Department of Defense
DIRECTIVE

February 23, 1991
NUMBER 5000.1

USD(A)

SUBJECT: Defense Acquisition

References:
(a) Secretary of Defense Report, "Defense Management Report to the President," July 1989
(b) DoD Directive 5000.1, "Major and Non-Major Defense Acquisition Programs," September 1, 1987 (hereby canceled)
(c) DoD Directive 4245.1, "Military Department Acquisition Management Officials," July 8, 1986 (hereby canceled)
(d) DoD Instruction 5000.2, "Defense Acquisition Management Policies and Procedures," February 23, 1991
(e) through (bbbb), see enclosures 4 and 5

A. REISSUANCE AND PURPOSE

This Directive:

1. Establishes a disciplined management approach for acquiring systems and materiel that satisfy the operational user's needs. This approach is based on the principles contained in the "Defense Management Report to the President" (reference (a)).

2. Replaces:

   a. DoD Directive 5000.1, "Major and Non-Major Defense Acquisition Programs" (reference (b)).

   b. DoD Directive 4245.1, "Military Department Acquisition Management Officials" (reference (c)).

3. Cancels the documents identified in enclosure 5, Cancellations (references (r) through (bbbb)), which will be replaced by DoD Instruction 5000.2, "Defense Acquisition Management Policies and Procedures" (reference (d)).

B. APPLICABILITY AND PRECEDENCE

1. This Directive applies to:

   a. The Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Unified and Specified Commands, the Defense Agencies, and DoD Field Activities (hereafter referred to collectively as "DoD Components").

3. Establish:

   a. An integrated framework for translating broadly stated mission needs into stable, affordable acquisition programs that meet the operational user's needs and can be sustained, given projected resource constraints; and

   b. A rigorous, event-oriented management process for acquiring quality products that emphasizes effective acquisition planning, improved communications with users, and aggressive risk management by both Government and industry.

B. APPLICABILITY AND PRECEDENCE

1. This Instruction applies to:

   a. The Office of the Secretary of Defense; the Military Departments; the Chairman, Joint Chiefs of Staff and Joint Staff; the Unified and Specified Commands; the Defense Agencies; and DoD Field Activities (hereafter referred to collectively as "DoD Components").

   b. The management of major and nonmajor defense acquisition programs and highly sensitive classified programs.

2. DoD Directive 5000.1, "Defense Acquisition" (reference (c)) and this Instruction rank first and second in order of precedence for providing policies and procedures for managing acquisition programs, except when statutory requirements override. If there is any conflicting guidance pertaining to contracting, the Federal Acquisition Regulation/Defense Federal Acquisition Regulation Supplement shall take precedence over DoD Directive 5000.1 and this Instruction.

3. The acquisition of nuclear and nuclear capable weapon systems are additionally governed by DoD Directive 3150.1, "Joint Nuclear Weapon Development Studies and Engineering Projects" (reference (d)).

C. DEFINITIONS

1. Acquisition Program. A directed, funded effort that is designed to provide a new or improved materiel capability in response to a validated need.

2. Highly Sensitive Classified Program. An acquisition special access program established in accordance with DoD 5200.1-R, "Information Security Program Regulation" (reference (e)), and managed in accordance with DoD Directive O-5205.7, "Special Access Program Policy" (reference (f)).

3. Implementation. The publication of directives, instructions, regulations, and related documents that define responsibilities and authorities and establish the internal management processes necessary to implement the policies or procedures of a higher authority.

4. Major Defense Acquisition Program. An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is:

   a. Designated by the Under Secretary of Defense for Acquisition as a major defense acquisition program, or

   b. Estimated by the Under Secretary of Defense for Acquisition to require:

      (1) An eventual total expenditure for research, development, test, and evaluation of more than $200 million in fiscal year 1980 constant dollars (approximately $300 million in fiscal year 1990 constant dollars), or

      (2) An eventual total expenditure for procurement of more than $1 billion in fiscal year 1980 constant dollars (approximately $1.8 billion in fiscal year 1990 constant dollars).

   NOTE: This definition is based on the criteria established in Title 10, United States Code, Section 2430,"Major defense acquisition program defined" (reference (g)) and reflects authorities delegated in DoD Directive 5134.1, "Under Secretary of Defense for Acquisition" (reference (h)).

5. Major System. A combination of elements that will function together to produce the capabilities required to fulfill a mission need, including hardware, equipment, software, or any combination thereof, but excluding construction or other improvements to real property. A system shall be considered a major system if it is estimated by the Under Secretary of