source selection determinations.

5-6 Military Parts Control Advisory Group (MPCAG). The MPCAGs provide engineering advice and recommendations to equipment designers on selection and use of standard parts. The purpose is to minimize the number and variety of parts used and incorporate these parts in a wider number of military systems. The advice permits the military departments to increase the use of standard parts, which greatly enhances system reliability and reduces maintenance. The use of standard parts in other equipment provides larger production volumes and a broader competitive industrial base.

THE MPCAGs are located at four DLA supply centers: Defense Electronics Supply Center (DESC), Defense Industrial Supply Center (DISC), Defense Construction Supply Center (DCSC), and Defense General Supply Center (DGSC). The four MPCAGs give the system acquisition managers of the military services a total team support in selecting standard parts in all assigned commodity classes shown in tables 5-V and 5-VI.

Additionally, the MPCAGs will provide assistance, when requested, with SOW preparation (including the CDRL), equipment specification, and Source Selection Evaluation Board participation. See par. 5-6.2 for the major functions performed by the MPCAGs.

TABLE 5-V. Commodity classes - mechanical parts (Adapted from Ref. 1).

FSC	PART CATEGORY NAME	RESPONSIBLE MPCAG
3110	Bearings, antifriction, unmounted	DISC
3120	Bearings, plain, unmounted	DISC
3130	Bearings, mounted	DISC
4030	Cable fittings, etc.	DISC
4210	Firefighting equipment (extinguishers), fire hoses, fire nozzles, etc.	DCSC
4710	Pipe and tube	DCSC

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TABLE 5-V. Commodity classes - mechanical parts (Adapted from Ref. 1)
- Continued.

FSC	PART CATEGORY NAME	RESPONSIBLE MPCAG
4720	Hose and tubing	DCSC
4730	Tube fittings, hose clamps	DCSC
4820	Valves, nonpowered	DCSC
5305	Screws	DISC
5306	Bolts	DISC
5307	Studs	DISC
5310	Nuts and washers	DISC
5315	Pins	DISC
5320	Rivets	DISC
5325	Fastening devices	DISC
5330	Seals and packing	DISC
5340	Miscellaneous hardware: bolts (barrel, chain, flush, and strap); brackets; caps, protective; casters; clips; handles; hinges; latches; locks; mount, resilient; padlock; pad, stock mount; rod ends; slide section, drawer; straps; turnbuckles; and wire fabric	DISC
5360	Springs, coil, flat, and wire	DISC
5365	Rings, shims, and spacers	DISC

TABLE 5-VI. Commodity classes - electrical and electronic parts (Adapted from Ref. 1).

FSC	PART CATEGORY NAME	RESPONSIBLE MPCAG
4140	Miniature blowers (for cooling electronic equipment)	DGSC
5355	Knobs and pointers	DGSC
5905	Resistors	DESC
5910	Capacitors	DESC
5915	Filters and networks	DESC
5920	Fuses and lightning arrestors	DESC
5925	Circuit breakers	DESC
5930	Switches	DESC
5935	Connectors, electrical, and associated handtools under FSC 5120, 5130, 5180, and 5220	DESC
5940	Lugs, terminals, and terminal strips	DGSC
5945	Relays, contactors, and solenoids	DESC
5950	Coils and transformers	DESC
5955	Crystals	DESC
5961	Semiconductor devices and associated hardware	DESC
5962	Microelectronic circuit devices (including hybrids)	DESC
5965	Headsets, handsets, microphones, and speakers	DESC
5970	Electrical insulators, insulating materials, insulating varnish	DGSC

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TABLE 5-VI. Commodity classes - electrical and electronic parts (Adapted from Ref. 1) - Continued.

FSC	PART CATEGORY NAME	RESPONSIBLE MPCAG
5975	Electrical hardware and supplies: cable ties and clamps; electronic equipment cabinets; conduit tubing; rigid and flexible metal conduit fittings; conduit outlet boxes; junction boxes, extensions, and covers; stuffing tubes; and wall plates	DGSC
5985	Waveguides and RF switches (antennas are excluded)	DESC
5999	Miscellaneous electrical and electronic components: holder, electrical card and support; mounting pad; printed circuit board; EMI gasketing material; delay lines; extractors; heat sink; retainer-ejector card; and wire mesh	DESC
6010	Fiber optic conductors	DESC
6015	Fiber optic cables	DESC
6020	Fiber optic cable assemblies and harnesses	DESC
6030	Fiber optic devices	DESC
6060	Fiber optic interconnectors	DESC
6070	Fiber optic accessories and supplies	DESC
6080	Fiber optic kits and sets	DESC
6135	Batteries, primary (nonrechargeable)	DGSC
6140	Batteries, secondary (rechargeable)	DGSC
6145	Wire and cable, electrical	DESC
6150	Electrical power cords and grounding straps	DGSC
6210	Lighting devices	DGSC
6240	Electric lamps	DGSC
6350	Horns, bells, buzzers, and sirens	DGSC
6625	Meters, electrical indicating	DESC
6645	Time totalizing meters	DGSC
6680	Mechanical fluid flow and quantity measuring devices	DGSC
6685	Pressure, temperature, humidity measuring, and controlling devices	DGSC
9150	Oils and greases, cutting, lube, hydraulic including synthetics	DGSC
9320	Rubber fabricated materials	DGSC
9330	Plastic fabricated materials	DGSC

5-6.1 Notification of Contract Initiation. To assure that the services that can be provided by the MPCAG are fully used, it is necessary that the MPCAG be involved with the acquisition activity prior to any contract initiation. This will permit a full understanding of the MPCAG services and the establishment of tentative time and, if necessary, budget arrangements to assure maximum MPCAG support after the contract effort begins. Likewise, it is necessary, due to their in-depth knowledge of the PCP, that the appropriate MPCAGs participate in the evaluation of a proposed application of the PCP by a contractor. By using the MPCAG expertise, the acquisition activity will have the assistance it needs to determine that the contractor has a full understanding of the PCP.

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5-6.2 Conduct of Review. The MPCAGs perform many reviews in support of the PCP. One is the review of proposed PPSLs in order to recommend preferred standard parts prior to final design. The MPCAGs' participation in the review of proposed PPSLs and additions to approved PPSLs is described in par. 5-8 and depicted in Figs. 5-9 through 5-13. Following is a list of elements and actions performed in conducting these reviews. Broad policy and procedures followed by the MPCAGs are also listed (Ref. 4):

- a. Establish and maintain a broad engineering data base for assigned parts control commodities (listed in tables 5-V and 5-VI) to assist in making parts control recommendations to contractor design engineers and/or the acquisition activities.
- b. Acquire access to the DLA network and individual DLA center mainframe when MPCASS procedure option is selected. (Hardware and software acquisition is the responsibility of the contractor.)
- c. Use data automation as necessary to assure the rapid flow of parts information between design engineers, parts control personnel, and the DoD logistics system. One such automated system, the Modernized Parts Control Automated Support System (MPCASS), is used by DESC to provide timely response to contractors.
- d. Assure that parts evaluation deadline dates are met by establishing adequate controls and follow-ups.
- e. Assure criteria for evaluating parts are properly and consistently applied by all engineering evaluators.
- f. Provide parts control support as specified in MIL-STD-965.
- g. When authorized by the preparing activity and when parts control support identifies a need, act as agent to prepare new or revised military specifications or standards.
- h. Upon request, attend PCP and other parts oriented meetings when significant problems require discussion and/or resolution by MPCAG representation.
- i. Review, comment, and assist in writing contract Statements of Work as requested by the acquisition activity, and submit these comments to a Defense Logistics Agency (DLA) focal point for the submission of a consolidated and coordinated DLA MPCAG reply to the acquisition activity.

5-7 Parts Control Program Initiation. The following comments are based on the premises that the contract, whether for development, product improvement, or production, requires a PCP, that the contractor's responsibilities have been defined in the contract, that appropriate GFB parts lists have been included in the contract, and that overall contract schedules and plans have been established - at least initially. MIL-STD-965 (Ref. 1) lists the following as contractor's responsibilities:

- a. Request a contract code assignment from DESC within 30 days of contract award. This number is unique to each contract and identifies the contract in the parts control data system.

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- b. Acquire access to the DLA network and individual DLA center mainframes when MPCASS procedure option is selected. Hardware and software acquisition is the responsibility of the contractor.
- c. Notify DESC of their participation in the SMD program when a contract code is assigned.
- d. Coordinate the identification and approval of part candidates proposed for the PPSL.
- e. Ensure compliance with the requirements of this standard to the extent specified or as otherwise invoked by the contract. The standard requirements are subject to tailoring and all requirements may not be applicable under a specific contract or workorder.
- f. Ensure that only those parts approved for listing on the PPSL are used in design and production.
- g. Ensure that the PPSL information is provided to the contractors and each subcontractor's design groups.
- h. Identify to the MPCAG or the acquisition activity those changes required in parts specifications to meet the equipment, system, or subsystem requirements.
- i. When contractually required, prepare part documentation.
- j. When contractually required, prepare a PCP plan.
- k. Identify to the acquisition activity when a part will have severe impact on the existing equipments or systems schedule, safety to personnel, or involve high technical risk.
- l. Implement the MPCAG recommendations unless written disposition is obtained from the acquisition activity.

Although the period of "finalizing" the PPSL coincides primarily with the full-scale development phase, early activities including a postaward parts control organizational meeting and the Preliminary Design Review are critical to the effectiveness of any PCP effort. The PCP organizational meeting, per MIL-STD-965 (Ref. 1), ". . . shall be convened by the contractor within 60 days after contract award to establish working relationships, responsibilities, and procedures for implementation of the parts control program".

The members of the acquisition activity, as well as the prime contractor and the subcontractors, should be supported as required by technical specialists throughout the parts control effort. The new or modified equipment may have to meet performance, weight, cost or transportability targets that prohibit wide usage of some of the dependable, standard parts. The background information file furnished to the contractor, the supporting MPCAG(s), and the AA technical supporting activities must include documents, such as copies of system requirement specifications, hardware configuration item development specifications, hardware configuration item development specifications and reports of preliminary design reviews, so that PCP support can be informed and efficient. Program systems engineering parts, materials and process specialists, quality assurance, reliability, and life cycle cost and standardization specialists must be involved in the preparatory sessions if not at the organizational meeting. MPCAG sessions with program systems engineering and standardization representatives prior to the organizational

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meeting are strongly recommended because these sessions will insure that the Government team members concerned with parts control decisions are properly briefed on procedures and critical issues. Para. 5-10 has additional comments on supporting activities.

Because the PDR is, in many ways, an "organizational" audit of the total program, the agenda for the PDR can be the source of prospective topics for the PCP organizational meeting (Ref. 5). It occurs prior to the start of detailed design to be certain the "statements of the problem and the approach" are complete and reasonable. Topics for consideration during the PDR include:

- (1) Preliminary lists of materials, parts, and processes.
- (2) Identification of single source, sole source, diminishing source parts.
- (3) Plan for handling parts with critical life expectancies - shelf or operational.
- (4) Derating guidelines.
- (5) Standardization considerations:
 - Insure understanding of PCP operations.
 - Review status of PPSL.
 - Review status of all nonstandard parts identified.

Although some of these items cannot be addressed conclusively at a PCP organizational meeting, they can be introduced as PCP actions to be accomplished at the PDR to be certain that attendees recognize the need for preparation for periodic reviews and audits of PCP activities.

The time phasing of PCP events will be determined to a great extent by decisions that are made early in the overall program. Figs. 5-4 and 5-5 provide a glimpse of the multitude of system and cost-effectiveness analyses, tradeoff studies, program risk analyses, and reliability and maintainability analyses that shape the hardware and software configurations. Additional details on the topics covered in the technical reviews and audits depicted in Fig. 5-5 are discussed in Chapter 7 and MIL-STD-1521 (Ref. 5). PCP reviews, either concurrent with program reviews and audits or in advance of them, must be scheduled when the necessary analyses, tests, and estimates are completed and when the basis for decisions on parts selection is reasonably complete.

Fig. 5-5 is a simplified version of some of the events in a total system research and development effort. It does not cover the total effort; it is limited to the three program activities listed in the left-hand column: Test, Technical Reviews and Audits, and Specifications and Other (documentation deliverables) Products. This figure is included because it shows the relative timing of the series of reviews and audits in a development effort in conjunction with hardware and software testing and documentation. PCP activities must fit into and support the total contract schedule; an example of a partial schedule is depicted in Fig. 5-5.

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PROGRAM ACTIVITY	TEST	TECHNICAL REVIEW & AUDITS	SPECIFICATION & OTHER PRODUCTS & PARTS CONTROL	NOTE: ACTUAL TIME PHASING OF ACTIVITIES MUST BE TAILORED TO EACH PROGRAM
CONCEPT & EXPLORATION PHASE	PREPARE TEST & EVALUATION MASTER PLAN	SYSTEM REQUIREMENTS REVIEW	DRAFT, SYSTEM REQUIREMENT, SPECIFICATION	↑ SYSTEM FUNCTIONAL IDENTIFICATION ↓ SYSTEM FUNCTIONAL BASELINE
DEMONSTRATION & VALIDATION PHASE		SYSTEMS, DESIGN, REVIEW	SYSTEM REQUIREMENT SPECIFICATION HWCI DEVELOPMENT SPECIFICATION PARTS CONTROL SOW	
ENGINEERING AND MANUFACTURING DEVELOPMENT PHASE		SOFTWARE SPECIFICATION REVIEW	PCP MEETING INITIAL PPSL SUBMISSION IRS, SOFTWARE REQUIREMENTS SPECIFICATION	↑ ALLOCATED IDENTIFICATION ↓ ALLOCATED BASELINE
	PREPARE HWCI TEST PLANE	PRELIMINARY DESIGN REVIEW HWCI	PPSL, DISTRIBUTION INITIATED	←
	PREPARE SOFTWARE TEST PLANE	PRELIMINARY DESIGN REVIEW CSCI	SOFTWARE TOP LEVEL DESIGN DOCUMENT	←
	PREPARE HWCI TEST PROCEDURE	CRITICAL DESIGN REVIEW HWCI	DRAFT HWCI PRODUCTION SPECIFICATION	←
	PREPARE SOFTWARE TEST DESCRIPTION	CRITICAL DESIGN REVIEW CSCI	DBDD, IDD, SOFTWARE DETAILED DESIGN DOCUMENTS	←

Note: See List of Abbreviations and Acronyms for definition of acronyms.

FIGURE 5-5. Engineering and test flow (Adapted form Ref. 5).

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PROGRAM ACTIVITY	TEST	TECHNICAL REVIEW & AUDITS	SPECIFICATION & OTHER PRODUCTS & PARTS CONTROL	NOTE: ACTUAL TIME PHASING OF ACTIVITIES MUST BE TAILORED TO EACH PROGRAM
	PERFORM HWCI SUBSYSTEM TEST PREPARE SOFTWARE TEST PROCEDURE	TEST READINESS REVIEW	SOURCE AND OBJECT CODE FIRST GENERATION PPSL COMPLETED SOFTWARE LISTING	
	PERFORM SOFTWARE TEST PREPARE SOFTWARE TEST REPORTS	FUNCTIONAL CONFIGURATION AUDIT HWCI PHYSICAL CONFIGURATION AUDIT HWCI FORMAL QUALIFICATION REVIEW HWCI FUNCTIONAL CONFIGURATION AUDIT CSCI PHYSICAL CONFIGURATION AUDIT CSCI	HWCI PRODUCT SPECIFICATION SOFTWARE PRODUCT SPECIFICATION	DEVELOPMENTAL CONFIGURATION (CSCI ONLY) PRODUCT IDENTIFICATION
	PERFORM SYSTEM TESTS PREPARE SYSTEM TEST REPORTS	SYSTEM FUNCTIONAL CONFIGURATION AUDIT SYSTEM PHYSICAL CONFIGURATION AUDIT SYSTEM FORMAL QUALIFICATION REVIEW	PPSL VERIFIED	BASE LINE

FIGURE 5-5. Engineering and test flow (Adapted from Ref. 5) - Continued.

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5-8 Program Parts Selection List. The PPSL is a list of all parts (both standard and nonstandard) approved for design selection on a specific program or contract. Excluded from the PPSL are unmodified, off-the-shelf, and Government furnished equipment (GFE) as well as those parts that are categorized as peculiar parts, such as structural members. Non-standard parts proposed to be included in a PPSL must be supported by drawings, specifications, vendor data sheets, and other pertinent data to allow evaluation of the part.

The PPSL is used to obtain maximum standardization during design by minimizing the number and variety of different types, grades, or classifications of parts to be used in an acquisition. The PPSL is fluid and can be adjusted frequently during the various design stages as problems are resolved and as advances in technology dictate. A PPSL should be used when both standard and nonstandard parts are to be controlled in the parts selection process.

The PPSL represents the agreement between the prime contractor and the acquisition activity concerning the parts considered acceptable for use on the program and the baseline to be used by equipment designers.

There are three options for the format and maintenance of the PPSL. These are:

- a. Government format and Government maintained from contractor inputs.
- b. Government format and contractor maintained.
- c. Contractor format and contractor maintained.

The criteria that will be used in selecting the appropriate option to satisfy acquisition requirements are discussed in para. 6-6.

5-8.1 Preparation. A proposed PPSL will be prepared in accordance with the requirements of DI-MISC-80072 (Fig. 5-6) and MIL-STD-965. The DI-MISC-80072 describes the content and format requirements for a list of all parts approved for design selection in a specific contract. Instructions pertaining to both the proposed PPSL and the approved PPSL are also included in the DID. To determine candidates for the PPSL, the contractor shall select standard parts, and the number of different part types should be held to a minimum. The GFB parts list will be used to develop the PPSL. When standard parts are not available, nonstandard parts will be selected from documents in accordance with the order of precedence prescribed in MIL-STD-970 (Ref. 9).

The contractor may informally request information from the MPCAGs pertaining to the identification of parts. An example of the selection process is shown in Fig. 5-7. Approval of parts shall be in accordance with contract requirements. The formats for the PPSL are shown in Fig. 5-8. Basically, these formats provide that the PPSL be divided into two sections -

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General Application Parts and Limited Application Parts. Each section is subdivided into two subsections: Mechanical Parts, and Electrical and Electronic Parts. Tailoring the PPSL content and format requirements to satisfy specific acquisitions is presented in par. 6-6.

5-8.2 Part and Document Submission Procedures.

5-8.2.1 MPCASS Application. MPCASS provides for the electronic submission and evaluation turn-around by the MPCAGs. Contractor should use MPCASS electronic submission as the preferred method of input and response for operation of parts control programs under the Parts Control Program.

5-8.2.2 Proposed PPSL. The prime contractor will submit copies of the proposed PPSL to the AA and the applicable MPCAG for review and approval in accordance with Fig. 5-9. The time period for approval of the PPSL by the MPCAG will be in accordance with the terms of the contract. The AA will render a decision only in the event of a nonapproval by the MPCAG and an appeal by the prime contractor. Magnetic tape or floppy disc in the acceptable MPCASS format may be submitted to the MPCAGs or to all CDRL addresses when approved by the acquisition activity. The contractually assigned GFB shall be identified and used in the initial development of the PPSL and for all subsequent selection of parts for the design.

5-8.2.3 Additions to the PPSL. All parts proposed for addition to the PPSL require acquisition activity approval with the exception of parts selected from the GFB and where MPCAG recommendations are considered by contract to be the Government direction. For parts in Federal Supply Classes (FSC) which require MPCAG review (see Tables 5-V and 5-VI), the parts approval request may be submitted via MPCASS, telephonic (see 5-8.2.3) or written (see 5-8.2.4). The MPCAGs will list the identified GFB selections on the applicable PPSL. When contractually required, part approval requests for other FSC parts (not listed in Tables 5-V and 5-VI) must be submitted in accordance with 5-8.2.3 or 5-8.2.4 and Fig. 5-12 to the acquisition activity or its designated representative. The time period for approval of proposed additions to the PPSL must be in accordance with the terms of the contract, or purchase order. However, for part types not listed in tables 5-IV and 5-V, all requests must be in writing. All written requests will be prepared in accordance with DID, Part Approval Request.

5-8.2.4 Telephonic submissions. The prime contractor must furnish the same part information as required above. The use of the telephonic request must be limited to the minimum extent practicable and not be used for more than ten parts with each submittal. Reasons should be limited or prevention of schedule impairment, parts requirements for production line repairs, or substitutes for parts unavailable by deadlines. MPCAG reviewers will accept data by telephone unless otherwise negotiated with the acquisition activity, contractor, and MPCAG. The MPCAG will confirm the evaluation by placing recommendations on file for query by the prime contractor while allowing for concurrence or override of the MPCAG evaluation by the acquisition activity. Using MPCASS becomes the preferred method of submission. Also, the MPCAGs will confirm these recommendations to the prime contractor and the acquisition form, see Fig. 5-10.

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5-8.2.5 Written requests. The prime contractor must furnish the information in accordance with the data item description requirement specified in the Contract Data Requirements List (CDRL). Procedure I written requests will be processed in accordance with Figs. 5-11 and 5-12. Procedure II written requests will be processed in accordance with Fig. 5-13. Written approval requests for nonstandard parts must include drawings, specifications, vendor data sheets, and/or other pertinent data to allow an evaluation of the parts.

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DATA ITEM DESCRIPTION		Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.			
1. TITLE Program Parts Selection List (PPSL)		2. IDENTIFICATION NUMBER DI-MISC-80072B	
3. DESCRIPTION / PURPOSE 3.1 This Data Item Description (DID) describes the content and format requirements for a list of all parts approved for design selection in a specific contract.			
4. APPROVAL DATE (YYMMDD) 930111	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR) AF-10	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
7. APPLICATION / INTERRELATIONSHIP 7.1 This DID contains the format and content preparation instructions for data resulting from the work task described by 4.3 of MIL-STD-885B. 7.2 This data item is used in conjunction with DI-MISC-80071C (Part Approval Requests). 7.3 This DID supersedes DI-MISC-80072A.			
8. APPROVAL LIMITATION		9a. APPLICABLE FORMS DD Form 2053	9b. AMSC NUMBER F6858
10. PREPARATION INSTRUCTIONS 10.1 <u>Reference documents.</u> The applicable issue of the documents cited herein, including their approval dates, and dates of any applicable amendments, notices, and revisions shall be as specified in the contract. 10.2 <u>Layout.</u> 10.2.1 <u>Layout of the Proposed PPSL.</u> A proposed PPSL as generated by the work task of 4.3.1 of MIL-STD-885 shall comply with the format of DD Form 2053, Program Parts Selection List Worksheet. Instructions for completing the DD Form 2053 are provided in 10.6 (for automation see 10.9). When a Government Furnished Baseline (GFB) is specified as part of the contract, then the GFB is used to develop the PPSL, and this paragraph does not apply. 10.2.2 <u>Layout of the PPSL.</u> The PPSL shall comply with figure 1 of MIL-STD-885. The list shall be divided into two sections: Section I, general application parts; and Section II, Limited application parts. Each section shall be divided into two subsections: Subsection A, Mechanical Parts; and Subsection B, Electrical and Electronic parts. Within each subsection the parts shall be listed within their Federal Stock Class. <p style="text-align: right;">(Continued of Page 2)</p>			
11. DISTRIBUTION STATEMENT Distribution Statement A. Approved for public release; distribution is unlimited.			

FIGURE 5-6. DID for PPSL.

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Block 10, Preparation Instructions (Continued)

10.3 Contents.

10.3.1 Contents of Proposed PPSL. The proposed PPSL shall include the information required by DD Form 2053. Nonstandard parts included in the proposed PPSL shall be supplemented by existing drawings, specifications, vendor data sheets and other pertinent data to allow an evaluation of the part. Data need not be furnished for nonstandard parts covered by documents listed in the Department of Defense Index of Specifications and Standard (DoDISS). If a Government Furnished Baseline Parts List (GFB) is specified as part of the contract, then the GFB shall be used to develop the PPSL. A marked-up copy of part selection of a listing of GFB parts shall be identified and provided for listing on the PPSL. A preferred method of identifying GFB parts is via the Modernized Parts Control Automated Support System (MPCASS) process (see MIL-STD-965, 4.1.1 and Appendix B.)

10.3.2 Contents of PPSL. The list shall include the following.

- a. Index number (see 10.6, Card Column 12-18 below).
- b. Description. Includes part name (in accordance with Federal Cataloging Handbook, H6) and name modifiers. Related description data such as characteristics, sizes, part type, generic type, or style, hardness assurance capability, and special material requirements may be included in the description.
- c. Acquisition document number (federal specification, military specification, industry specification, contractor specification or drawing).
- d. Part number (include actual part manufacturers part number in addition to a control drawing part number).
- e. Commercial and Government Entity Code (CAGE) in accordance with Federal Handbook H4 for each part number and procurement document. (Use 81349 for military specification, 96906 for military standards, 81348 for federal specifications, 06542 for federal standards, 14933 for DESC drawings, 67268 for Standardized Military Drawings, 80205 for National Aerospace Standard, and 81352 for Air Force-Navy Aeronautical (AN standards) documents.
- f. Remarks: Includes pertinent comments on the parts listed, (i.e., cross-reference between section I and section II, as applicable; qualification (QPL) status of parts; restrictions placed on the usage of parts, including special screening requirements, limited application or other special provision applied by the acquiring activity or prime contractor; part documentation status, long lead time, technical risks and other remarks as appropriate).

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FIGURE 5-6. DID for PPSL - Continued.

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Block 10, Preparation Instructions (Continued)

10.4 Additions to the PPSL. Parts approved by the work task of 5.1.2 or 5.2.4 of MIL-STD-965 or 5.3.3 of MIL-STD-1546 and all parts selected from the GFB (if applicable) shall be added to the PPSL.

10.5 Withdrawal of approval. Withdrawal of approval to use a part shall be indicated by inserting "WITHDRAWN" in place of the part description. The reason for withdrawal shall be shown in the remarks column.

10.6 Format of part approval requests for parts listed in the DoD Index of Specifications and Standards (DoDISS). Part approval requests for DoDISS parts shall comply with the format of DD Form 2053. Reproduction of the DD Form 2053 is authorized. The form may be handwritten or typed. Preparation instructions are as follows:

Item A. Prime contract number.

Item B. Equipment/System/Subsystem name.

Item C. Contractor's name.

Item D. Name of the contractor's representative.

Item E. Date of selection.

Item F. Area code and phone number of the contractor's representative listed in Item D.

Card Column 1 - 5. 5 digit contract code. Defense Electronic Supply Center (DESC) will provide a five-digit contract number (see MIL-STD-965B, 4.2.a). Primary mode for obtaining a contract code assignment is via MPCASS (see 10.8).

Card Column 7 - 10. FSC for the part with a dash in both Card Columns 6 and 11.

Card Column 12 - 18. Discrete index number for each part not to exceed seven characters. The index number for each PPSL part includes:

- i. Two alpha prefixes that are intended to be used to identify the prime and subcontractor submitting the parts approval request. If only one alpha prefix is used, then it must appear in Card Column 12 preceded by a blank in Card Column 12.
- ii. A maximum of 4 digits unique to each PPSL part. Left zeros must be filled.

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FIGURE 5-6. DID for PPSL - Continued.

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Block 10, Preparation Instructions (Continued)

- iii. An alpha suffix to identify revisions to a specific part listing index number or later transactions. Leave blank for initial part submissions.

Card Column 19 - 31. Noun code for the part. A list of noun codes is available from the Military Parts Control Advisory Group (MPCAG).

Card Column 32. Alpha code for the type of evaluation requested. A "P" for a part evaluation only, a "D" for procurement document evaluation only and or a "B" for both evaluations.

Card Column 33 - 37. Estimated quantity of parts required for use in each equipment item. Left fill zeros.

Card Column 38 - 69. Part procurement document number. Leave blank when not applicable.

Card Column 70 - 74. Commercial and Government Entity Code (CAGE) associated with the part procurement documents number (Card Column 38 - 69).

Card Column 75 - 79. Leave Blank.

Card Column 80. "1" for line 1.

Line 2, Card Column 1 - 32. Part drawing or specification number, when line 1, Card Column 38 - 69, is left blank, enter the actual manufacturer/vendor's part number.

Line 2, Card Column 33 - 37. CAGE for the procurement document part number or vendor/manufacturer who's part is listed on Line 2, Card Column 1 - 32.

Line 2, Card Column 38 - 69. Vendor/manufacturer's actual part number. If the actual part number is included in line 2, Card Column 1 - 32, enter the vendor/manufacturer's part number for the additional source of the part.

Line 2, Card Column 70 - 74. CAGE for the manufacturer who's part is listed on Line 2, Card Column 38 - 69.

Line 2, Card Column 75 - 79. Leave Blank.

Line 2, Card Column 80. "2" for line 2.

Line 3, Card Column 1 - 79. Alternate or supplemental description information as necessary.

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FIGURE 5-6. DID for PPSL - Continued.

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Block 10, Preparation Instructions (Continued)

Line 3, Card Column 80. "3" for line 3.

10.7 Revisions to the PPSL. The PPSL shall be revised by page amendment, or by reissuance at the option of the contractor with acquisition activity approval at appropriate intervals.

10.8 MPCASS operations. The preferred method of parts control operations in MIL-STD-965 is MPCASS. The contractor is encouraged to acquire MPCASS access as defined in MIL-STD-965, Appendix B, and to provide for operation under the MPCASS System.

10.9 Procedures for automation. As an option, the PPSL may be automated. A description of the magnetic tape characteristics are:

- a. Tape : 9 track
- b. Density: 1500 BPI
- c. Character configuration: EBCDIC (extended binary coded decimal identification code).
- d. Parity: Odd
- e. Labels: Standard label
- f. Trailers: Standard
- g. Record length: 80 bytes (fixed length)
- h. Blocking factor: Fixed block (1600 bytes per block)
- i. Access method: Sequential
- j. Sequence: Document Identifier Code (i.e., Z3A) and segment code.

The detail format and structure for MPCASS magnetic tape structure is available from DESC-EPE, (513) 296-8047.

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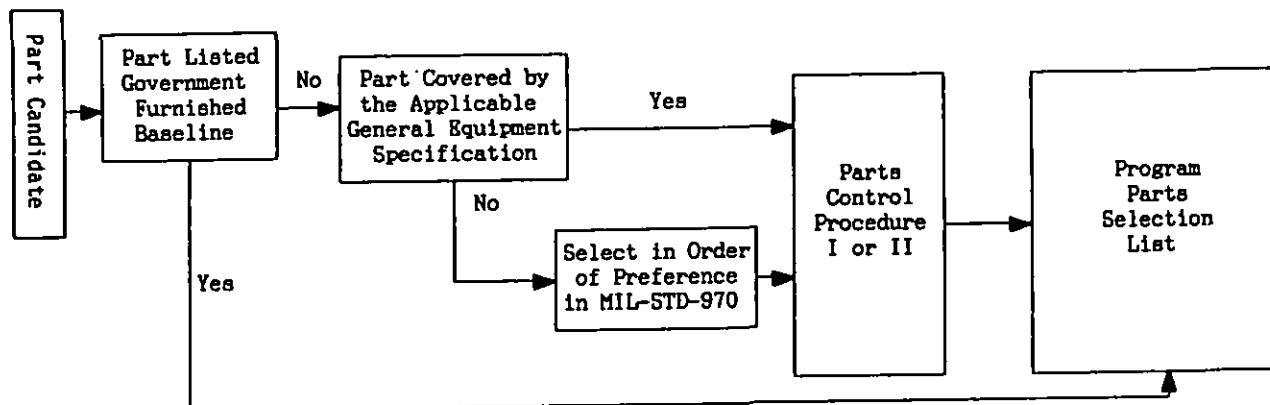


FIGURE 5-7. Example for selection of parts for program parts selection list (PPSL) (Adapted From Ref. 1).

5-8.3 Processing, Approval, and Appeals.

5-8.3.1 Processing and Approval. Additions to the approved PPSL will be submitted for review and approval in accordance with the flow diagrams depicted on Figs. 5-10 through 5-13. The MPCAGs will perform their review and recommendation within the established time frame. The AA will render a decision only in the event of a MPCAG disapproval with an appeal by the prime contractor. Copies of the required actions will be distributed as shown on the flow diagrams. To assure proper management control of the PCP, the approved PPSL must address the total system and be maintained as such. See Fig. 5-3 for an example of the PPSL application and maintenance (monitoring) time frame during a specific acquisition. In the example shown, a Category B acquisition, the PPSL is applicable at the beginning of the full-scale development phase of the acquisition process and should be maintained current throughout that phase. The PPSL should be maintained for guidance during the follow-on production phase in the event of design modifications. To preclude excessive processing time for review and approval of proposed PPSLs, GFB parts lists should be used to the maximum extent. Refer to para. 5-3 for information pertaining to GFB parts lists.

5-8.3.2 Appeals. Appeals of decisions regarding proposed additions to the PPSL for a particular program are to be generated by a prime contractor. In each instance the acquisition activity is responsible for deciding upon the appeal unless, as might be the case in joint acquisition instances wherein the system is to meet needs of two or more DoD components, referral of recommendations to higher levels is required. If a contractor has an appeal concerning a MPCAG recommendation, the contractor should resubmit the part approval request along with justification directly to the appropriate MPCAG. If the contractor is not satisfied with the second response, an appeal should be sent to the AA, which shall consult with the MPCAG or parts review activity (PRA) prior to rendering a decision on the contested recommendation and shall notify the contractor (with copy to MPCAG or PRA) of

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the decision within the period allotted in the contract for appeals. If the decision is against the contractor, further action may be pursued under the disputes article of the contract.

The time limit for an appeal - from receipt of written waiver request to delivery of response to the contractor - should be at least as long as that for the original request for addition to the PPSL. Forty-five (45) days are recommended to allow time for meetings and telephone or video conferences in order to be certain of the facts. The processing of waivers should be identical to the processing of the original requests shown in Figs. 5-11, 5-12, and 5-13.

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SECTION I - GENERAL APPLICATION PARTS SUBSECTION A - MECHANICAL							
CONTRACT NO. F12345-84-C-1234						FSC ABCD	
(Verbal description of items covered in this section)							
<u>Index no.</u>	<u>Description</u>	<u>Document no.</u>	<u>CAGE</u>	<u>Part number</u>	<u>CAGE</u>	<u>Remarks</u>	<u>Use code</u>
	<u>1/</u>						
A0001B	Adptr, al al, .250 fem pipe thd to .250 male fld	2A156	99999	2A156-4-4 62742-12	99999 12346		
0002	Adptr, tube to hose, lp nose, part of AN6270 1/2 tube size	MIL-A-38726	96906	MS27404-8D	96906	Critical part, long lead time	
SECTION I - GENERAL APPLICATION PARTS SUBSECTION B - ELECTRICAL AND ELECTRONIC							
CONTRACT NO: F12345-84-C-1234						FSC 5910	
CAPACITORS, TANTALUM							
<u>Index no.</u>	<u>Description</u>	<u>Document no.</u>	<u>CAGE</u>	<u>Part number</u>	<u>CAGE</u>	<u>Remarks</u>	<u>Use code</u>
0006	Cap, ta, sld, 22 - 330 uF, 6-100 V dc, CSR-13	MIL-C-39003/1	81349	M39003/01-***	81349	Failure rate level S, QPL available, critical part, reverse voltage	
0007A	Cap, ta, sld, 0.47 - 18 uF, 6-75 V dc, CSR-09	MIL-C-39003/2	81349	M39003/02-***	81349	Failure rate level S, QPL available	
A0010	Cap, ta, foil, 4 - 500 uF 15 - 150 V dc	92A643	99999	92A643-1-2 130J46-3 439X-72J20	99999 12345 23456	Critical part, high cost and long lead time	

1/ Alpha prefix may be used to denote subcontractor, subsystem, board, etc. Alpha suffix should be used to denote resubmissions for reconsideration, document changes, etc.

FIGURE 5-8. PPSL format (Ref. 1).

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SECTION II - GENERAL APPLICATION PARTS							
SUBSECTION A - MECHANICAL							
CONTRACT NO. F12345-84-C-1234						FSC 1234	
(Description of items covered in this section: Example-Bearing, Ball End)							
<u>Index no.</u>	<u>Description</u>	<u>Document no.</u>	<u>CAGE</u>	<u>Part number</u>	<u>CAGE</u>	<u>Remarks</u>	<u>Use code</u>
A0101	Bearing, Ball End, Prcn, Self-Align, .250 Bore	XYZM140	98765	XYZM140-I	98765	Use restricted to XYZ Co. only	
B0102	Bearing, Ball End, Prcn, .50 Bore	XYZM240	98765	XYZM240-1	98765	This application only	
B0103	Bearing, Ball End, Prcn, .575 Bore	XYZM240	98765	XYZM240-2	98765	Restricted to this application only; see same index no. in section 1 for standard part	
SECTION II - LIMITED APPLICATION PARTS							
SUBSECTION B - ELECTRICAL AND ELECTRONIC							
CONTRACT NO: F12345-84-C-1234						FSC 5910	
CAPACITORS, FIXED PLASTIC							
<u>Index no.</u>	<u>Description</u>	<u>Document no.</u>	<u>CAGE</u>	<u>Part number</u>	<u>CAGE</u>	<u>Remarks</u>	<u>Use code</u>
0101	Cap, fixed, plastic	717057	05869	717057-1 MM1D4PJ2 R54F104J2	05869 54795 12517	Limited to ground applications only	
							FSC 5962
MICROCIRCUITS, AMPLIFIERS							
B0209	MCKT, DP AMP			LM111	1204D	This contract only; for production use M3851D/1D304BXX	^{1/}

^{1/} The design of the equipment system shall encompass the parameters of the approved part listed in Section 1.

FIGURE 5-8. PPSL format (Ref. 1) - Continued.

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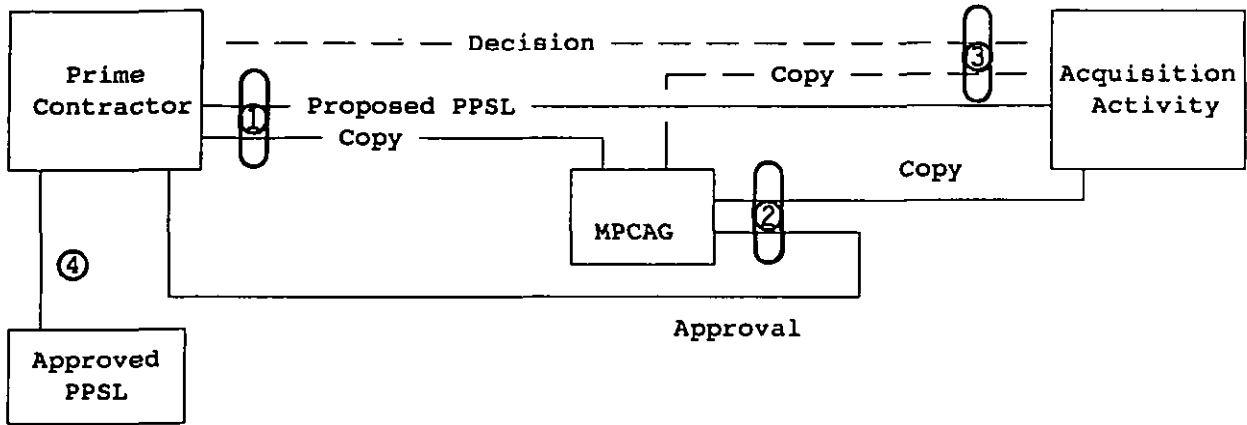


FIGURE 5-9. Method for obtaining of approval proposed program parts selection list (PPSL) (Adapted from Ref. 1).

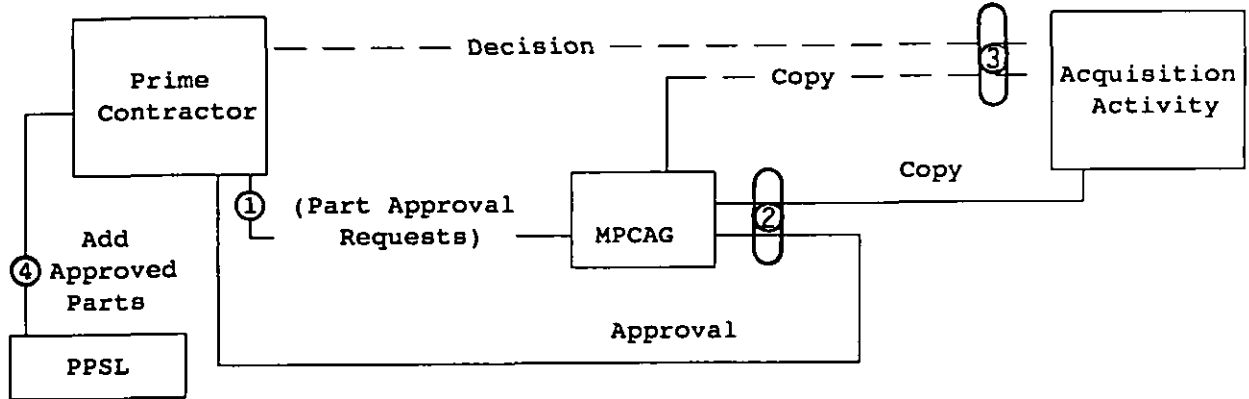


FIGURE 5-10. Method for processing telephonic requests for additions to PPSL (MPCAG FSCs) (Adapted from Ref. 1).

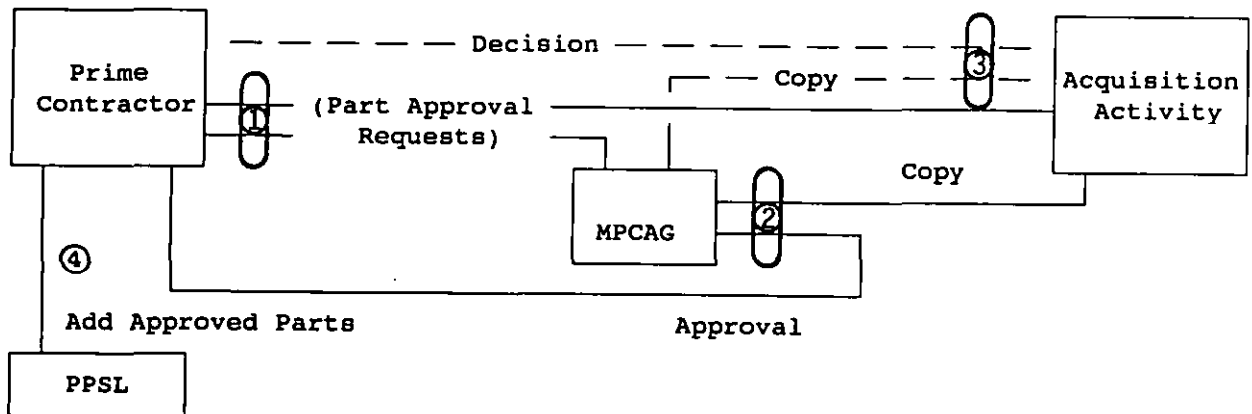


FIGURE 5-11. Method for processing written requests for additions to PPSL (MPCAG FSCs) (Adapted from Ref. 1).

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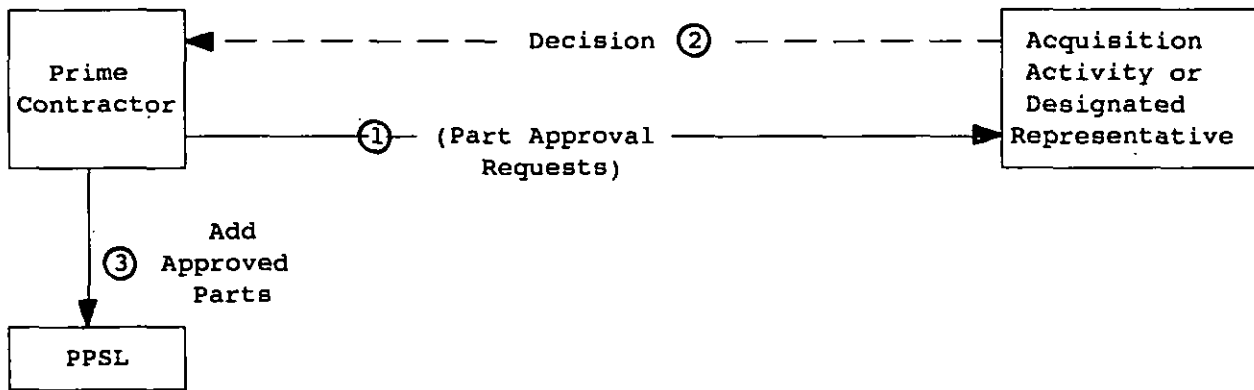


FIGURE 5-12. Method for processing part additions to PPSL (Non-MPCAG FSCs) (Ref. 1).

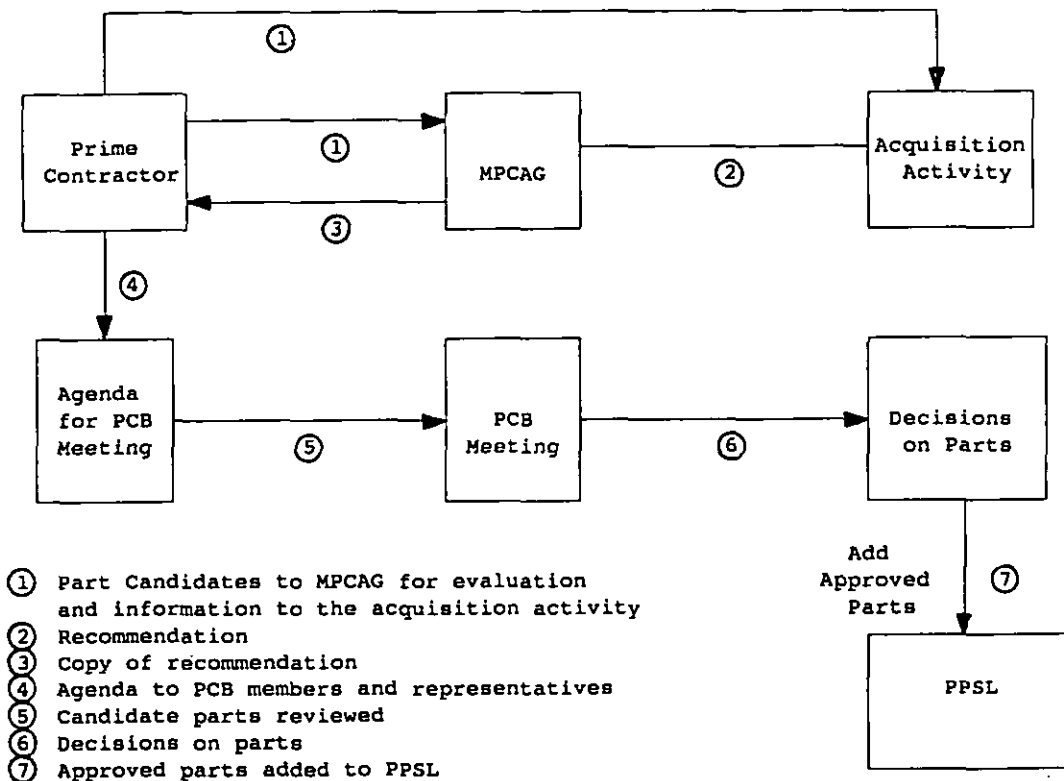


FIGURE 5-13. Method for processing part additions to PPSL (Parts Control Boards) (Adapted from Ref. 1).

5-9 Parts Control Board (PCB). When Procedure II of MIL-STD-965 is invoked, a formal Parts Control Board is established. The purpose of the PCB is to establish and exercise procedures and controls to insure an efficient parts control operation during the design and documentation of the contracted equipment, system, or subsystem. The PCB is normally chaired by the prime

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contractor with representation from the acquisition activity, its designated representatives, and the MPCAGs. The acquisition activity reserves the right to approve the PCB composition.

- Each member shall be supported in the following technical disciplines as required:

- a. Program product effectiveness, e.g., quality assurance, reliability, and standardization.
- b. Parts application and technology.
- c. Materials and processes technology.
- d. Program systems engineering.
- e. Life cycle cost technology.

- PCB responsibilities are:

- a. Insure efficient parts control operation.
- b. Insure maximum use of standard parts.
- c. Minimize the number of different types and styles of parts used in the equipment or system.
- d. Evaluate and recommend approval or disapproval of parts proposed for listing on the PPSL.
- e. Specify requirements for part candidates.
- f. Insure timely implementation of parts decisions.

- The prime contractor shall:

- a. Provide PCB chairman.
- b. Prepare PCB meeting agenda, distribute meeting notices and agenda at least 14 calendar days prior to the PCB meeting. The agenda shall include a list (including justification) of part candidates for the PPSL that has been reviewed by MPCAG and the acquisition activity but requires further consideration. Fig. 5-13 depicts the process for adding parts to the PPSL.
- c. Provide PCB secretariat, and prepare and distribute minutes of the meeting.
- d. Identify common families for parts, compare product assurance requirements, and coordinate the applicable information.
- e. Insure that the subcontractor's PCB member supports the PCB as follows:
 - (1) Prepare justification for need of a nonstandard part candidate, and make it available to the PCB.
 - (2) Accomplish required supplier surveys, and make part test data available when required.
 - (3) Identify critical process or limit on the use of the part that will affect the quality or reliability of the equipment or system.
 - (4) When contractually required, prepare parts documentation on approved parts. Selected document preparation tasks may be assigned by the PCB chairman.
 - (5) Obtain access to MPCASS system by contacting DESC.

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The PCB approach, when required, should be used throughout the full-scale development phase to provide continuity in records of parts control decisions. The acquisition activity will make the decision between Procedures I and II based on its past experiences and its preferences regarding allocation of resources for managing and documenting the PCP deliberations. Although it would appear to be helpful to establish a firm decision algorithm, none is as yet available. See Appendix D for an example of PCB procedures.

5-10 Supporting Activities. To assure the overall success of the PCP, it is necessary for certain in-house activities within the DoD components to provide their support. Following are the major support activities:

- a. Engineering. Review for adequacy and completeness of part documentation and for proper selection of material, processes, and finishes.
- b. Product Assurance. Assure appropriate test data and proper inspection and testing of parts of quality and reliability.
- c. Maintenance. Determine conformance to maintainability standards.
- d. Standardization. Assure the overall implementation of and conformance to the PCP requirements.
- e. Integrated Logistics. Perform reviews to assure compliance with applicable logistic practices and standards.
- f. Life Cycle Cost. Review tradeoff studies for decision analysis criteria to assure that operating and support costs are properly considered.

References

1. MIL-STD-965, Parts Control Program.
2. GFB-01, Government Furnished Baseline, Electrical/Electronic Parts, Defense Electronics Supply Center, Dayton, OH.
3. GFB-02, Government Furnished Baseline, Mechanical Parts, Defense Industrial Supply Center, Philadelphia, PA.
4. Project Manager's Cost Cutter Pamphlet for the DoD Parts Control System, undated. (Prepared by the Defense Electronics Supply Center, Dayton, OH.)
5. MIL-STD-1521, Technical Reviews and Audits for Systems, Equipments, and Computer Software.
6. Student Guide, Electrical/Electronics Parts Program, NAVSEA Product Assurance Div., Fleet Analysis Center, Corona, CA.
7. V-22 Engineering Data, Standardization Program Plan, NAVAIR, Joint Project Office, Fort Worth, TX.
8. MIL-STD-680, Contractor Standardization Program Requirements.
9. MIL-STD-970, Standards and Specification Order of Preference for the Selection of.
10. MIL-HDBK-338, Volume II of II, Electronic Reliability Design Handbook.
11. DI-SDMP-80584, Military Specification Sheet.
12. DI-MISC-80071, Parts Approval Requests.

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13. DI-MISC-80072, Program Parts Selection Lists.
14. DI-MISC-80526, Part Control Program Plan.
15. DI-CMAN-80776, Technical Data Package.
16. DI-DRPR-81000, Product Drawings and Associated Lists.
17. DI-DRPR-81001, Conceptual Design Drawings and Associated Lists.
18. DI-DRPR-81002, Development Design Drawings and Associated Lists.
19. DI-MISC-81058, Non-Standard Parts Test Data Report.

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CHAPTER 6
TAILORING OR STREAMLINING

This chapter provides guidance for the tailoring or streamlining of the Department of Defense (DoD) Parts Control Program (PCP) requirements to suit specific phases of the acquisition process and different types of acquisitions.

6-1 Introduction. When applying a PCP, MIL-STD-965 (Ref. 1) should not be contractually invoked without the consideration of tailoring or streamlining its requirements. Tailoring or streamlining should be considered because MIL-STD-965 addresses the "big picture" of parts control and contains requirements that may not be applicable to all acquisitions. Conversely, some acquisitions may dictate special PCP requirements. Such requirements would be included in the tailoring process. In performing the tailoring or streamlining process, philosophies expressed in the formal definitions of "tailoring" and "streamlining" (see Chapter 2) should be fully applied.

6-2 General Statement of Guidance. Without tailoring or streamlining efforts, unnecessary and costly PCP requirements could unknowingly be contractually invoked. The guidance for tailoring or streamlining is provided primarily for program managers, design engineers, procurement specialists, and personnel involved in standardization and logistics. The guidance is general in nature and addresses PCP requirements pertaining to the parts control procedure, the program parts selection list (PPSL), parts documentation, test data, the PCP Plan, and the timing of PCP events. Requirements pertaining to these PCP elements should be carefully analyzed, selected, and tailored or streamlined as described in the paragraphs that follow. See Appendix B for guidelines for tailoring the Statement of Work (SOW).

6-3 Application to Contracts. Contract categories to which application of the PCP should be considered are identified in Table 1-1. Criteria for applying the PCP to the different categories is also included in the table. Category A - demonstration and validation phase - normally would not have a PCP. However, there may be instances in which parts control could be applied on a very limited basis. Category B - Engineering and manufacturing development - should always have the PCP applied, tailored or streamlined, to suit the specific acquisition. Category C - production and development - should always have the PCP applied, tailored or streamlined, in the event of engineering change and or design modification. Category D - any acquisition other than Category A, B, or C - will have the PCP applied, tailored or streamlined, on a selected and as needed basis. An application matrix, summarizing tailoring or streamlining considerations, is shown as Table 6-1.

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6-4 Standard Parts. To satisfy the mission-essential needs of a specific acquisition, it may be desirable to tailor or streamline the selection of standard parts from the Government Furnished Baseline (GFB) parts list. This can be accomplished by limiting the selection of standard parts to specific types, grades, or classes. Such limitation of parts should be specified in the SOW.

6-5 Parts Control Procedure. Selection of the most effective procedure will be made in accordance with the guidance provided in para. 5-2 and Table 5-1. When Procedure I is selected, the requirements of MIL-STD-965, will apply; when Procedure II is selected, para. 5.2 will apply. Certain requirements stated in MIL-STD-965 may be tailored or streamlined to suit the mission-essential needs of a specific acquisition. See the application matrix. Table 6-I, for tailoring or streamlining considerations applicable to Procedure I or II requirements.

TABLE 6-I. Application matrix (Adapted from Ref. 1).

REQUIREMENT	HANDBOOK PARAGRAPH	COMMENTS
Application to contracts	6-3	Tailor requirements to appropriate category of contract.
Standard parts	6-4	Specify on all contracts using the parts control program.
Parts control procedure	6-5	Select Procedure I or II.
Program Parts Selection List (PPSL)	6-6	Tailor preparation requirements.
Nonstandard part approval requests and additions to PPSL	6-6	Always specify DI-MISC-80071.
Format for PPSL	6-6	See DI-MISC-80072 and Fig. 5-8.
Parts documentation	6-7	Define kind of documentation and options; check other design requirements for documentation. See DI-SDMP-80584, DI-DRPR-81000, DI-DRPR-81001, and DI-DRPR-81002.
Test data	6-8	Reflect realistic requirements, and specify sample sizes. See DI-MISC-81058.
Parts Control Program Plan	6-9	Use with Procedure II. See DI-MISC-80526 (not applicable if MIL-STD-680 (Ref. 2) applied).

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TABLE 6-1. Application matrix (Adapted from Ref. 1) - Continued.

REQUIREMENT	HANDBOOK PARAGRAPH	COMMENTS
Timing of events	6-10	Tailor submission schedules and acquisition activity approval cycle to appropriate needs of the contract. Include in the Contract Data Requirements List.
Parts Control Board	6-11	Tailor responsibility for Parts Control Board and chairperson when Procedure II is used.

6-6 Program Parts Selection List. The intent of a PPSL is to obtain maximum standardization during design by tailoring and minimizing the variety of different types, grades, or classification of parts to be applied in an acquisition. Accordingly, other than format, PPSL tailoring will be a maximum standardization effort. A PPSL should be used when both standard and nonstandard parts are to be controlled in the part selection process.

- Tailoring the PPSL and part approval requirements for a specific contract should be based on the following factors:

- a. Required restrictions in the use of certain parts or part types.
- b. Limitations in design imposed by part usage restriction.
- c. Reliability requirements.

Factor a should be considered when conforming to the PCP objective of improving operational effectiveness (para. 4-3). Factor 4-5b should be considered when conforming to the PCP objective of cost avoidance. Factor 4-5c should be considered when special reliability needs of a weapon system are invoked.

See Appendix B for examples of PPSL tailoring that provide specific instructions in the SOW on the use of the GFB parts list and part approval requests. The final decisions on the degree of tailoring are the responsibility of the acquisition activity.

- Para. 5-8 identifies the available options concerning who will maintain the PPSL. Selection of the appropriate option should be based on the following factors:

- a. In-house capabilities of the acquisition activity (AA).
- b. In-house capabilities of the contractor.
- c. Military Parts Control Advisory Group (MPCAG) assistance.
- d. Cost-effectiveness.

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When considering these factors in selecting who will maintain the PPSL, the major criteria are the anticipated workload and the overall effectiveness of the PCP. Using the four factors and the stated criteria, the AA will determine and specify in the SOW the designated activity to prepare the PPSL.

6-6.1 Format. Data Item Description (DID) DI-MISC-80072 describes the content and format requirements for a PPSL. Content and format requirements that can be tailored are:

1. Method of preparation (typed or handwritten).
2. Reproduction of DD Form 2053.
3. Supplemental data for nonstandard parts.
4. Revision method and intervals.
5. Automation.

DID DI-MISC-80072 either permits an option (Items 1 & 2) or discusses the requirement in general terms (Items 3 through 5). Therefore, to assure the most cost-effective and desired format for a specific acquisition, tailoring of these requirements should be considered. The format selection and the desired tailoring will be specified in the SOW. The preferred format for a PPSL is illustrated on Fig. 5-8.

6-6.2 Additions to PPSL. DID DI-MISC-80071 describes the requirements for the preparation and submission of part approval requests for parts being selected for use in a specific acquisition. Para. 5-8.2 provides general guidance for submitting additions to an approved PPSL. Tailoring assistance and questions relating to MIL-STD-965 and MPCASS will be provided by the MPCAG's upon request. Examples of part approval request requirements that can be tailored are:

- a. Reproduction of DD Forms 2052 and 2053.
- b. Method of preparation (typed or handwritten).
- c. Supplemental data for certain nonstandard parts.
- d. Degree of extent to which telephone requests will be permitted.
- e. Processing time.
- f. MPCASS as the preferred method of operation.

Tailored requirements for submitting additions to a PPSL will be specified in the SOW.

6-7 Parts Documentation. The requirements for parts documentation by other disciplines, such as reliability, configuration control, and logistic support, are usually merged during the Data Item Review Board's preparation of the Form 1423, Contract Data Requirements List (CDRL). The CDRL for development, product improvement, and modification of commercial items, should cite DI-SDMP-80584. Military Detail Specifications and Specification Sheets, DID-DI-DRPR-81000, DI-DRPR-81001 and DI-DRPR-81002, Drawings, Engineering and Associated Lists.

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Decisions on data acceptability go beyond reviewing to assure that configuration or performance characteristics of nonstandard parts proposed for use are identified. The MPCAGs make an in-depth review of parts drawings to determine whether they are adequate for Government procurement of the same or equivalent part and meet contractual obligations such as the requirements of MIL-STD-100 (Ref. 3). Vendor data can be incomplete with respect to part performance in the military environment and can be changed at any time. Vendor documentation frequently refers to company standards (for materials, processes, and inspection or test limits) that require access to or acquisition of a reference file to permit translation. Company standards should be submitted to the MPCAG for comparison with and possible substitution of existing military documentation.

When DI-DRPR-81000, DI-DRPR-81001 and DI-DRPR-81002 is specified in a PCP, the tailoring amounts to selection of level (1, 2, or 3) of drawing and, perhaps, the exclusion of one or more types of drawings defined in MIL-STD-100 (Ref. 3). Such exclusions are usually arranged to conform to normal documentation approaches within the industrial segment involved. Adequacy of the documentation for competitive procurement must be assured wherever practical. Documentation tailoring should be approached with a view toward cost avoidance. The sample SOWs in Appendix B discuss documentation for nonstandard parts. PCP documents, when accepted by the parts control manager, are accepted only as part of the PCP record and not as the drawing set deliverables required by the acquisition contract.

MIL-STD-100 identifies a special drawing for micro-circuits. The Standardized Military Drawing (SMD) Program is a coordinated effort of the Defense Electronics Supply Center (DESC), weapons systems contractors, system program offices, and device manufacturers. The purpose of the program is to provide for the preparation of an SMD for a part to be used in a system.

6-8 Test Data. The test data doesn't provide evidence that a proposed nonstandard part complies with the requirements of the applicable procurement document. Category A acquisitions for demonstration and validation would normally limit data requirements (in DI-MISC-80526) to existing test data as far as the PCP is concerned. For Categories B, C, or D, initiation of tests should not be required until existing test data are reviewed. Quantities of sample parts for such tests will depend upon the need to gather reliability data. Certainly, critical parts warrant test data on more than three sample parts to provide statistically valid information. The format for new test data is set forth in MIL-STD-831 (Ref. 4).

6-9 Parts Control Program Plan. Requirements for a Parts Control Program Plan are set forth in DI-MISC-80526, which lists the minimum coverage for a contractor's PCP Plan. When MIL-STD-680 is invoked in a contract, the PCP Plan is included in the Standardization Program Plan. Therefore, DI-MISC-80526 is not called out in the CDRL. PCP Plans are usually associated with Procedure II (of MIL-STD-965) for which, due to program complexity, Parts Control Boards are necessary for insuring close communication with subcontractors. Opportunities for tailoring the PCP Plan occur primarily in the separation of those actions and processes that are to

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be tracked and periodically evaluated by Government personnel from actions for which the contractor keeps records and interrogation is conducted by Government personnel on an exception basis. Impinging or overlapping interests in the data requirements area have an impact on the PCP Plan.

Before proceeding into specific examples of data requirements, it may be helpful to consider briefly the attitude of some design engineers. Design records traditionally have been kept in the form of preliminary drawings. The alternative approaches or options were studied by the design team but not recorded for follow-on evaluation by other project team members concerned about producibility or life cycle costs (LCCs). Without systematic recording of the reasoning behind such decisions, it is very nearly impossible to extract the reasons behind design choices at a later date.

For instance, if design decision tradeoff studies are to be supported by LCC projections, both the studies and the projections should be documented and kept available for review by cost and component or parts control specialists. Whether these data are considered records of cost minimization or of parts requirement is inconsequential. Similarly, reliability growth plans and periodic evaluations or reliability projections directly involve parts control determinations of acceptable quality levels for PPSL parts approval. It would be advisable to record parts requirement decision cases that resulted in sole source documentation in preparation for Production Readiness Reviews. Lists of inquiry topics in MIL-STD-1521 (Ref. 5) appendices can serve as checklists for determination of the contents and deliverables of a PCP effort, whether or not they are collected in a formal PCP Plan.

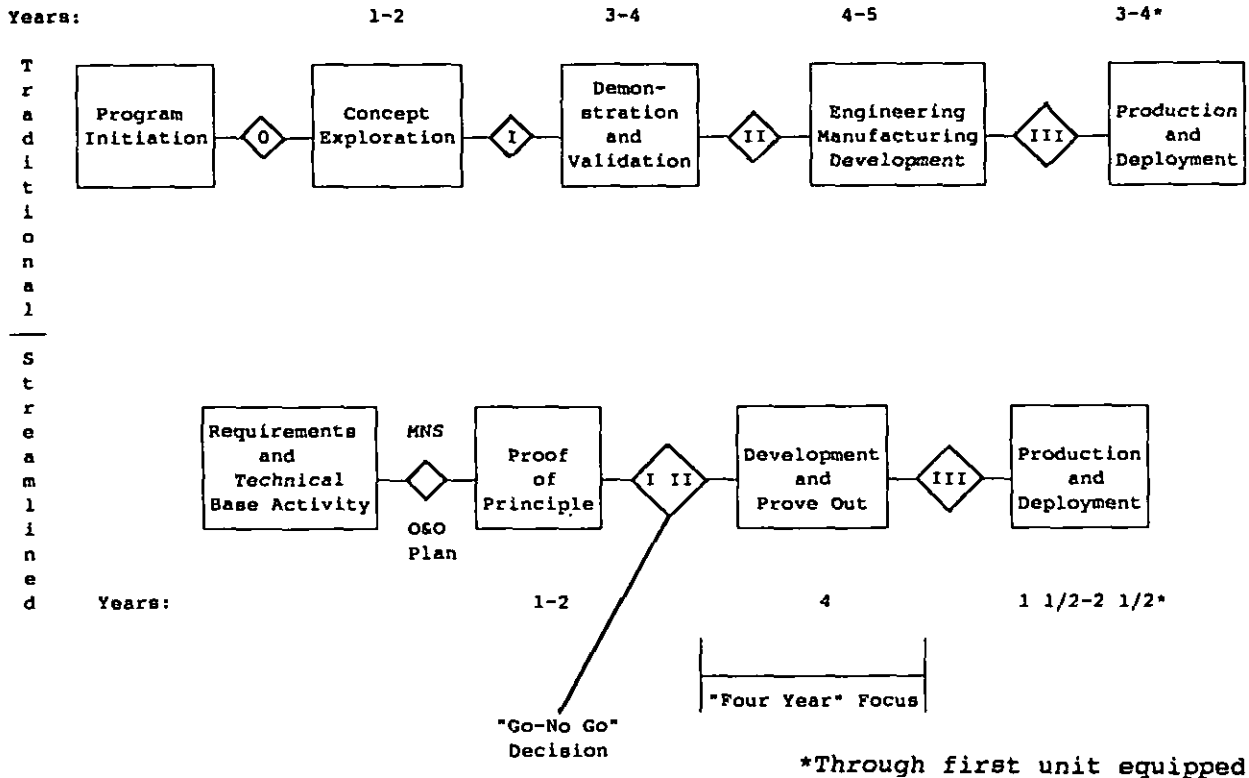
The PCP Plan, Appendix C, is quite compact and is considered to be an example of a well-constructed and tailored program. The plan is complete, yet it is brief enough to be read easily. The brevity may introduce questions in some instances. For example, no mention is made in para. 20.4 of Appendix C of any record file of the design engineers' "consideration of minimum end-item cost", etc., or the details of the "diligent effort to minimize part differences with regard to size, kind, or type". Para. 20.7 of Appendix C explains the contractors' expectations regarding provision of "any necessary test and application data on proposed candidate parts".

See Appendix B for additional guidance for tailoring PCP Plan requirements; it provides several examples of SOWs.

6-10 Timing of Events. The overall timing of PCP events must be fitted into the total program plan as has been discussed in paras. 5-5 and 5-7. Fig. 6-1 is a milestone chart that depicts a compressed development program with full rate production occurring at approximately the start of the third year after approval for development and prove out (Milestone I/II).

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Parts control must be applied when prototypes for engineering testing and operational testing are to be produced. Otherwise, costly and time-consuming tests will have to be repeated. The mandatory application complies with DoD regulations and improves the probability of meeting LCC targets and reliability and availability requirements. Working backward from prototype delivery dates through production and procurement lead time allowances provides a working target for the approval of the initial PPSL. Based on this type of basic program framework, time allowances for PPSL preparation, review, approval, and subsequent PCP reviews and audits can be established.



Note: This figure was extracted from AR 70-1 (Ref. 6).
Acronyms are defined in the List of Abbreviations and Acronyms.

FIGURE 6-1. Sample development program (Ref. 6).

6-10.1 Submittal of Proposed PPSL. Tailoring of the schedule for PPSL submittal is seldom advantageous. A "proposed" PPSL submittal usually means a small list of parts submitted to the MPCAG(s) to initiate a PPSL for a system. This initial submission is normally required by the SOW to be delivered within 60-90 days after contract award. Government response within 60 days usually allows sufficient time for review of the proposed parts by the MPCAG or the AA. The contract and CDRL should clearly state a target date for the "completion" in time to allow software and hardware prototypes suited to the approval PPSL to be delivered in time for tests of the system. Obviously, revisions to the PPSL must be processed throughout the contract to pick up changes.

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6-10.2 Revision or Amendment of PPSL. The time period for periodic updating of a PPSL by either a contractor or a MPCAG is, in large part, dependent on the production capabilities for hard copy and, possibly, magnetic tape. Normally updating every two months is recommended during prototype design and every three or four months during prototype and low-rate initial production. However, large programs may require more frequent updating.

To enhance understanding of the relative levels of PCP activities during a particular acquisition (developmental), Fig. 6-2 has been provided. It shows an initial period of selection of equipment and major components. The highest work load peak is early in the design phase, and the second peak is evidence of design changes resulting from developmental and initial production tests and follow-on user evaluations.

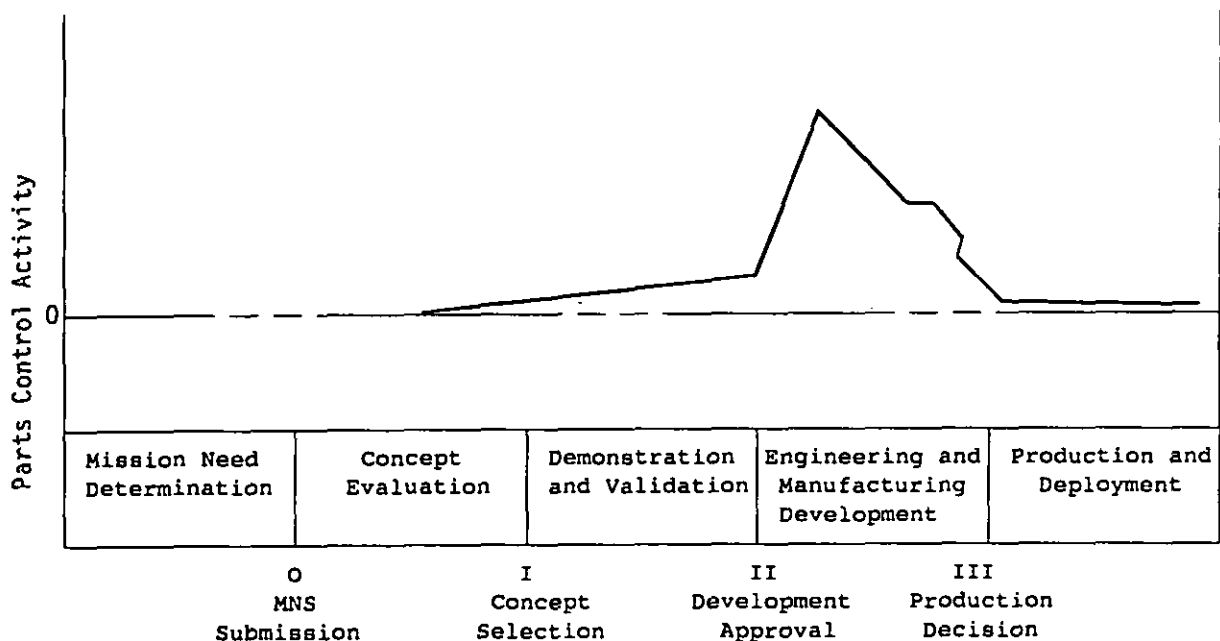


FIGURE 6-2. Acquisition process phases (conventional).

Parts control advocates must assure that the series of reviews or audits for a particular program insure that the tradeoff studies before preliminary design, the parts control reports prior to detailed design, and the Physical Configuration Audits on production prototypes insure adherence to the PPSL for the program.

6-10.3 Acquisition Review Cycle. Identifying a reasonable time period for a formal response from an AA to a proposed PPSL, a request for nonstandard part approval, evaluations of new documents, or part test data is best left to the program or project manager (PM).

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6-10.4 Technical Reviews and Audits. MIL-STD-1521, *Technical Reviews and Audits for Systems, Equipments, and Computer Software*, (Ref. 5) provides a comprehensive list of audits for use in program planning and management. Definitions of 10 reviews treated in depth in separate appendices in the standard have been extracted and provided in Appendix E. The military standard for reviews and audits must also be tailored to fit both the specific program or project and the acquisition strategy. For the purposes of this handbook, we can restrict our discussion of tailoring of audit requirements to those of importance to PCP efforts. The System Design Review (SDR) evaluations of the use of commercially available and standard parts, and of standardization and value engineering studies are of obvious interest.

SDRs are done before proceeding with the preliminary design of hardware and the detailed analysis of computer software. Similarly, the Preliminary Design Review (PDR), whether done at one time or in a series of events, is completed prior to the start of detailed design. Included in the items to be reviewed during a PDR are:

- a. Preliminary lists of materials, parts, and processes.
- b. Standardization considerations.
- c. Reliability design guidelines.
- d. Equipment and parts standardization.

The Critical Design Review (CDR) includes a review of equipment and parts standardization that provides a status report on PCP operations. The Physical Configuration Audit (PCA) includes a sampling review of part numbers contained in the drawings to verify adherence to the PPSL and an examination of the hardware configuration item (HWCI) to insure that those parts are actually installed.

6-11 Parts Control Board (PCB). Opportunities for tailoring the detailed responsibilities of the PCB and those of its chairman are quite limited because of the extent to which the responsibilities are listed in MIL-STD-965. The need for a PCB is usually accompanied or preceded by a PCP Plan. The review and approval of the PCP Plan would normally specify the few tailoring options available. Tailoring options include:

- a. PCB chairman from contractor or acquisition activity.
- b. Number of days after contract award for approval of initial PPSL.
- c. Contractor or Government responsible for PPSL and maintenance of the PPSL.
- d. Establishment of time periods for formal response to proposed PPSL, part approval requests, new documentation, and test data evaluations.
- e. Establishment of a record file plan to support review, audits, and reports.

Most of these tailoring options have been discussed at some length in Chapter 5 or in this chapter. The AA could assume the role of PCB chairman; however, such a course would entail arranging for and staffing the secretariat and would further blur accountability relationships for a number of program performance targets, such as reliability and life cycle cost,

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which might otherwise be subjects for incentive payments to the contractor. Meeting notices and agendas of lead times could be stretched from "at least 14 calendar days" to 21 to 30 days. It would seem advisable to consider the period of "15 working days" for automatic approval of the PCB chairman's decisions as tailorable if extensive coordination is envisioned within a decentralized acquisition activity.

References

1. MIL-STD-965, Parts Control Program.
2. MIL-STD-680, Standardization Program Requirement for Defense Acquisitions.
3. MIL-STD-100, Engineering Drawing Practices.
4. MIL-STD-831, Test Reports, Preparation of.
5. MIL-STD-1521, Technical Reviews and Audits for Systems, Equipments, and Computer Software.
6. AR 70-1, Systems Acquisition Policy and Procedure.
7. DI-EGDS-81181.
8. DI-MISC-80071, Parts Approval Requests.
9. DI-MISC-80072, Parts Program Parts Selection List (PPSL).
10. DI-MISC-80526, Parts Control Program Plan.
11. DI-DRPR-81000, Product Drawings and Associated Lists.
12. DI-DRPR-81001, Conceptual Design Drawings and Associated Lists.
13. DI-DRPR-81002, Development Design Drawings and Associated Lists.
14. DI-MISC-81058, Non-Standard Parts Test Data Report.

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CHAPTER 7
REVIEWS AND AUDITS

This chapter provides information pertaining to the various reviews and audits that are conducted in acquisition programs and describes how the Department of Defense (DoD) Parts Control Program (PCP) interfaces with these reviews and audits.

7-1 Introduction. The reviews and audits inherent in acquisition programs include the technical reviews and the formal milestone reviews critical to program budgeting and management. Over the years the top level program reviews, technical reviews, and audits have grown in number and in time consumed. The checkpoints, intended to insure that acquisition projects were on track and that continuation was warranted, consume a considerable part of acquisition resources. In an eight-year program (from concept approval to equipping of the first unit) close to 50% of the program manager's office (PMO) work time is devoted to preparing for or conducting such audits. Acquisition strategies are often tailored.

Regardless of the type of acquisition, PCP efforts conforming to MIL-STD-965 (Ref. 1) must be tracked to be certain that decisions on the selection of standard parts are made during the design of prototypes or full-scale development (FSD) models and that the parts used are documented and reflected in the approved Program Parts Selection List (PPSL). Formal tracking is conducted in program reviews and audits, MIL-STD-1521 (Ref. 2) identifies the following technical reviews and audits that may be conducted on systems, equipments, and computer software:

- a. System Requirements Review (SRR).
- b. System Design Review (SDR).
- c. Software Specification Review (SSR).
- d. Preliminary Design Review (PDR).
- e. Critical Design Review (CDR).
- f. Test Readiness Review (TRR).
- g. Functional Configuration Audit (FCA).
- h. Physical Configuration Audit (PCA).
- i. Formal Qualification Review (FQR).
- j. Production Readiness Review (PRR).

These reviews and audits, defined in Appendix E, reflect the changes in emphasis as the program progresses from analysis of requirements through design tradeoff studies to hardware and software prototypes and tests to production.

During full-scale development the SDR, PDR, CDR, and the PCA provide opportunities during formal reviews to track the progress of the PCP effort. The team approach, rather than unilateral review actions, is important because of the impinging effects of related disciplines on part selections. System reliability and availability targets, maintenance-to-operation hourly

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ratios, and life cycle cost (LCC) targets all must be factored into acquisition activity's (AA) decision. Participation in such technical reviews by parts control personnel is beneficial to assure correlation and continuity in the program.

7-2 Contractor Compliance. The program manager must be certain that the contractor knows and carries out the PCP effort in accordance with MIL-STD-965 (Ref. 1) as expressed in the contract. Reviews and audits to insure the contractor carries out his PCP responsibilities must be included in the technical and formal (program) reviews in order to insure an efficient process and audit trail. (The contractor's responsibilities have been listed for convenience in par. 5-7.) Questions regarding the location of information for auditing should be answered in the statement of work (SOW) or PCP procedures for the contract and clarified, if necessary, in the postaward PCP organizational meeting. In MIL-STD-1521 (Ref. 2) list topics for the technical reviews and audits. PCP topics recommended for the various technical reviews (covered in detail in Ref. 2) are indicated:

- a. SDR - System Design Review. Use of commercially available and standard parts.
- b. PDR - Preliminary Design Review.
 - (1) Preliminary list of materials, parts, and processes.
 - (2) Identify single source, sole source, and diminishing source parts.
 - (3) Standardization considerations.
 - (4) Review and reliability design guidelines to include electrical and thermal derating, order of preference for parts selection, and prohibited materials.
 - (5) Completion of review of equipment and part standardization including part selection procedures, identification of design changes to permit greater use of standard parts, review of status of PPSL and status of all nonstandard parts identified, and review of pending parts control actions that may cause program slippages.
- c. CDR - Complete review of PCP operations, contractor certification that maximum practical interchangeability of parts exists among components, assemblies and hardware configuration item (HWCI), and a sampling of preliminary drawings to insure compatibility of parts with the PPSL.
- d. PCA - MIL-STD-973:
 - (1) Information required from the contractor for the PCA.
 - (2) Each drawing reviewed shall have a review record including the record of a sampling check to insure part numbers are compatible with the PPSL and that the parts are actually installed in the HWCI.

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7-3 Government Compliance. Audits by the program manager or reviews at levels above the DoD Component, such as those by the Defense Acquisition Board (DAB), are a means to evaluate the information required for decisions regarding the program. Acquisition strategies approved by the DoD Component establish the structure of the program. The decision milestones, test and evaluation periods, initial production, and first unit equipped targets of the structure dictate the review and audit approaches to suit the program. For PCP efforts Government responsibilities and, therefore, compliance evaluations start at the initial stages of the statement of work and the request for proposal (RFP) preparation and involve the program manager, the head of the acquisition activity and the Military Parts Control Advisory Group (MPCAG). Topics for reviews and audits of PCP efforts in ongoing programs are discussed in paras. 7-1 and 7-2. Unless a PCP plan or standard operating procedure (SOP) is part of the contract, the organizational PCP meeting must be preceded by conference-generated or -negotiated lists or charts of PCP management objectives - such as listed in Table 5-IV - and lists of standardization and parts control data indicating what is deliverable and what is to be maintained by the contractor for review as required by the AA. A listing of such data is shown in Table 7-I. The program manager's PCP control file should include the following:

- a. SOW extracts on PCP.
- b. RFP responses on PCP (or PCP Plan) including management structure.
- c. Minutes of PCP postaward (organizational) meeting.
- d. Forecasts and status reports on percentage of standard parts.
- e. Cost benefit study access (locator) list.
- f. Verification of adherence to approved PPSL.
- g. Justification file on nonstandard parts.
- h. Failure analysis reports.
- i. Time log of evaluation processing by MPCAG and AA.
- j. File on appeals to MPCAG recommendations.
- k. Contract PPSL(s).
- l. Record of feedback to MPCAGs on acceptance of their recommendations.

The choice of a contractor-operated parts control board (PCB) will suggest added items for review as the program progresses. As a minimum, Items d and f in the previous list should be reported upon during formal reviews. Summary reports on Items g and j are advisable to assure that trends toward increased nonstandard parts and increased appeals are brought to the attention of the PMO.

7-4 Planning and Scheduling. The content of PCP plans and the scheduling of PCP activities were discussed in para. 5-5. A matrix of some of the disciplines or technical specialty areas involved in evaluation of PCP Plans and actions is shown in Table 7-II. Table 7-II and earlier references to using a team approach to develop or evaluate parts control plans - or standardization plans and the parts control plans contained therein - are intended to emphasize a basic management procedure. The program managers are supported by a number of people with expertise in different disciplines. To contribute effectively to the planning or evaluating progress, these

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specialists must understand the objectives of the total program and the managers must insure coordination of proposed decisions across the disciplines to avoid errors and save time. For instance, changes in basic materials from metals to composites can affect fabrication, maintenance, and fastener approaches. The use of built-in electronics control systems can completely change the approach to electrical wiring, diagnostic systems, and maintenance training. Review schedules to insure that PCP activities are proceeding as planned have been discussed in par. 6-10.4 and depicted in Figs. 5-4 and 5-5 to indicate when the bulk of the parts control actions occur and how the volume of actions rises and falls. Fig. 5-4 shows how parts control milestones are fitted into an aircraft development program, and Fig. 5-5 shows the type of test, technical review, and documentation delivery events that can be extracted from an FSD program to serve as a checklist for a tentative PCP schedule.

TABLE 7-I. Standardization and parts control data (Adapted from Ref. 3).

DATA DESCRIPTION	DELIVERABLE ITEM CDRL NO. (CN) OR CONTRACTOR FILE (F)	PROGRAM STAGE
Parts Standardization Data		
Standardization Program Plan	CN (when req'd)	FSD
Programs Parts Selection List (PPSL)	CN	Validation FSD
Nonstandard Parts Approval Request for Proposed Additions to an Approved PPSL (for nonstandard part approval)	CN	Validation FSD
Test data for nonstandard parts	CN (when req'd)	Validation
Program standard parts list	F	
Program parts substitution list	F	
Documented standardization cost avoidance	F	
Contractor parts usage audit reports	F	
Program standard parts or drawing history files	F	
Parts standardization study reports, decisions, and memoranda	F	

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TABLE 7-1. Standardization and parts control data (Adapted from Ref. 3)
- Continued.

DATA DESCRIPTION	DELIVERABLE ITEM CDRL NO. (CN) OR CONTRACTOR FILE (F)	PROGRAM STAGE
Standardization and parts control meeting agenda, minutes, assignments, and related follow-up action results		
Program parts screening and approval history, including any non-PPSL parts approved by the contractor for use in MIL-S-8512 (Ref. 5) support equipment	F	
Documentation on all nonstandard parts	CN	FSD
Contractor's procedures relating to program standardization and parts control	F	
Program parts failure data and reports	F	
Standardization and parts control specification for subcontractors	F	
Subcontractor's equipment parts lists	F	
Program-approved source list (ASL)	F	
Other Standardization Data		
Request Government nomenclature, nameplate approval, serial number	CN	FSD

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TABLE 7-II Evaluation of the standardization or parts control plan.

DISCIPLINES	FUNCTIONAL ELEMENTS	COMPONENTS OR EQUIPMENT SELECTION	PARTS APPLICATION	PPSL	REVIEW OR AUDIT	REPORTS	CORROSION CONTROL
Logistics Support Maintenance Training Diagnostics Provisioning Parts packaging Tools & special equipment		X	X	X	X	X	X
Life Cycle Cost		X	X	X	X	X	X
Producibility		X	X	X			X
Product Assurance Reliability Nondestructive testing		X	X	X	X		X
Configuration Manage- ment and Documen- tation Specialists		X	X	X			X
MPCAG Part and Component Specialists		X	X	X	X	X	
System Engineering		X	X	X	X	X	X
Standardization		X	X	X	X	X	

X = functional element that is evaluated by or for the stated discipline.

References

1. MIL-STD-965, Parts Control Program.
2. MIL-STD-1521, Technical Reviews and Audits for Systems, Equipments and Computer Software.
3. V-22 Engineering Data, Standardization Program Plan, Naval Air Systems Command, Joint Project Office, Fort Worth, TX.
4. MIL-STD-680, Standardization Program Requirements for Defense Acquisitions.
5. MIL-S-8512, Support Equipment Aeronautical, Special General Specification for the Design of.

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CHAPTER 8
REPORTING

This chapter provides information pertaining to the various reports that are considered essential to assess properly and to manage the Department of Defense (DoD) Parts Control Program (PCP).

8-1 Introduction. Reports are essential to the accomplishment of PCP efforts, management of acquisition programs, and assessments of the affordability of development or product improvement projects. Reports should address MIL-STD-965 (Ref. 1) PCP activities, problems, and accomplishments of the program manager (PM), the Military Parts Control Advisory Group (MPCAG), the Defense Logistics Agency (DLA), or the DoD component. Some short-term reports serve as indicators to the PM of the need for corrective action. Others are required by DoD, agency, or service regulations. Fig. 8-1 is an example of a quarterly report. Annual Reports, particularly cost avoidance returns for invested, fiscal resources can be of major importance to decisions made on subsequent budget approvals. The reports made at milestone review sessions are critical to program approval or disapproval decisions at the point of proceeding into the next acquisition phase. Reports required from the contractor will be listed on the Contract Data Requirements List (CDRL) and made a part of the contract.

8-2 Cost Avoidance. Cost-benefit calculations have been used to defend the existence of standardization and parts control efforts since the mid-1950s. Much of the problem in preparing such analyses comes from the sensitivity with which costs-of-operation studies (traceable to a particular command, agency, or DoD component) are sometimes viewed by the commanders of such organizations. Tradeoff studies for parts selection or standardization optimization must consider a number of factors including initial cost, performance, logistic management costs, reliability, delivery time, maintenance costs, storage life and costs, technical data costs, and first time testing. To assure comparable life cycle cost analyses from different contractors, data such as the hourly cost of military maintenance labor are provided periodically by Government systems and cost analyses organizations. Discounting techniques and inflation indices are also updated or reaffirmed and then distributed.

To avoid costly, repetitious analyses of life cycle cost for decision making and reporting of parts selection cost benefits, the DoD Parts Control Program Task Group requested the DLA members to develop a method for reporting the cost benefits of the MPCAG operation in support of the PCP. The resulting report entitled Cost-Benefit Reporting for the DoD Parts Control System, prepared by Defense Electronics Supply Center (DESC). First year and life cycle cost avoidance values (for replacement of a nonstandard part with a standard part) are provided in Appendix F for the federal supply classes (FSC). The appendix also includes examples of potential cost avoidance computations and cost-benefit ratio determinations. The contractor's cost-benefits reports on PCP activities can be scheduled on an

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annual basis to provide material for annual PM cost avoidance reports. For full-scale development (FSD) or major modification acquisitions, special PCP accomplishment reports should be prepared as part of the homework for formal reviews and audits. Roll-ups of annual PM cost avoidance reports should be made a part of the annual standardization accomplishment report of a command.

8-3 Feedback Reports. Table 7-1 lists the types of standardization and parts control data collected for contractor files on development or major modification acquisitions. Some of the data are shown (by the "CN" indicator) as deliverable items, which are primarily input for Government screening and approval of proposed parts. The frequency of delivery can, therefore, be on a weekly or monthly basis dependent upon the stage of the project. The submission frequency of the feedback information should be a time frame that will enhance the tracking of PCP progress and accomplishment. Except for crash programs, quarterly summary reports to the PM should suffice. Summary reports of PCP progress have not been listed; they have been discussed at some length in Chapter 7 as the type of information required for technical audits and formal reviews of projects.

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PARTS CONTROL PROGRAM (PCP) REPORT For use of this form, see AR 700-80; the proponent agency is AMC	Requirement Control Symbol— DD-A&L (A) 758	QUARTER FISCAL YEAR
TO	FROM	

SECTION I. CONTRACTUAL PCP APPLICATION PERFORMANCE		
ITEM	NUMBER QUARTER	ANNUAL CUMULATIVE
A. Contracts awarded over \$25,000		
(1) Contracts awarded that qualify for PCP		
(2) Qualified contracts that include PCP		

SECTION II. CONTRACTED SYSTEM/EQUIPMENT PCP ACCOMPLISHMENTS		
A. SYSTEM/EQUIPMENT NAME	B. CONTRACTOR	
C. CONTRACT NO.	D. TYPE*	E. AWARD DATE

ITEM	NUMBER QUARTER	CUMULATIVE FROM DATE OF AWARD
F. Total Number of Parts Reviewed		
(1) Number of Standard Parts		
(2) Number of Nonstandard Parts		
(a) No. Nonstandard Parts Approved		
(b) Number of Nonstandard Parts Replaced with Standard Parts		
(3) Number of Total Parts Reviewed that were Used in System/Equipment		
(a) Number of Approved Standard Parts		
(b) Number of Nonstandard Parts Approved		

* TYPE: (A) Advance Development, (E) Engineering Development, (P) Production, (M) Modification A/E/P.

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FIGURE 8-1. Recurring report requirements (Army) (Ref. 2).

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If the Program Parts Selection List (PPSL) is a Government Furnished Baseline (GFB) parts list or the MPCAG prepares the PPSL, some of the feedback information must come from the MPCAGs. Feedback information, such as activity or progress reports, is useful for PM monitoring and for preparation of command PCP reports or periodic submission to higher headquarters, such as the report depicted in Fig. 8-1.

8-3.1 Standardization Accomplishment Reports. Standardization accomplishment reports addressing scheduled versus actual accomplishment, problems, and recommendations are submitted annually by commands to higher headquarters. The parts control program portion of these reports should cover the same points. Accomplishment can be reported in terms of numbers of contracts employing PCP activities, percent of standardization accomplished, and potential cost avoidance - first year and life cycle cost - achieved.

Parts control accomplishments are infrequently achieved through activities such as North Atlantic Treaty Organization (NATO) technical working groups. Standard or preferred standard parts are accepted by allied members of working groups or panels of experts as parts or elements of components or equipment, and NATO Standardization Agreements (STANAGS) are published. The benefits are frequently difficult to quantify, but the advantages of improved support and interoperability, particularly in joint forces operations, increase availability. Standard parts or components, such as artillery fuzes, ammunition, air cleaner elements, track pads or track shoe assemblies, are prime examples of such items. Annual reports to higher headquarters and quarterly or semiannual reports to the local commander on international parts control efforts are recommended.

Quarterly or monthly reviews at command or center levels frequently include additional information such as staffing and financial administrative reports. Since PCP reports are required quarterly by some services, more frequent local management reviews would help avoid last minute surprises and provide time for corrective action, if necessary. The Modernized Parts Control Automated Support System (MPCASS) at the MPCAGs is capable of generating a report each quarter that consists of a count of screening activity, potential cost avoidance, and standardization percent. As required, such reports are provided to the service activities on a quarterly basis. Fig. 8-2 is an example of a MPCASS report.

8-3.2 Parts Evaluation Report. Para. 8-3.1 closed with a statement about MPCASS quarterly reports from the MPCAGs on parts evaluations, potential cost avoidance, and standardization percentages. Parts evaluation is performed under two conditions. The first, described in para. 5-8.1, is during the selection of a parts process preparatory to submission of a proposed PPSL. The second is when additions are proposed for an approved PPSL. Since proposing additions to a PPSL is an ongoing condition during the course of a contract, this subparagraph covers case file summaries (working files) of evaluations for a specific contract.

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The request for evaluation is made through submission of a DD Form 2052 in accordance with the contract Data Item Description (DID) DI-MISC-80071. The form will be submitted simultaneously to the applicable MPCAG and the acquisition activity (AA). Block 14 of DD Form 2052 will provide, in detail, (as noted in DID DI-MISC-80071) the justification for use of the nonstandard part. Also documentation and supporting data as discussed in par. 6-7 will be included. The supporting data should include drawings and statements that fabrication techniques are in accordance with the statement of work (SOW), that the proposed parts have been screened through the Government-Industry Data Exchange Program (GIDEP) Failure Experience Data Bank (FEDB) and that electronic parts have been derated in accordance with ESD-TR-82-417 (Ref. 4). A sample DD Form 2052 is Fig. 8-3.

The evaluation file should contain the request form and supporting documentation. The evaluator's recommendation is placed on the same form (DD Form 2052). The comments portion of Part II of the form should list the criteria applied in evaluating the parts and should note whether diminishing manufacturing sources files had any impact on the evaluation. Background data locator information should also be available in the evaluation file as evidence that technical and related requirements of the specific contract were used in the evaluation file as evidence that technical and related requirements of the specific contract were used in the evaluation.

Periodic summary reports of the evaluations of proposed parts for a particular contract are useful to the project manager in preparing for the reviews and formal audits discussed in Chapter 7. Aggregate summary reports, such as the MPCASS report, are useful resource allocation or budget justification material for the standardization offices of a command or service. Hence, such evaluation workload reports are frequently compiled at the working level on a monthly basis so that quarterly, semiannual, or annual reports sent to higher headquarters are not a surprise to the local commands.

8-3.3 Service Feedback Response. Feedback is a general term that denotes "information about the result of a process"; however, this paragraph will be limited to responses by the PM's office (PMO) (or the PCB chairman) to the MPCAGs to notify them of concurrence or nonconcurrence in part evaluations done by the MPCAGs. Figs. 5-10 through 5-13 graphically depict some of this feedback. The feedback from the PCB meetings, shown in Fig. 5-13, is in the form of PCB minutes.

F 1628 USLUDD69 PARTS CONTROL MASTER INDEX FILE MAINTENANCE UPDATE DATE AS OF (93/02/22) PAGE
CONTROL NUMBER 14329-4730- A1170 CONTRACT NUMBER DAAE07-91-C-R065 CONTRACTOR VSE INC. EQUIPMENT/SYSTEM FOT,05. & ST PCKO 1AAB ENV GM

PART PROC DOCUMENT NR 12380209 CAGE 1 19207 PART NUMBER 12380209 CAGE 1 19207 DMS / GTOEP
TYPE EVAL: PART SUB NOUN CODE:

ALTERNATE OR SUPPLEMENTAL DESCRIPTION:
ADAPTER, 3" GROOVE-NPT
JUSTIFICATION:
ADAPTER, 3" GROOVE-NPT, 12380209, IS BEING USED FOR THE IMPROVEMENT OF THE PRODUCIBILITY OF THE XM1088 5000 GALLON WATER TANKER.

CONTRACTOR REPRESENTATIVE PHONE NUMBER EVAL OPI MPCAG MANAGER/LEADER RECEIPT DT RELEASE DT
BRIAN MAKALA 1763-329-4463 CDCSLB COHEN COHEN 93/01/28 93/02/19
RECOMMENDATION RECOMMENDATION NARRATIVE EVAL NOUN
AG APPROVED W/O LIMITATIONS FOR THIS CONTRACT 03774

MIL/FED SPEC REPLACEMENT DOC NR CAGE DT REPLM NOUN OPL MIL SPEC DT WITHDRAWN BY/DATE
MIL/FED/COMM REPLACEMENT PART NR CAGE REPLM PART IS

AUTOMATIC FEEDBACK APPLIES TO THIS CONTRACT

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

FIGURE 8-2. MPCASS report (provided by DESC).

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NONSTANDARD PART APPROVAL REQUEST			1. LOG NUMBER			Form Approved OMB No. 0704-0188
			CONTRACT CODE	FSC	INDEX NUMBER	
			11061314	5191612	9101016W	
PART I - CONTRACTOR INPUT						
2. PRIME CONTRACT NUMBER DAAK50-60-C-0014 DAAK50-83-C-0024, DAAJ09-85-C-A008			3. CONTRACTOR (NAME)			
4. EQUIPMENT/SYSTEM/SUBSYSTEM TADS/PNVS					5. DATE OF INVITATION FOR BID (YYMMDD) (M, P, Y)	
6. PART PROCUREMENT DOCUMENT NUMBER (if applicable) MIL-M-38510/104			7. PART NUMBER M38510/19495BEX		8. FSC 81349	9. QUANTITY
10. VENDOR (COMPANY NAME) (COMPANY NAME)			11. VENDOR PART NUMBER DS55113/883B SNJ55113J		12. FSC 27014 01295	
13. EVALUATION REQUESTED (x one)			14. LOG NO. FOR PART PREVIOUSLY SUBMITTED ON THIS CONTRACT			
a. Part			b. Part and Document		c. Document Only	
15. DESCRIPTION CODE			16. ALTERNATE OR SUPPLEMENTAL DESCRIPTION MICROCIRCUIT			
17. REASON FOR USE OF NONSTANDARD PART (Compare part with nearest equivalent standard) (Continue on reverse side, if necessary) NO QPL SUPPLIER AVAILABLE FOR M38510/10405BEX AT THIS TIME. ESTIMATED EARLIEST AVAILABILITY OF M38510 PART IS LATE FOURTH QUARTER OF 1985. REQUIRE USE OF COMMERCIAL EQUIVALENT THAT IS SCREENED PER MIL-STD-883B UNTIL M38510 PART IS AVAILABLE. TADS/PNVS EFFECTIVITY TO 01/01/86, INCLUDING SPARES						
18. REPLY NEEDED BY (YYMMDD) ASAP		19. PRINTED OR TYPED NAME OF CONTRACTOR REPRESENTATIVE (NAME)			20. DATE 08/20/85	21. PHONE NO. (Include Area Code) (305) 356-3819
PART II - EVALUATOR RECOMMENDATION						
22. DATE IN 85248		23. DUE DATE 85255		24. EVAL OPI ECS		25. MPCAG MANAGER (NAME) AAV
26. SERVICE ACTY 5962564-55		27. ENGINEERING ITEM CODE		28. APPROVAL		
A0 WITHOUT LIMITATION		X D0 REPLACE WITH MIL PART (Complete Item 32a)		30. NO RECOMMENDATION		31. DOCUMENT EVALUATION
A1 LIMITED APPLICATION (Complete Item 32)		D1 SPEC. BEING PREPARED (Complete Item 32a)		NO INSUFFICIENT INFO (See comments, Item 32)		TA ADEQUATE
A2 OTHER LIMITATIONS (See comments, Item 32)		D2 COMMERCIAL REPLACEMENT (Complete Item 32b)		N1 NOT UNDER THIS REVIEW AGENCY		T1 GRADEQUATE (See comments, Item 32)
				N2 PROBLEM PART (See comments, Item 32)		NO DOCUMENT
32. a. REPLACE WITH MIL/FEED SPEC. OR DOD ADOPTED INDUSTRY STD.				32 b. REPLACE WITH COMMERCIAL ITEM		
(1) Document No. MTL-M-38510/104				(1) Manufacturer's Part/Type/Style No.		(2) FSCM
(2) Mil Part/Type/Style No. M38510/10405BEX				(3) FSCM 81349		
(4) QPL Available (x one)				33. REPLACEMENT DESCRIPTION CODE (As applicable to Item 32a) or 32b)		
X (a) Yes (b) No (c) N.A.				5962564/10405B		
(5) Date Mil Spec Available						
34. PART RECOMMENDED IN BLOCK 32a OR 32b IS (x one) →						
a. INTERCHANGEABLE b. SUBSTITUTE c. REPLACEMENT						
35. COMMENTS (Continue on reverse side, if necessary) Waiver to use NSP because of lead time should be requested from program office						
						ADP INPUT
						A 252
						E 268
						F
PART III - ACQUISITION ACTIVITY DECISION						
38. (X one) →						
a. IMPLEMENT RECOMMENDATION b. APPROVE SUBMITTED PART c. DISAPPROVE SUBMITTED PART						
39. COMMENTS (Continue on reverse side, if necessary) Replace with Mil Part Approval limited to Standardization Screening action only						
40. ACQUISITION ACTIVITY REPRESENTATIVE						
a. TYPED OR PRINTED NAME			b. SIGNATURE		c. DATE SIGNED	

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Previous editions are obsolete.

FIGURE 8-3. Completed part approval request.

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The PMO's responses can be in several forms. Some PMOs employ exception reporting and notify the contractor and MPCAGs only when they do not concur in the MPCAG's recommendation regarding a proposed addition to a PPSL. Letter responses listing the control numbers of the recommendations are used by some PMs to advise the MPCAGs of their concurrence or nonconcurrence with earlier recommendations of the MPCAGs. When MPCAG records indicate that feedback on a particular contract has not been received for a few months, the MPCAG can provide a partially completed checklist, similar to Fig. 8-4, to the PM to facilitate the feedback. Fig. 8-4 shows a computer listing of the open recommendations for the particular contract.

8-4 Standardization Percentages Report. This report contains the percentage of standard parts to total parts both before and after evaluations of proposed parts. (See Fig. 8-1 for an example.) As is the case with cost avoidance reports, such results early in the acquisition process are potential, rather than firm, until engineering and operational tests are completed and the production design for full-scale production has stabilized.

As a quarterly report from a command to higher headquarters, the percentage report is a macro indicator of parts control evaluation activity. The same is true of similar reports from the Defense Electronics Supply Center (DESC) to the services. As a report by or for the program manager on his program, a series of standardization percentage reports can be used to chart PCP actions. In the case of the latter, annual reports may be frequent enough because formal reviews and audits force special PCP reports as several points in the acquisition process.

These "percentage standardized" reports are particularly useful to verify that a command or a collection of commands is applying standard parts as a result of mandatory parts control programs. Such single aspect views of development of major product improvement projects must be considered - by project managers, Defense Acquisition Board (DAB) chairmen, and other resource managers - as one of many criteria encompassing the total program. High standardization percentages are good if the standard parts selected are optimized for the intended purpose and if cost, performance, availability, reliability, and maintainability are also optimized. The broad coordination of proposed parts and changes to GFB parts lists and PPSLs for specific projects can help to avoid pitfalls inherent in standardization for the sake of standardization.

F-4-71
SEPARATION CODE: 08
MPCAG: DESC

EQUIP/SYSTEM:

SERVICE FEEDBACK NOTIFICATION
SECTION
BY FSC/INDEX NUMBER

ORC: EPELB
DATE: 27 JAN 88
CONTRACT NO/CODE: N00024-83-D-7038 (10949)

* NOTE: RESPONSE: C=CONCURRENCE; N=NONCONCURRENCE;

PAGE NO: 4

INDEX NO.	EVAL	LTR	LETTER	RESPONSE +		REMARKS
				C	N	
	CODE	CODE	NUMBER			
5940- 1772	A0	C	UYK-43-87-1955 30APR87			
5940- 1781	A0	C	UYK-43-87-1955 30APR87			
5940-U0499A	A0A	L	PCB MTG AT SPERRY 10APR85			
5940-U0648A	DO	L	PCB MTG AT SPERRY 10APR85			
5940-U1570	DO	O	SER NO OYK-43/1134 AUG85			
5940-U1648	A0	B	UYK-43-87-1896 02APR87			
5940-U1651	DO	B	UYK-43-87-1896 02APR87			
5940-U1652A	A0	D	43-87-1827 23 FEB 87			
5961- 1731	A0	A	UYK-43-87-1844 05MAR87			
5961- 1732	A0	A	UYK-43-87-1844 05MAR87			
5961- 1733	A0	A	UYK-43-87-1844 04MAR87			
5961-U0385A	A0	D	43-87-1827 23 FEB 87			
5961-U1655	A0	B	UYK-43-87-1896 02APR87			
5961-U1740	DO	B	UYK-43-87-1896 02APR87			
5962- 0009	DO	C	UYK-43-87-1956 30APR87			

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FIGURE 8-4. Feedback checklist (provided by DESC).

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References

1. MIL-STD-965, Parts Control Program.
2. AR 700-60, Department of Defense Parts Control Program.
3. ESD-TR-82-417, Part Derating Guidelines (Interim) for ESD Systems Development, Defense Electronics Supply Center, Dayton, OH.

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APPENDIX A

DoD PARTS CONTROL PROGRAM

EXCERPTED FROM DOD INSTRUCTION 5000.2

PART 6, SECTION R

10 General.

10.1 Scope. This appendix is a mandatory part of this handbook. The information contained herein is intended for compliance.

10.2 Purpose. The policies and procedures covered by this appendix are intended to establish the basis for reducing the cost associated with the design, procurement, documentation, cataloging, maintenance, and reprourement of nonstandard parts.

20 General Requirements.

20.1 Policies.

- a. An effective parts control program shall be established in each acquisition program at the beginning of Phase II, Engineering and Manufacturing Development. It shall focus on reducing the variety of parts and associated documentation used in the system.
- b. A parts control program shall be implemented during Phase I, Demonstration and Validation, if this can be expected to yield appreciable cost savings.

20.2 Procedures.

20.2.1 Military Parts Control Advisory Groups.

- a. The Director, Defense Logistics Agency, will:
 - (1) Establish and maintain Military Parts Control Advisory Groups within appropriate Defense Supply Centers and will provide adequate resources to ensure parts control and standardization support to system and equipment acquisition activities. These advisory groups will be made up entirely of full time officers and employees of the Government.
- b. Military Parts Control Advisory Groups will:
 - (1) Have a broad engineering data base for selected parts control commodities to assist design engineers in making parts control recommendations;

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- (2) Develop and maintain procedures to process the rapid interchange of parts information and documentation between contractor design engineers, Government Program Managers, Military Parts Control Advisory Group personnel, and the DoD logistics system;
- (3) Support DoD Components' needs for program parts selection lists and development of parts documentation, and provide automation support for program parts selection lists; and
- (4) Provide advisory engineering support services to Program Managers and milestone decision authorities.

c. Program Managers will:

- (1) Provide Military Parts Control Advisory Groups with form, fit, and function limitations necessary for parts selection evaluations;
- (2) Consider the recommendations of Military Parts Control Advisory Groups with regard to parts selection; and
- (3) Solicit and use, as appropriate, Military Parts Control Advisory Group evaluations of the suitability of parts control proposals submitted by contractors.

20.2.2 Development Programs. Each acquisition program will establish a parts control program through tailored application of MIL-STD-965, adapted to specific program characteristics. The program will focus on:

- a. Using parts described by existing DoD approved documentation as much as possible;
- b. Requiring contractors to use the Government furnished baseline and specifying this requirement in requests for proposal and subsequent contracts;
- c. Promoting timely upgrade of existing DoD parts documentation or adopting non-Government standards for DoD use to lessen the need for new contractor prepared drawings and specifications;
- d. Ensuring that new parts with potential for repetitive application and adoption as standard parts for other programs and end items are documented and adequate for competitive procurement;
- e. Avoiding the use of parts previously identified as diminishing manufacturing source items when practical and feasible; and
- f. Ensuring hardness critical items are clearly identified.

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20.2.3 Reprocurements. The parts control program will be applied to reprocurements (where design is not fixed and new parts may be required to be stock listed) and should be considered for application in any other type item in which the acquiring DoD Component anticipates life-cycle cost savings.

20.2.4 Exemptions. Contracts for the purchase of commercial equipment, software contracts, and study contracts not involving the selection or recommendation of specific parts are exempt from using MIL-STD-965. However, procurement of commercial equipment may benefit from selective application of MIL-STD-965.

20.2.5 Contract Administration Services. Contract administration offices will support the efforts of milestone decision authorities to implement an effective parts control program. This support will include reviewing proposals to ensure that only parts listed in the approved program parts selection list are used in design and production.

30 Responsibilities and Points of Contact. The matrix below identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in DOD Instruction 5000.2.

TABLE A-I. Point of contact matrix.

<u>DoD Component</u>	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/SDM
Dept of Army	ASA(IL&E)	SAILE-LOG
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
Other DoD Components	DLA	DLA-SE

References

1. MIL-STD-965. Part Control Program.
2. DODI 4120.19. DoD Part Control Program (Canceled and replaced by DODI 5000.2-part 6, section R).

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APPENDIX B

SAMPLE STATEMENTS OF WORK

10 Scope. This appendix contains instructions for the preparation of Statement of Work (SOW) for conducting a DOD parts control program.

20 Statement of work Sample 1 (with either procedure I or II).

20.1 Parts Control and Standardization Program. The contractor shall establish a parts control and standardization program in accordance with the system specification, this statement of work (SOW), the Contract Data Requirements List (CDRL), and MIL-STD-965. The program shall assure maximum use of standard military parts, materials, and hardware; define responsibilities; identify offices of primary responsibility; specify operational procedures; and assure the interface with the acquisition activity (AA), Military Parts Control Advisory Group (MPCAG), military contractor design and standards engineers, and with the contractually required parts control organizations. The parts control function shall be coordinated with the reliability and maintainability (R&M) group and design groups. The AA shall have final approval authority of the program.

20.2 MPCASS Applications. MPCASS provides an on-line access for electronic submission and query capabilities relative to the Parts Control Program. Contractors should use MPCASS for an interface with the MPCAG's as the preferred method of input and inquiry for the operation of a PCP. Authorized users of MPCASS have part data and information available, such as; parts which have been approved, disapproved and/or are considered problem parts, and parts which have GIDEP and DMSMS case information. MPCASS eliminates a major portion of the paperwork associated with the parts control process and improves response time.

20.3 Reliability and Standardization. Although the use of an existing design is encouraged, it is intended that preferred parts covered by military established reliability (ER) specifications, MIL-S-19500 for semiconductors, MIL-M-38510 for microcircuits, and other recommended military specifications be used for parts needed for development, production, and provisioning. (This practice will bring about optimum life cycle cost benefits through standardization on reliable military standard parts, reduce Government inventories, and preclude the necessity of a contractor preparing and the Government procuring drawings and specifications for new parts.)

30 Statement of work Sample 2 (with procedure I and a Government furnished baseline parts list).

30.1 Task. The contractor shall establish and maintain a parts control program in accordance with the requirements of MIL-STD-965 using Procedure I described therein.

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30.2. Implementation and Limitations. The parts control program shall include the limitations as stated in MIL-STD-965. The GFB will be used to select approved parts for the proposed PPSL and continue to be used throughout the life of the contract. The parts to be controlled are specified in MIL-STD-965. All parts, including long lead items, should have approval prior to being ordered for, or installed in, the equipment involved. Use of any part, material, or processes in the fabrication of breadboards and brassboards shall not be considered as authority or permission to use such parts in subsequent design configurations unless the contractor complies with the parts control program procedures specified herein.

30.3 Parts Control Meetings. The contractor may request that a parts control meeting in accordance with Procedure I requirements of MIL-STD-965 will be convened. The meeting provides a medium to assure that the MPCAG, AA, and contractor representatives fully understand the procedures and requirements for parts control operations.

30.4 Government Furnished Baseline (GFB) Parts List and System Program Parts Selection List (PPSL). The GFB parts list shall be the initial PPSL described in MIL-STD-965. All requirements of MIL-STD-965 concerning the preparation and maintenance of a PPSL by contractor are tailored as follows:

- a. The GFB parts list is the initial PPSL for the system.
- b. The contractor shall either submit a list of index numbers and part number (P/N) selections from the GFB parts list, or he may annotate a page of the GFB parts list by circling the index number. The contractor shall submit selections immediately following identification of need.
- c. In accordance with MIL-STD-965, the Government (MPCAGs) or contractor shall maintain the system PPSL, which shall consist of GFB parts list selections and additional contractor-selected nonstandard parts (not from the GFB parts list). Updates of the system PPSL shall be available to the contractor and program office from the MPCAGs on an agreed to schedule, usually on a monthly basis. The system PPSL shall be used by the prime contractor and all subcontractors. The definition of standard and nonstandard parts shall not be construed as relieving the contractor of achieving specified performance of the end-item in which the parts are used.

30.5 Parts Selections and Application. Selection of parts shall be made in the order of priority as stated in the specification for the system. This selection and Government approval of parts shall not be construed as relieving the contractor of meeting specified performance of the end-item in which the parts are used. Parts covered by established reliability (ER) military specifications, MIL-S-19500 semiconductor specifications, MIL-M-38510 microcircuit specifications, and other preferred military specifications shall be used for development, production, and provisioning. Design envelopes shall assure acquisition of military parts to the maximum extent.

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30.6 Verification of Parts Status. Contractors shall maintain records and data that provide visibility and traceability of the AA approval for all parts used in each phase of the development of the equipment under contract. These records and data will be available to the Government. All parts used shall be authorized by the approved system PPSL listing.

30.7 Nonstandard Parts Review and Appeal. Nonstandard parts (NSP) required by the prime contractor or a subcontractor shall be submitted for review by the designated MPCAG and AA on DD Form 2052 or 2053. Existing documentation, excluding military specifications and standards, shall be included with the initial submission, e.g., control drawing, catalog data, and data sheet. New documents, required if the part is approved, should not be prepared prior to the review of a part. All approved NSPs shall be defined by a procurement document in accordance with MIL-STD-965. Approval authority on the NSP, documentation, and the final PPSL is the AA. The final revised and approved PPSL shall be issued at least 30 calendar days before initiation of equipment qualification test and shall be annotated by the contractor to indicate withdrawal of items not used in the design and fabrication of this system.

30.8 Documentation. As part of the approval procedure for all nonstandard parts and only when requested by the acquisition activity, the contractor shall prepare part documentation for proposed nonstandard parts as required by the CDRL. When drawings are requested by the acquisition activity or designed agent as part documentation, they shall be considered preliminary copies of those required as part of the running set of drawings. However, acceptance of such documentation does not constitute approval of a drawing as part of the running set. Acceptance is restricted to the approval of the use of a nonstandard part.

30.9 Test Data. As part of the approval procedure for nonstandard parts and when specified by the procuring activity, the contractor shall provide objective test data indicating that proposed nonstandard parts comply with requirements of applicable part documentation as specified in MIL-STD-965. The test data shall be prepared and submitted in accordance with DI-MISC-81051. Copies of approved test data shall be submitted to the following address for the Government/Industry Data Exchange Program (GIDEP) Officer in Charge, GIDEP Operation Center, Corona, CA 91720.

30.10 Subcontractor Direction. The contractor shall provide contractual coverage in all subcontracts to insure that the subcontractor.

- a. Responds to contractually specified parts control program requirements in accordance with MIL-STD-965.
- b. Uses the program parts selection list (PPSL) for the system during development and production.

30.11 Deliverable Data Items. Copies of contract data items deliverable to MPCAGs (Defense Electronics Supply Center or Defense Industrial Supply Center) shall be tailored so that they contain those items in federal supply classes (FSC) for which these centers are cognizant. MIL-STD-965 provides

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the necessary FSC guidance. MPCAGs shall therefore be provided with drawings and/or draft military specifications (when required) and test data (when required) on those parts for which the MPCAG has assigned commodity class responsibility. The contractor may request assistance on other commodity classes or processes from the associated MPCAGs.

30.12 Final Approval Authority. Notwithstanding guidance provided to the contractor by MPCAG activities concerning:

- a. The use of standard and nonstandard parts.
- b. The part documentation submitted by the contractor.
- c. Test data submitted by the contractor, final approval of the part documentation, or acceptability of the test data shall be made by the contracting officer. When all data items associated with the parts control program have been submitted, the contractor shall submit a DD Form 250 annotating all data item submissions are completed.

40 Statement of work sample 3 (with procedure II).

40.1 Parts Control Program. The contractor shall establish and maintain a parts control program in accordance with the requirements of Procedure II of MIL-STD-965. The program shall apply to any equipment designed or modified by the contractor or his subcontractors during the performance of the contract.

40.2 Implementation and Limitations. The parts control program shall include the limitations as stated in MIL-STD-965 and the contract. The parts to be controlled are specified in MIL-STD-965. All parts, including long lead items, should have approval prior to being ordered for, or installed in, the equipment involved. Use of any part, material, or processes in the fabrication of breadboards and brassboards shall not be considered as authority or permission to use such parts in subsequent design configurations unless the contractor complies with the parts control program procedures specified herein.

40.3 Program Plan. The Parts Control Program Plan that was developed and approved for the validation phase of this contract shall be updated to reflect the full-scale development (FSD) phase requirements stated in this SOW.

40.4 Parts Control Meetings. The contractor shall insure that a parts control board meeting, in accordance with Procedure II requirements of MIL-STD-965, is convened. The meeting will provide medium to assure that the Military Parts Control Advisory Group (MPCAG), AA, and contractor representatives fully understand the procedures and requirements for parts control operations. The product assurance coordination group meeting shall serve as the vehicle for parts control meetings during FSD.

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40.5 Parts Selections and Application. The program parts selection list (PPSL) shall take precedence for part selection. The assigned GFB shall be used in the initial development of the PPSL and for all subsequent selection of parts for the design in addition to parts covered by military and federal specifications. These parts shall be used for development, production, and provisioning. Design envelopes shall assure acquisition of standard military parts to the maximum extent. Standard electronic modules (SEM) shall be in accordance with MIL-STD-1378 when used.

40.6 MPCASS Application. MPCASS provides an on-line access for electronic submission and query capabilities relative to the Parts Control Program. Contractors should use MPCASS for an interface with the MPCAG's as the preferred method of input and inquiry for the operation of a PCP. Authorized users of MPCASS have part data and information available, such as; parts which have been approved, disapproved, and/or are considered problem parts, and parts which have GIDEP and DMSMS case information. MPCASS eliminates a major portion of the paperwork associated with the parts control process and improves response time.

40.7 Program Parts Selection List (PPSL). Parts selection shall be from the AA's approved PPSL. Parts which were approved only for the validation phase shall be verified for qualified products list (QPL) status, or (QML) status. Listing of parts shall be in accordance with MIL-STD-965 MPCASS and DD Form 2053. Parts required, but not included in the PPSL, shall be selected in accordance with the general equipment specification and MIL-STD-454. All parts not on the PPSL require acquisition activity approval except for GFB parts which hold prior approval. The other nonstandard parts shall be submitted as proposed for addition to the system PPSL. These proposed additions should be forwarded by the prime contractor to all PCB members for review at least 14 calendar days prior to a meeting. Nonstandard parts shall be documented with a drawing prepared in accordance with MIL-STD-100 and production drawings of MIL-T-31000. Updates of the PPSL shall be available to the contractor and AA from MPCAGs on an agreed to schedule, which is usually every 30 days. The PPSL shall be used for parts selection by both the prime contractor and all subcontractors. This selection of parts shall not be construed as relieving the contractor of achieving specified performance of the end-item. Requests for approval of the parts and documents from the contractor to the Government shall be processed in accordance with MIL-STD-965. The final reviewed and approved PPSL shall be annotated by the contractor to indicate withdrawal of any items not used in the fabrication of the system.

40.8 Documentation. The contractor shall prepare part documentation of proposed nonstandard parts as required by CDRL. When part documentation in the format of drawings is requested by the acquisition activity or MPCAGs, the drawings shall be considered preliminary copies of those drawings required as part of the running set of drawings. However, acceptance of such documentation does not constitute approval of a drawing as part of the running set. Acceptance is restricted to the approval for the use of a nonstandard part. Particular attention should be given to those drawings describing parts anticipated for procurement as repair parts.

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40.9 Microcircuit Documentation. All part documentation for nonstandard microcircuit and hybrid devices for this effort shall be prepared by the contractor in standardized military drawing (SMD) format in accordance with established procedures. Detailed information for SMD preparation shall be provided to the contractor by the Defense Electronics Supply Center (DESC). All SMDs prepared by the contractor are subject to approval of the AA and DESC.

40.10 Test Data. As part of the approval procedure for nonstandard parts and when specified by the acquisition activity, the contractor shall provide objective test data indicating that the proposed nonstandard parts comply with requirements of applicable part documentation as specified in MIL-STD-965.

40.11 General Program Requirements. Using the stated procedures, the contractor shall

- a. Minimize the total types and numbers of parts and materials.
- b. Select long-lived supply items and use a minimum of limited life items.
- c. Exclude toxic materials.
- d. Provide multiple procurement sources.
- e. Consider transportation, handling, special tools, storage, and installation in design.
- f. Provide for product producibility.

References

1. MIL-STD-100. Engineering Drawing Practices.
2. MIL-STD-454. Electronic Equipment Standard, General Requirement for.
3. MIL-STD-965. Part Control Program.
4. MIL-STD-1378. Requirements for Employing Standard Electronic Modules.
5. MIL-S-19500. Semiconductor Devices, General Specifications for.
6. MIL-T-31000. Technical Data Packages, General Specifications for.
7. MIL-M-38510. Microcircuits, General Specifications for.
8. DI-MISC-80071. Parts Approval Requests.
9. DI-MISC-80072. Parts Program Parts Selection List (PPSL).
10. DI-MISC-80526. Part Control Program Plan.
11. DI-DRPR-81000. Product Drawing and Associated Lists.
12. DI-DRPR-81001. Conceptual Design Drawings and Associated Lists.
13. DI-DRPR-81002. Developmental Design Drawings and Associated Lists.
14. DI-MISC-81058. Non-Standard Parts Test Data Report.

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APPENDIX C

(EXAMPLE)
PARTS CONTROL PROGRAM PLAN
FOR
EF-99 OPERATIONAL FLIGHT TRAINER

10 Scope.

10.1 Purpose. This Parts Control Plan describes the procedures XYZ Corporation will implement in the design of the EF-99 operational flight trainer (OFT).

10.2 Intended Use.

10.2.1 This plan is intended to benefit the system or subsystems, spares provisioning and logistic support requirements and to enhance reliability, maintainability, and cost-effectiveness through promotion of part commonality in system, subsystem, and component design.

10.2.2 This plan is intended for use on new or redesigned hardware. All new materials, parts, and processes used in the design and construction of the EF-99 OFT shall conform to applicable specifications and standards as specified herein. In addition, new parts will be used when state-of-the-art advancement is required to meet system performance.

10.3 Definitions. For the purpose of this document, the following definitions apply in addition to those of MIL-STD-965.

10.3.1 Design Part. A part having physical, operational, and reliability level characteristics that are used for the design of the functional assembly. These characteristics shall meet the requirements of MIL-STD-454.

10.3.2 First Fit. A part having physical and operational characteristics that are identical to those of the "design part" but is used in the initial assembly of the end-item for economical or scheduling reasons. This part may be nonpreferred and/or nonrecommended for current design.

20 General Requirements. This Parts Control Plan has been prepared in accordance with the requirements of Contract 000000-97-C-2097, MIL-STD-965, and DI-MISC-80526.

20.1 Management and Organization Structure. At XYZ Corporation the specification and standards group and the administration of the parts control and standardization plans are organized to provide those functions necessary for the economical and timely attainment of parts standardization goals. Parts selection and control are based on careful planning and the application of a wide variety of capabilities in the implementation of parts standardization programs.

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The specification and standards function at XYZ Corporation falls under the cognizance of the data management function in the integrated support operation. A standards engineer is assigned to the program to insure that the goals of the parts control and standardization programs are met. During the development phase, the standards engineer maintains close liaison with the program design staff until the completion of the final design package. Fig. C-1 provides an illustration of the specification and standards function within the XYZ Corporation.

20.1.1 Functions of Standards Engineer.

20.1.1.1 Provides direction and control on component parts usage on XYZ designed equipment and subcontract equipment.

20.1.1.2 Provides aid and information on the selection of purchased components for design and production engineers.

20.1.1.3 Provides technical information for the preparation of specification control drawings.

20.1.1.4 Plans, schedules, and coordinates all nonstandard parts approval.

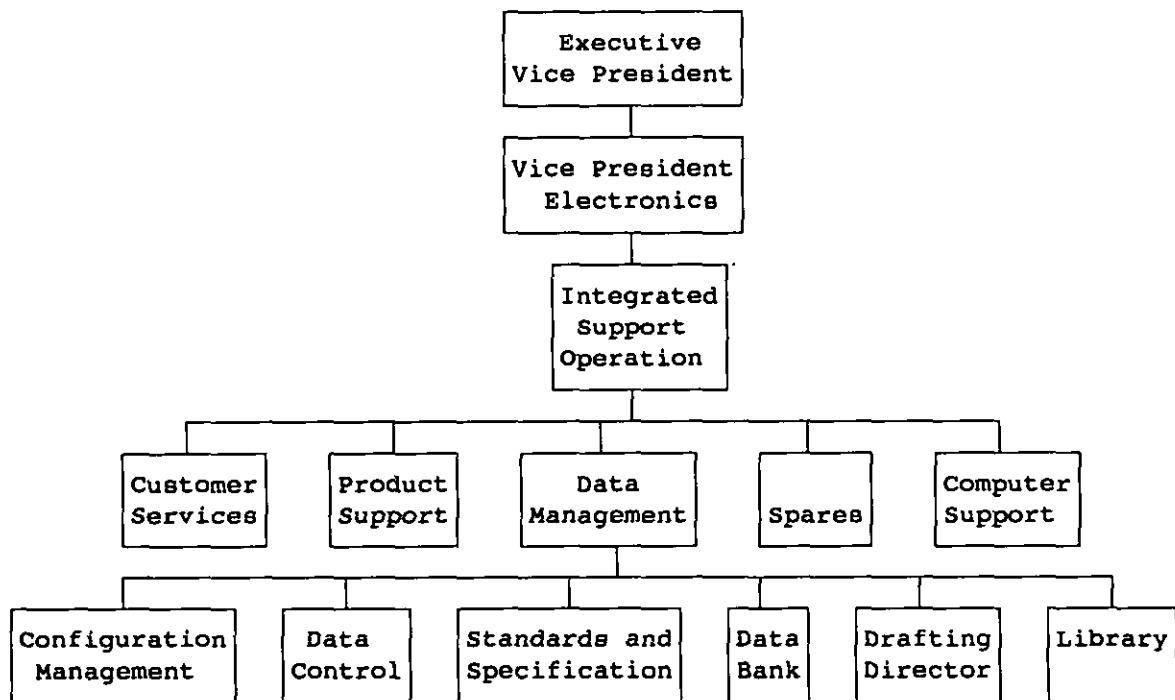


FIGURE C-1. Organization of the integrated support operation in the XYZ Corporation.

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20.1.1.5 Publishes preferred parts list for component parts, which provides pertinent information and characteristics for procurable components using the baseline PPSL.

20.1.1.6 Reviews equipment parts list for use of standard or preferred parts, materials, and processes.

20-1.1.7 Coordinates and maintains supplier surveillance and subcontractor surveillance for adherence to Parts Control Plan.

20-1.1.8 Recommends changes to military standardization documentation via DD Form 1426.

20-2 Parts Control Board (PCB). A Parts Control Board is organized immediately upon award of the contract. The PCB membership shall include personnel from XYZ, each major subcontractor, and the acquisition activity. An initial PCB meeting shall be held within 30 days after award of the contract. This meeting shall establish working relationships, responsibilities, and procedures for implementation of the Parts Control Program (PCP). The PCB shall perform those responsibilities that are outlined in MIL-STD-965 and, in addition, shall coordinate its activities with the reliability, maintainability, and design functions of XYZ Corporation and the Government. Subsequent meetings may be called by the acquisition activity or XYZ to resolve problems that cannot be resolved by telephone or mail. The meetings shall be chaired by the acquisition activity unless otherwise delegated by the acquisition activity.

20-3 Program Parts Selection List (PPSL). XYZ Corporation will use the PPSL provided by the acquisition activity as the baseline PPSL for the design of the EF-99 OFT. All parts listed in the baseline PPSL will be considered as approved and will not require any additional review or approval. The maintenance and control of the baseline PPSL will be the responsibility of DESC (Defense Electronics Supply Center) or DISC (Defense Industrial Supply Center) and the acquisition activity. XYZ Corporation will notify DESC or DISC and the acquisition activity of the removal of all parts listed on the baseline PPSL that are not used in the EF-99 OFT design NLT (not later than) 60 days after the CDR (critical design review). The final PPSL will be requested from DESC or DISC NLT 60 days prior to initiation of Government testing. Fig. C-2 indicates how XYZ Corporation intends to use the PPSL in the selection of parts for the design of the EF-99 OFT.

20-4 Parts Selection. Immediately after award of the contract, the program design engineer prepares a parts complement consisting of all the parts, materials, and hardware anticipated for use in the design of the EF-99 OFT. In preparation of this parts complement by the program design engineer, precise consideration is made to maximize the use of military-approved standard parts. In selecting parts for the EF-99 OFT parts complement, the program design engineer equally considers the following:

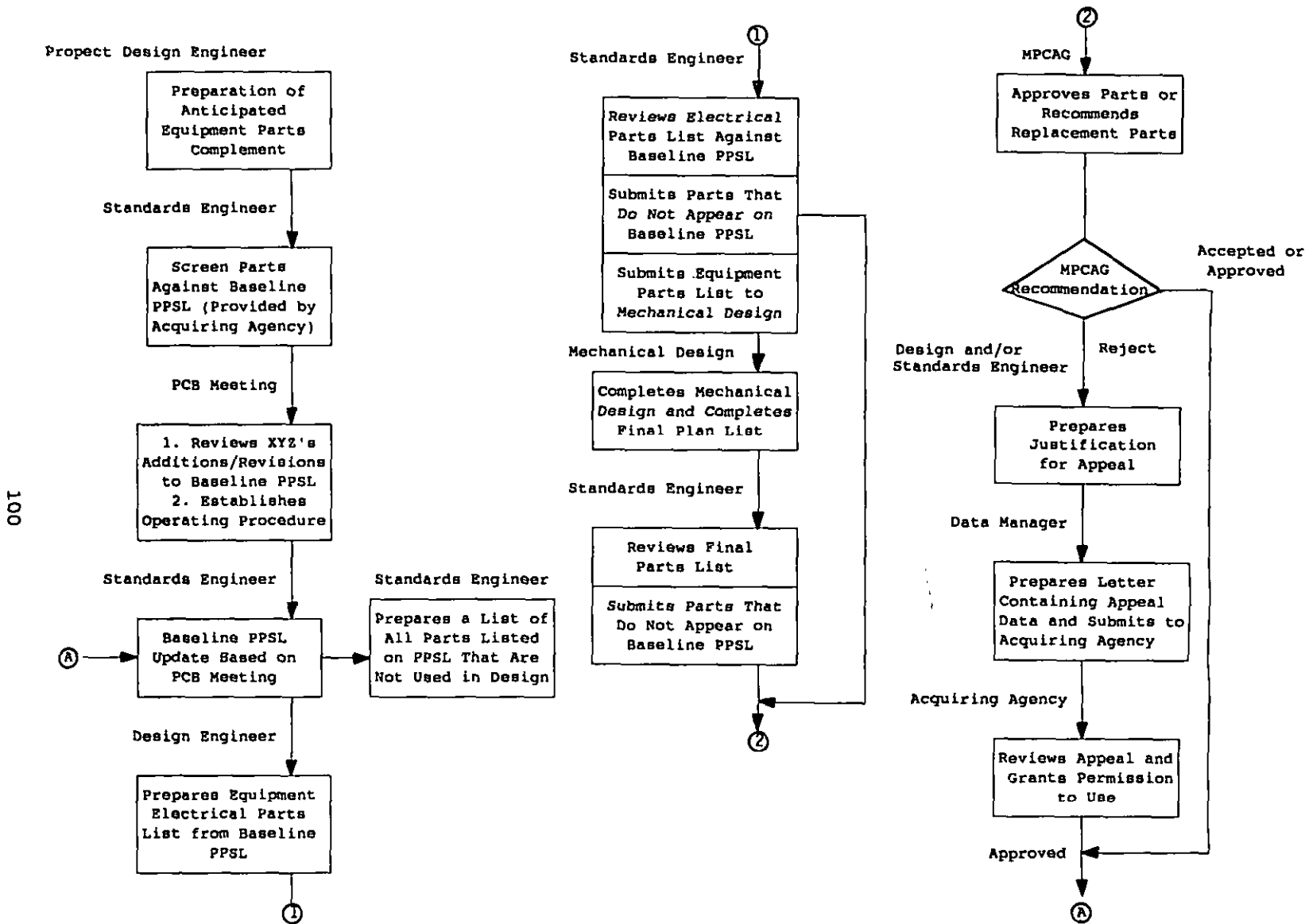


FIGURE C-2. Parts control and standardization program data flow.

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- a. Minimum end-item cost.
- b. Shortest development time.
- c. Least parts types (multiple application of parts).
- d. Minimum logistics support cost.
- e. Logistic support.

The standards engineer reviews the parts complement prepared by the program design engineer as well as all assembly and subassembly parts lists against the baseline PPSL. A result of this review is the identification of parts that may be candidates for addition to the baseline PPSL. A review of parts to be selected as candidates to be added to the baseline PPSL will include a diligent effort to minimize part differences with regard to size, kind, or type.

20-5 Parts Approval. If, as a result of the standards engineer's review and screening of the EF-99 ODT parts complement as well as the review of individual parts lists, the standards engineer cannot recommend satisfactory standard replacements for the proposed nonstandard part, he will contact the Military Parts Control Advisory Group (MPCAG) for its screening and recommendation using DD Form 2052.

Index numbers for the DD Form 2052 will be sequential without regard for FSC (Federal Supply Classification). Index numbers will be organized in the following manner:

Contract Code	FSC	Index
XXXXX	XXXX	A0001

(Contractor or subcontractor assigned identification)

20-6 Appeal of Military Parts Control Advisory Group Recommendations. The recommendations received from the MPCAG are received by the program design engineer for application to the equipment design. If the recommendation(s) is (are) applicable and is (are) accepted for inclusion in the EF-99 ODT design, the standards engineer provides notification of this decision to MPCAG. If the recommendation(s) for a specific par. is (are) deemed unsatisfactory, the program design engineer will prepare a justification detailing the reasons. The justification of an MPCAG recommendation of a standard or nonstandard part may be requested in the following instances:

- a. Technical. When an appeal is based on technical considerations, XYZ will provide all technical data needed to support XYZ's appeal and evaluation by the acquisition activity.
- b. Cost and Schedule Impact. When an appeal is based on cost or scheduling impact, XYZ will provide all data pertaining to impact on cost or schedule.
- c. Usage. When the appeal is based on usage, XYZ will demonstrate that the continued use of the part is advantageous to the Government.

The acquisition activity shall have the final authority concerning all appeals.

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20-7 Provision for Test and Application Data on Proposed Candidate Parts. XYZ will provide any necessary test and application data on proposed candidate parts when required by the contract. It is anticipated that the test data will primarily be in the form of part descriptions and a listing of the specification and drawing numbers or other data available from vendors. The primary form of the application data will indicate what application of the part is anticipated.

20-8 Conduct of Supplier Surveys. The XYZ Product Assurance Department, in conjunction with XYZ Procurement and assisted by Engineering, is responsible for conducting any XYZ supplier surveys. These surveys would consist of the following:

- a. Initial facility surveys, which would primarily be limited to major suppliers or subcontractors with whom XYZ has not dealt previously and on whom XYZ cannot obtain any objective evidence of capability to perform. The survey on these vendors would evaluate the supplier's capability to comply with the terms and conditions of the anticipated purchase order.
- b. In-process surveys on items deemed critical in nature and on which either previous history or initial facility surveys have indicated that such additional monitoring might be prudent. Categories of principal concern might be quality, reliability, and/or parts control.
- c. A final inspection at the source on items for which it has been determined that proper inspection, testing, or the obtainment of objective evidence of quality cannot be acquired after arrival at XYZ. Such a survey would be concerned principally with monitoring the actual product and making an objective determination of compliance with the purchase order.

20-9 Provision of Failure Information of Parts on the PPSL. The analysis of all proposed PPSL parts in relation to failure information will be performed by the Reliability and Maintainability Group, which will evaluate all failure rates and make proper determination of the acceptability of the items in terms of complying with the reliability requirements of the end-item. XYZ will participate in the Government-Industry Data Exchange Program (GIDEP) to the extent specified in MIL-STD-1556.

20-10 Parts Documentation. When authorized by the acquisition activity, XYZ Corporation will prepare parts documentation in accordance with MIL-STD-100, DI-DRPR-81000, DI-DRPR-81001, and DI-DRPR-81002 for all parts used in the EF-99 OFT if such documentation does not exist at DESC, DISC, or DLSC.

20-11 Controls on the Selection of Parts. Selection control is maintained by monitoring the engineering design, as detailed in 20-3, 20-4, and 20-5.

In addition to the requirements of MIL-STD-965, the following shall apply in the selection of parts:

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- a. All additional parts to be included in the PPSL require that the part, whether standard or nonstandard, be currently manufactured by one or more U.S. sources.
- b. The XYZ Corporation will maintain a file identifying the source(s) for all additional parts on the PPSL. The file will be available to the Government for review.
- c. The XYZ Corporation may use nonstandard and nonpreferred integrated circuits (FSC 5962) as "first fit" parts, in order to minimize initial manufacturing cost, if these "first fit" parts meet the following criteria:
 - (1) The use of a "first fit" part will allow the system to meet the reliability standards as set forth in this contract.
 - (2) The "design part" is directly replaceable (form, fit, and function) with the "first fit" part.
 - (3) The "design part" is currently being manufacturing by at least one U.S. vendor.
 - (4) Assembly drawings will call out both the original proposed or recommended "design part" and the identified "first fit" part. Documentation and drawings for repair parts will call out the preferred or recommended "design parts".

20-12 Procedures for the Correction of Specifications Where Necessary.

20-12.1 Military. The correction of military specifications when necessary will be done in accordance with military procedures, which require the processing and delivery of DD Form 1426 to the appropriate agency listed in the original specification.

20-12.2 Commercial. In the case of errors in commercial specifications, XYZ will notify the vendor and attempt to obtain corrections.

20-13 Procedures for Changing Control Drawings Where Necessary. XYZ generated specification and control drawings will be corrected by XYZ's standard change control procedure for engineering drawings.

20-14 Procedures for Controlling Subcontractors and Suppliers. The procedure for control of subcontractors and suppliers will consist of requirements being provided in each major subcontract that will impose whatever parts controls are necessary in relation to that vendor's portion of the total system. On new design equipment the vendor will be required to select parts from the baseline PPSL. Major subcontractors and suppliers will have membership on the PCB. These vendors will be under surveillance of the standards engineer with assistance of the product assurance department.

20-14.1 Subcontractor and Supplier Procedure for Addition to Baseline PPSL. Step 1 For written requests the subcontractors and supplier will send the request to the MPCAG with informational copies to the XYZ Corporation and the acquisition activity. For telephone requests, subcontractors and suppliers need only communicate with the MPCAG.

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Step 2 The MPCAG will forward the recommendation to:

- a. Requester (subcontractors and suppliers).
- b. XYZ Corporation.
- c. Acquisition activity.

Step 3 The acquisition activity will forward the decision (approval or disapproval) to XYZ Corporation with an information copy to the MPCAG.

20-15 Special Requirements.

20-15.1 General. This Parts Control Program is applicable to parts categories specified in MIL-STD-965 on assigned MPCAG commodities.

20-15.2 Parts not Listed on PPSL. Parts not listed on the PPSL will be selected in accordance with MIL-STD-970.

20-15.3 Modified Assemblies. If a vendor purchased assembly or subassembly is modified for use in the EF-99 OFT by the XYZ Corporation or a subcontractor, that portion of the assembly or subassembly will be subject to full parts control as defined in this plan.

20-15.4 Parts Control Exemptions. Items exempted from parts control shall be as follows:

- a. Computers and directly associated peripheral devices not specially designed for use with the training device.
- b. CRT display systems not specially designed for use with the training device.
- c. Unmodified Government Furnished Equipment (GFE).

Items not included in the above categories but considered by XYZ Corporation to be candidates for parts control exemptions will be submitted with specific justification, on an individual basis, to the procuring (acquisition) activity for consideration."

The exempted equipment will be identified and listed in the PPSL under an appendix section titled "Exempted Equipment".

30 Procedure for Selection and Use of Unmodified In-House Items and Equipment.

30-1 Rationale. XYZ Corporation has been and is currently heavily involved in the development and manufacture of training and simulation devices. A great many subsystems, assemblies, and components can be used repeatedly in the design of these devices. The equipment complement and parts lists of previous and current programs are screened by the standards engineer and the program design engineer during the initial development phase of the EF-99 OFT program. As the EF-99 OFT system design evolves, these equipment complements are continually screened to insure maximum use of existing subsystems and assemblies.

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Using previously designed subsystems, assemblies, and components has proven to be beneficial to both the Government and the XYZ Corporation. Some of the benefits realized are:

- a. The use of subsystems, assemblies, and components that are in the Government supply system since these items were used on previous training and simulation devices. This reduces the number of new subsystems, assemblies, and components that need to be placed in the Federal Supply System.
- b. The amount of design and testing is reduced.
- c. The interchange of subassemblies, assemblies, and components is permitted between different training devices.

Nonstandard parts used in previously approved, designed subsystems, assemblies, and components shall be exempted from being submitted for approval provided the design is used without change.

30-2 Supporting Information. Para. 30 describes XYZ's rationale and procedures for selection and use of unmodified in-house items or equipment and for the selection and use of unmodified vendor items or equipment. The rationale includes the following supporting information:

- a. Item name, part number, manufacturer and NSN (national stock number) if available.
- b. Source control drawing number and date (of issue or last revision).
- c. Synopsis of maintenance and supporting listing if known.

References

1. MIL-STD-100. Engineering Drawing Practices.
2. MIL-STD-454. Electronic Equipment, Standard General Requirement for.
3. MIL-STD-965. Part Control Program.
4. MIL-STD-970. Standards and Specifications, Order of Preference for the Selection of.
5. MIL-STD-1556. Government/Industry Data Exchange Program (GIDEP) Contractor Participation Requirements.
6. DI-MISC-80526. Part Control Program Plan.
7. DI-DRPR-81000. Product Drawing and Associated Lists.
8. DI-DRPR-81001. Conceptual Design Drawings and Associated Lists.
9. DI-DRPR-81002. Developmental Design Drawings and Associated Lists.

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APPENDIX D

PARTS CONTROL BOARD PROCEDURES
F99 FIGHTING SHARK*

PREFACE

The Parts Control Board (PCB), consisting of parts representatives from the Air Force, contractor, and major subcontractors, is a working group dedicated to achieving the maximum parts control and standardization for the weapon system. These procedures are to serve as a guide in the operation of the Parts Control Board. The Parts Control and Standardization Plan is a contractual plan documented in the contract. The intent of these procedures is to implement the contractor's plan, and in the event of conflicting requirements, the contract takes precedence.

10 Part Categories. Selecting standard parts in the parts control and standardization task is as applicable in Table 5-V commodity classes - mechanical parts (adapted from Ref. 1) in this handbook.

*This is an actual Parts Control Board Procedures document that was prepared by a United States defense contractor. The name of the preparing organization and the name of the system have been changed.

10.1 Response to Telephone Requests. The MPCAG (Military Parts Control Advisory Group) will respond to telephonic communications within two working days. When a prime contractor requests the technical information and clearly identifies the need for confirmation, the MPCAG will confirm the recommendation to the prime contractor and the acquisition activity (AA) by forwarding a copy of the appropriate form.

20 Parts Control Board (PCB) Members. The PCB members shall be listed as follows:

Organization and Name	Address	Telephone Number
--------------------------	---------	---------------------

(Names, addresses, and telephone numbers not included in this example.)

30 General Operating Objectives. The Parts Control Board's objectives are to achieve maximum parts control and standardization by using high reliability parts and to provide technical guidance in the selection and usage of parts (mechanical, electrical, and electronic).

30.1 High Reliability Parts. Military and aerospace requirements cover a wide range of operating conditions, performance, logistics, procurement, and reliability. As a result, the military services have jointly developed specifications and standards for the procurement of parts. The new designs are required to use high reliability specification parts, such as the MIL-M-38510 Class B microcircuits, JANTX semiconductors, and established reliability (ER) passive devices.

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30.2 Management Visibility. The PCB will provide management visibility through the various parts specialists participating on the PCB. The minutes of the PCB meetings will be used to provide a brief summary of each problem discussed at the meetings. Action items will be assigned to the representatives for resolution, recommendation, or analysis.

30.3 Maximum Parts Commonality. The PCB will strive for maximum parts commonality by requiring the parts for new designs to be selected from the Program Parts Selection List (PPSL) for equipments in the following categories:

- a. New design.
- b. Off-the-shelf modified where requalification is required.
- c. Interface hardware.

The PPSL is under the control of the Parts Control Board. Only parts approved by the PCB may be added to the PPSL. All major subcontractors of new equipment are required to participate in the PCB.

30.4 Common Specification Format. The PCB will review the parts requirements of the various equipments to establish requirements for common parts. These common DESC (Defense Electronics Supply Center), DGSC (Defense General Supply Center), DCSC (Defense Construction Supply Center), or DISC (Defense Industrial Supply Center) part requirements will be examined to determine whether a specification can be prepared to permit the parts to be classed as standard parts and to be procured with one specification.

30.5 Exchange of Technical Data. The PCB will serve as an advisory service to all equipment manufacturers and to the user of the equipment. Each manufacturer and user is encouraged to use the PCB and its parts representatives to search for the resolution of parts problems.

40 Detail Operating Procedures.

40.1 PCB Membership. The PCB membership will include representatives of the following:

- a. Acquisition activity.
- b. Contractor.
- c. Major subcontractors for new designs.
- d. Military Parts Control Advisory Group.
 - (1) Mechanical
 - (2) Electrical and electronic
- e. Parts review agency.
 - (1) Mechanical
 - (2) Electrical and electronic
- f. Air Force representative.

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In addition, other representatives of the customer, contractor, and subcontractors may attend a PCB meeting if the PCB is evaluating candidate nonstandard parts of particular interest to the "other" representative. Technical consultants may be invited as needed by PCB members with the concurrence of the PCB chairman.

40.2 PCB Operating Procedures.

40.2.1 The PCB will meet at two or three month intervals during the initial phase and less frequently thereafter.

40.2.2 The PCB will be chaired by the contractor's representative.

40.2.3 The chairman will establish the meeting place and agenda. All agenda items should be sent to the chairman no later than ten (10) days before the meeting. Additional items may be added to the agenda at the PCB meeting.

40-2.4 The chairman will notify all PCB members of the time, place, and agenda of the meeting ten (10) days prior to the meeting.

40.2.5 General plan of action for the PCB meetings:

- a. Review minutes, correct, and approve.
- b. Review agenda, and add any agreed to new items.
- c. General discussion of PCB problems and technical exchange.
- d. In-depth reviews of mechanical, electrical, and electronic parts.
- e. General meeting to assign and schedule action items and to complete general discussion.
- f. PCB action should be by class type, e.g., microcircuits, if possible, to permit experts to be brought to the meeting.

40.2.6 Minutes of the previous meeting will be reviewed, corrected, and signed by the chairman and the acquisition activity representatives.

40.2.7 The PCB has five objectives to achieve at each PCB meeting:

- a. To insure that all parts used in new designs are adequately defined, selected, and controlled in accordance with the program plan.
- b. To insure that parts are high reliability parts.
- c. To provide maximum part commonality.
- d. To provide advisory service and technical exchange of information concerning parts.
- e. To provide management visibility.

40.2.7.1 The PCB will review all requests for parts to be added to the PPSL.

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- a. The prime contractor will review all of the subcontractor's requests for parts to be added. If the contractor concurs that the part should be processed, he will forward the request to the applicable review agency.
- b. If the review agency recommends that the part be added to the PPSL, the contractor will list the part for review at the next PCB meeting.
- c. The PCB will approve or disapprove the addition of the part to the PPSL.
- d. The AA has 15 days after the PCB meeting to disapprove changes to the PPSL.
- e. The PCB will assign preparation and coordination of documentation specifying the requirements for part candidates.
 - (1) The PCB will insure that the documentation for piece parts approved for addition to the PPSL is prepared in accordance with MIL-STD-100, or NAS (National Aerospace Standard) 380.
 - (2) If a part is not suitably defined by a military or DoD approved association specification or standard, the PCB will recommend it as a candidate for documentation.
 - (3) The PCB will recommend the specification or standard for the part candidate for documentation in military, industry, or DESC military drawing format.

40.2.7.2 The PCB will insure that the parts meet the program requirements:

- a. The PCB will review the request and proposed specification for adequate screening requirements to insure that the part is being procured according to requirements that will provide a reliable part.
- b. The PCB will serve as a focal point for parts problems. The responsible reliability engineer of each company or agency represented on the PCB will be requested to provide any specific reliability part problem to his PCB representative for review and action by the PCB. PCB action should be taken by class type, e.g., microcircuits, if possible, to permit experts to be brought to a meeting.
- c. The PCB will follow the corrective action implemented as the result of the contractor's corrective action system to determine whether a part on the PPSL is exhibiting an unacceptable failure rate and whether the part should be deleted from the PPSL.

40.2.7.3 The PCB will provide the controls to assure maximum commonality of parts:

- a. The PCB will provide the controls to assure timely preparation and revision of specifications and standards and will review each part request for the possibility of incorporating that part into existing military specifications or standards.

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- b. The PCB will review each part request for commonality with other parts. The purpose of the review will be to establish common specifications for the parts so that duplicate items will not be added into the Government inventory.

40.2.7.4 The PCB will provide advisory service and will encourage technical exchange of information on parts.

The PCB parts specialist from each company and agency is required to keep informed on all parts problems within his company or agency to provide technical guidance to other members of the PCB.

40.2.7.5 The PCB will provide management visibility concerning parts and parts problems. Each parts specialist will be responsible for providing his management with information concerning the Parts Control and Standardization Program. The minutes of the PCB meeting will document the significant activities of the PCB.

40.2.7.5.1 The PCB will identify critical parts based on technical risks, high costs, or long lead times. The purpose of flagging certain parts as critical is to alert management of a potential problem. The PCB chairman will assign critical items to the various PCB representatives for special monitoring and reporting.

40.2.8 The PCB will consider parts for addition to the PPSL only if the following procedure is followed and documentation is prepared.

40.2.8.1 When the subcontractor and contractor find that a part is needed that is not on the PPSL, the subcontractor or contractor may call the MPCAG part expert assigned responsibility for that part type (see DESC, DISC, DGSC, or DCSC directory) for assistance in finding a suitable part.

40.2.8.2 When a suitable part has been located that meets design needs and is acceptable to the MPCAG part expert as either a military or industry standard part or as an acceptable nonstandard part, the subcontractor or contractor will fill out DD Form 2052 for a nonstandard part or DD Form 2053 for a standard part. The subcontractor will send all DD Forms 2052 and 2053 to the contractor's parts engineer. All DD Forms 2052 or 2053 will be assigned a contractor's log number. The contractor will forward the forms to the appropriate review agency for documentation of its recommendation. A copy of the DD Form 2052, F-5-16, or computer generated PPSL will be returned to the contractor with a copy to the AA by the MPCAG program manager.

40.2.8.2.1 For expedited service by DESC, DISC, DGSC, or DCSC, the contractor will call the MPCAG evaluators and request approval of a specific part. MPCAG will complete a DESC Form 24 with its disposition. A copy of the Form 24, F-5-16, or computer printout will be sent to the contractor with a copy to the AA.

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40.2.8.3 When the part is determined to be acceptable by the parts review agency, no further documentation is required if the part is governed by a released military or industry standard. If the part is nonstandard, a specification or military drawing must be prepared. As a minimum, the specification must provide the data defined in Sections 3 and 4 of an equivalent military specification for a part. A burn-in circuit must either be provided or be available if the part requires burn-in.

40.2.8.3.1 If the part is used in multiple equipment in large quantities, the PCB will consider the part for a standard specification.

40.2.8.3.2 If the part is used on only one equipment and in low volume, the user's specification will be approved if the specification is judged to be satisfactory for Government procurement of the part. If it is not satisfactory, the user will be required to amend the specification before the PCB will approve the part. A complete specification will include the following:

- a. All parameters sufficient to insure functional interchangeability.
- b. Complete configuration sufficient to insure mechanical interchangeability.
- c. Marking, date code, and lot symbol per MIL-STD-1285 or MIL-HDBK-31.
- d. If loose mounting, terminal, or adapter fittings are to be included, they shall be clearly specified, identified by appropriate means, and packaged in order to maintain the quality of the part and the associated loose fittings.
- e. Environmental capability and test requirements, including screening and burn-in circuit, if required.
- f. Endurance (longevity) and qualification tests.
- g. Quality assurance and acceptance tests.
- h. Common test methods of applicable military standards.

40.2.8.3.3 The PCB will review the MPCAG's comments on part specifications to resolve any points of difference between the supplier and MPCAG. The AA's decision will be final in the event the PCB cannot resolve the problem.

40.2.9 GIDEP Alert Procedures. The Government-Industry Data Exchange Program (GIDEP) is a cooperative, multiagency program providing automatic interchange of nonclassified and nonproprietary engineering test data, failure rate and mode data and failure experience on parts and materials, metrology data, and calibration procedures on test equipment and related technical information.

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Each subcontractor currently engaged in the GIDEP shall continue participation and shall continue to use the GIDEP alert system for the identification and documentation of significant problems experienced with parts and materials in his facility. Each subcontractor shall continue to review all alerts for applicability to the equipment that he is manufacturing. The MPCAG shall review each request against current alerts for applicability.

During the technical information exchange period of each PCB, each member of the PCB is invited to present any pertinent problem that he believes may warrant generation of an alert. All such technical exchanges shall be informal and not be recorded in the minutes but shall be for the purpose of alerting other PCB participants of a potential problem. If the problem warrants, the PCB (with the concurrence of the subcontractor bringing up the problem) may request the MPCAG, where that center has QPL (qualified products list) cognizance, to issue an MPCAG alert. Regardless of the PCB's action, the contractor or subcontractor shall follow normal GIDEP procedures for releasing alerts. Action items shall not be assigned to the alert problem discussed in the technical information exchange if any member of the PCB believes such action infringes on contractual matters.

40.2.10 Substitution of Parts. When a specific standard part cannot be obtained in time to meet the manufacturing schedule, an equivalent part may be substituted with the approval of the part substitution board (subboard of PCB). When a specific part is determined to be unavailable, the subcontractor submits a Part Substitution Request.

To expedite approval, the following information is needed on the request:

- a. Which sources (manufacturers and distributors) have been contacted and promise delivery dates?
- b. What is actual need date, i.e., the date at which the schedule will slip if the need is not fulfilled?
- c. What is the substitute part? To what specification will it be procured?
- d. Does the substitute part meet all design requirements?

40.3 Operation.

40.3.1 Contractor's Representative.

40.3.1.1 The contractor is the focal point for all parts activities and is responsible for the contractor's equipment and the subcontractors' equipment. The assigned contractor parts representative is the chairman of the Parts Control Board.

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40.3.1.2 Chairman of the PCB. The Parts Control and Standardization Program has two facets: The mechanical parts, and the electrical and electronic parts. The contractor has assigned a mechanical engineer to be responsible for the mechanical parts and an electrical engineer to be responsible for the electrical and electronic parts. During FSC (full-scale development), the assigned parts engineers will serve as co-chairmen of the PCB. The co-chairmen will accomplish the following:

- a. Prepare PCB Agenda. The PCB chairmen will prepare and coordinate the PCB meeting agenda including parts candidates for the PPSL. The agenda will be transmitted to the PCB members ten (10) days prior to the PCB meeting. All items desired by PCB members to be included in the agenda must be received by the chairmen before the ten (10) day limit. However, at the PCB meeting, additional items may be added to the agenda if the PCB agrees.
- b. Location of the Meeting. The PCB chairmen will establish the location and time of PCB meetings and will notify all PCB members of the time and place of each meeting.

40.3.2 AA Representative to the PCB. The AA representative to the PCB is the focal point for all Government agencies and personnel concerning parts control and standardization. The following duties are performed by the AA representative:

- a. Represent the AA at all PCB meetings.
- b. Coordinate the exchange of parts control and standardization information among Government organizations and personnel and between the AA and the prime contractor.
- c. Inform the PCB chairman, at least ten days prior to PCB meeting, of items to be included in the PCB meeting.
- d. Approve meeting agendas and minutes, and distribute them to Government members of the PCB.
- e. Notify the prime contractor of disapproval by the AA of PCB actions. If the right is not exercised within 15 days, the actions of the PCB are automatically approved.
- f. Review MPCAG recommendations on fast turn-around of requests for nonstandard parts approval, and advise the prime contractor of AA concurrence or nonconcurrence.

40.3.3 Air Force Representative to the PCB. The U.S. Air Force representative to the PCB has the following responsibilities:

- a. Represent the Air Force at PCB meetings.
- b. Monitor the prime contractor's implementation of parts control and standardization through the Contractor Management System Evaluation Program (CMSEP).
- c. Provide on-site support to the AA as appropriate.
- d. Assure Air Force engineering review of ECPs (engineering change proposals) will include whether or not the contractor has employed parts control and standardization practices.

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- e. Serve as the Government monitor of the contractor's parts control and standardization activities interrelating this contract with other contracts.

40.3.4 Military Parts Control Advisory Group. As authorized by DoD Instruction 5000.2 MPCAGs have been established by the Defense Logistics Agency (DLA) to assist DoD contractors in the selection of standard parts for use in new systems and equipment design. The contractual requirement for including DLA MPCAGs in DoD contracts is outlined in MIL-STD-965, Parts Control Program. Each DLA MPCAG consists of professional engineers and experienced technicians who have the latest information available on standard parts and who can quickly disseminate this information upon request to Government agencies and their contractors. DLA MPCAGs are located at the DESC, in Dayton, OH; the DISC in Philadelphia, PA; the DGSC in Richmond, VA; and the DCSC in Columbus, OH.

- a. Parts Control Program. The objective of the Parts Control Program is to promote the use of standard parts to assure that military materiel uses reliable parts at an economical price. To accomplish this, parts advisors in DLA can provide assistance to acquisition activities, equipment and systems designers, and contractors in the selection of parts for new design (including redesign of existing equipment and systems). In recommending parts selection, DLA can help the military services to control the proliferation and variety of parts used in new design, enhance standardization, conserve resources, simplify logistic support, and minimize the number of new parts entering the supply system.
- b. MPCAG Scope. DLA engineers provide, to DoD components and their contractors, advice and recommendations on the selection and use of DoD preferred and standard parts during the design phase of equipment and system development. Nonstandard parts submitted for evaluation are considered for suitability for Government procurement and potential candidates for standardization. In conjunction with the parts advisory service, DLA engineers may prepare or cause to be prepared, military specifications or standards needed to procure and standardize new parts. Final authority for the selection and use of parts during design rests with the DoD component charged with the procurement responsibility for the development contract. In supporting the Parts Control Program, parts problems may arise for which assistance is desired. The following are just a few of the ways in which MPCAG program engineers may be of assistance:
 - (1) Help contractors determine commonality of parts.
 - (2) Assist in selecting the latest preferred standard parts.
 - (3) Interpret specification requirements and determine applicability.
 - (4) Modify or recommend modification to an existing military or industry specification to meet latest requirements.
 - (5) Clarify parts control procedures and problems.

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References

1. MIL-STD-100, Engineering Drawing Practices.
2. MIL-STD-965, Parts Control Program.
3. MIL-STD-1285, Marking of Electrical and Electronic Parts.
4. MIL-M-38510, Microcircuits, General Specification for.

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TECHNICAL REVIEWS AND AUDITS*

The technical reviews and audits that are conducted during the acquisition process are discussed in the paragraphs that follow.

10 System Requirements Review (SRR). The objective of this review is to ascertain the adequacy of the contractor's efforts in defining system requirements. It will be conducted when a significant portion of the functional requirements of the system has been established.

20 System Design Review (SDR). This review shall be conducted to evaluate the optimization, correlation, completeness, and risks associated with the allocated technical requirements. Also included is a summary review of the system engineering process that produced the allocated technical requirements and of the engineering planning for the next phase of effort. Basic manufacturing considerations will be reviewed and planning for production engineering in subsequent phases will be addressed. This review will be conducted when the system definition effort has proceeded to the point where system characteristics are defined and the configuration items are identified.

30 Software Specification Review (SSR). A review of the finalized computer software configuration item (CSCI) requirements and operation concept. The SSR is conducted when CSCI requirements have been sufficiently defined to evaluate the contractor's responsiveness to and interpretation of the system, segment, or prime item level requirements. A successful SSR is predicated upon the contracting agent's determination that the Software Requirements Specification, Interface Requirements Specification(s), and Operational Concept Document form a satisfactory basis for proceeding into preliminary software design.

40 Preliminary Design Review (PDR). This review shall be conducted for each configuration item or aggregate of configuration items to:

- a. Evaluate the progress, technical adequacy, and risk resolution (on a technical, cost, and schedule basis) of the selected design approach,
- b. Determine its compatibility with performance and engineering specialty requirements of the Hardware Configuration Item (HWCI) development specification,
- c. Evaluate the degree of definition, and assess the technical risk associated with the selected manufacturing methods or processes
- d. Establish the existence and compatibility of the physical and functional interfaces among the configuration item and other items of equipment, facilities, computer software, and personnel. For CSCIs this review will focus on:

*Adapted from MIL-STD-1521.

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- (1) The evaluation of the progress, consistency, and technical adequacy of the selected top level design and test approach.
- (2) Compatibility between software requirements and preliminary design.
- (3) Preliminary version of the operation and support documents.

50 Critical Design Review (CDR). This review shall be conducted for each configuration item when detail design is essentially complete. The purpose of this review will be to:

- a. Determine that the detail design of the configuration item under review satisfies the performance and engineering specialty requirements of the HWCI development specifications.
- b. Establish the detail design compatibility among the configuration item and other items of equipment, facilities, computer software and personnel.
- c. Access areas of the configuration item risk (on a technical, cost, and schedule basis).
- d. Assess the results of the producibility analyses conducted on system hardware.
- e. Review the preliminary hardware product specifications.

For CSCIs this review will focus on the determination of the acceptability of the detailed design, performance, and test characteristics of the design solution and on the adequacy of the operation and support documents.

60 Test Readiness Review (TRR). A review conducted for each CSCI to determine whether the software test procedures are complete and to assure that the contractor is prepared for formal CSCI testing. Software test procedures are evaluated for compliance with software test plans and descriptions and for adequacy in accomplishment of test requirements. At the TRR the contracting agent also reviews the results of informal software testing and any updates to the operation and support documents. A successful TRR is predicated on the contracting agency's determination that the software test procedures and informal test results form a satisfactory basis for proceeding into formal CSCI testing.

70 Functional Configuration Audit (FCA). A formal audit to validate that the development of a configuration item has been completed satisfactorily and that the configuration item has achieved the performance and functional characteristics specified in the functional or allocated configuration identification. In addition, the completed operation and support documents shall be reviewed.

80 Physical Configuration Audit (PCA). A technical examination of a designated configuration item to verify that the configuration item "as built" conforms to the technical documentation that defines the configuration item.

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90 Formal Qualification Review (FQR). The test, inspection, or analytical process by which a group of configuration items comprising the system are verified to have met specific contracting agency contractual performance requirements (specifications or equivalent). This review does not apply to hardware or software requirements verified at the FCA for the individual configuration item.

100 Production Readiness Review (PRR). This review is intended to determine the status of completion of the specific actions that must be satisfactorily accomplished prior to executing a production go-ahead decision. The review is accomplished in an incremental fashion during the full-scale development (FSD) phase, usually two initial review and one final review to assess the risk in exercising the production go-ahead decision. In its earlier stages the PRR concerns itself with gross level manufacturing concerns such as the need for identifying high risk and/or low yield manufacturing processes or materials or the requirement for manufacturing development effort to satisfy design requirements. The reviews become more refined as the design matures; they deal with such concerns as production planning, facilities allocation, incorporation of producibility-oriented changes, identification and fabrication of tools and test equipment, long lead item acquisition, etc. Timing of the incremental PRRs is a function of program posture and is not specifically locked into other reviews.

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DoD PARTS CONTROL PROGRAM
COST-BENEFIT REPORTING PROCEDURES

10 Purpose. The purpose of the cost-benefit reporting procedure contained herein is to provide management an assessment tool to determine the worth of parts control in terms of cost avoidance versus the investment in MPCAGs. Benefits are tabulated on the basis of nonstandard part types replaced by standard and preferred part types recommended to DoD contractors by the MPCAGs.

20 Background. In March 1975, the DoD Parts Control Program Task Group requested the DLA member to develop a method for reporting the cost benefits of the MPCAG operation in support of the program. The proposed cost-benefit methodology developed was provided to the Comptroller, DLA, for a determination as to the adequacy of the methodology proposed. In May 1976, the Comptroller concurred in the basic approach of computing cost avoidance by application of certain predetermined cost factors. A report prepared by DESC at the request of DLA-SE, Cost-Benefit Reporting for the Parts Control System, August 1977, was accepted by the DoD Parts Control Program Task Group as an approved evaluation technique for the program. Cost-Benefit Reporting Procedures were revised in March 1982 and amended July 1982 after evaluation of DLA-L and OASD. The 15 April 1988 issue, Cost-Benefit Reporting for the DoD Parts Control Program (CRPCP-88-01), serves as the basis for cost-benefit reporting outline herein.

TABLE F-I. Value of One Standard Mechanical Part Type.

FSC	Part Category Description	Document	Testing	Supply	Maint	Total
3020	Gears, Pulleys	\$200	\$1100	\$3100	\$5200	\$10,000
3030	Belting	200	1200	3100	5200	10,000
3110	Bearings (Antifriction)	800	6100	3100	5200	15,000
3120	Bearings (Plain)	700	5400	3100	5200	14,000
3130	Bearings (Mounted)	700	6100	3100	5200	15,000
4030	Cable Fittings	500	2600	3100	5200	11,000
4330	Vacuum Filters, etc.	200	1400	3100	5200	10,000
4710	Pipes, Tubes	300	1400	3100	5200	10,000
4720	Hose, Tubing	600	3400	3100	5200	12,000
4730	Tube Fittings	600	4000	3100	5200	13,000
4820	Valves (Nonpowered)	600	1700	3100	5200	11,000
5305	Screws	400	2400	3100	5200	11,000
5306	Bolts	400	3100	3100	5200	12,000
5307	Studs	400	2400	3100	5200	11,000
5310	Nuts, Washers	400	2500	3100	5200	11,000

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TABLE F-I. Value of One Standard Mechanical Part Type - Continued.

FSC	Part Category Description	Document	Testing	Supply	Maint	Total
5315	Pins	\$400	\$2300	\$3100	\$5200	\$11,000
5320	Rivets	400	2600	3100	5200	11,000
5325	Fastening Devices	500	2700	3100	5200	12,000
5330	Seals, Packing	500	2800	3100	5200	12,000
5340	Miscellaneous Hardware	500	2600	3100	5200	11,000
5355	Knobs, Pointers	400	2300	3100	5200	11,000
5360	Springs	500	2400	3100	5200	11,000
5365	Rings, Shims	400	2300	3100	5200	11,000
MISC	Products Not Classified Above	200	1100	3100	5200	10,000

TABLE F-II. Value of One Standard Mechanical Part Type or Material.

FSC	Part Category Description	Document	Testing	Supply	Maint	Total
4130	Refrg/Air Cndtn Elect Comp	\$ 500	\$3000	\$3100	\$5200	\$12,000
4140	Miniature Blowers, Fans	1400	3000	3100	5200	13,000
5940	Terminal Blocks, Lugs, etc	1000	3000	3100	5200	12,000
5970	Insulators	1000	3000	3100	5200	12,000
5975	Electrical Hardware/Supplies	700	3000	3100	5200	12,000
5995	Cable Assemblies (Fabricated)	1700	3000	3100	5200	13,000
6140	Batteries (Rechargeable)	1400	3000	3100	5200	13,000
6145	Wire, Cable	700	3000	3100	5200	12,000
6150	Power/Distr Equipment Parts	1100	3000	3100	5200	12,000
6210	Indoor/Outdoor Light Fixtures	1100	3000	3100	5200	12,000
6240	Electric Lamps	1000	3000	3100	5200	12,000
6350	Misc Alarm/Signal System Parts	1400	3000	3100	5200	13,000
6625	Electric Panel Meters	700	3000	3100	5200	12,000
6645	Electric Time Instruments	700	3000	3100	5200	12,000
6680	Liquid/Gas Flow Instruments	800	3000	3100	5200	12,000
6685	Pressure/Temp/Humidity Control	500	3000	3100	5200	12,000
9150	Lubricants	800	10200	3100	5200	19,000
9320	Rubber Materials	800	7600	3100	5200	17,000
9330	Plastic Materials	1000	13000	3100	5200	22,000
MISC	Products Not Classified Above	700	3000	3100	5200	12,000

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TABLE F-III. Value of One Standard Electronic Part Type.

FSC	Part Category Description	Document	Testing	Supply	Maint	Total
5905	Resistors	\$ 900	\$3000	\$3100	\$5200	\$12,000
5910	Capacitors	1300	3000	3100	5200	13,000
5915	Filters (Electrical), Networks	1300	3000	3100	5200	13,000
5920	Fuses	900	3000	3100	5200	12,000
5925	Circuit Breakers	900	3000	3100	5200	12,000
5930	Switches (except RF, see 5985)	700	3000	3100	5200	12,000
5935	Connectors (Power/RF/etc)	2000	3000	3100	5200	13,000
5945	Relays	1400	3000	3100	5200	13,000
5950	Transformers, Coils	1300	3000	3100	5200	13,000
5955	Crystals, Oscillators	900	3000	3100	5200	12,000
5960	Electron Tubes	700	3000	3100	5200	12,000
5961	Transistors, Diodes	2000	3300	3100	5200	14,000
5962	Integrated Circuits (ICs)	3000	5600	3100	5200	17,000
5965	Audio Parts	700	3000	3100	5200	12,000
5980	Opto-Electronic Devices	2000	3300	3100	5200	14,000
5985	Waveguides, RF Switches	3000	3000	3100	5200	14,000
5990	Synchros, Resolvers	700	3000	3100	5200	12,000
5999	Miscellaneous Electronic Parts	1100	3000	3100	5200	12,000
GP60	Fiber Optics	700	3000	3100	5200	12,000
MISC	Products Not Classified Above	700	3000	3100	5200	12,000

30 MPCAG Cost Avoidance Determination.30.1 Applying the Value of a Standard.

- a. The MPCAG can receive a benefit credit each time it replaces a nonstandard commercial part type by a Military/Federal Specification or Standard, a non-Government Standard or a Military Drawing.
- b. The cost avoidance factors are based on the following:
 - (1) Drawings avoided for 50 percent of the nonstandard commercial part types replaced.
 - (2) Testing avoided for 25 percent of the part types replaced.
 - (3) Three logistic items (National Stock Numbers (NSNs)) precluded for each part type avoided.

30.2 Application Illustration.

30.2.1 Military Parts Control Advisory Group (MPCAG) Costs. Since the objective of this cost-benefit technique is to measure the effectiveness of the use of MPCAGs, only the costs of operating MPCAGs will be considered since the parts control costs of the Military Services and contractors would

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exist with or without the use of a MPCAG. The use of the MPCAGs actually reduces Military Service/contractor costs by providing automation services; eliminating much of the paperwork for nonstandard part requests; providing assistance via telephone; and providing guidance to acquisition managers on the most effective tailoring of the PCP for specific contract applications.

30.2.2 Applying Value of Product FSC Standard Part Types. The data in Table F-IV was compiled using the performance of one MPCAG in FY 1980 as an example. Column c is the number of nonstandard part types replaced by MPCAG action. Column b is the value of one standard and column d is the cost avoidance benefit in millions.

TABLE F-IV. Cost avoidance benefits.

a	b	c	d
FSC	Value \$ of 1 Standard	Nonstandard ^{1/} Types Replaced	Cost Avoidance Benefit
5905	\$ 7000	369	\$2.583
5910	7000	621	4.347
5915	7000	92	0.644
5920	7000	22	0.154
5925	7000	63	0.441
5930	8000	377	3.016
5935	9000	1078	9.702
5945	9000	80	0.720
5950	8000	51	0.408
5955	7000	71	0.497
5960	9000	1	0.009
5961	15000	491	7.365
5962	18000	3308	59.544
5965	5000	5	0.025
5985	15000	74	1.110
5999	8000	21	0.168
6145	6000	527	3.162
6625	9000	1	0.009
TOTAL		7252	\$93.904M

^{1/} Nonstandard commercial part types replaced by Military/Federal Specifications and Standards, non-Government Standards or Military Drawings part types.

40-3 DLA Parts Control Costs. The cost of the parts control operation shall be compared against the benefits of the program. The operational costs should include cost data obtained from cost account codes 44501 and 44502, obtained from Obligation Report .RCS DLA(M)48(C).

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CHANGES FROM PREVIOUS ISSUE

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

CONCLUDING MATERIAL

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Review activities:

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Air Force - 01, 11, 13, 17, 23, 89, 99
DLA - CS, GS, IS, EP

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3. DOCUMENT TITLE Guidelines for the Implementation of the DoD Parts Control Program			
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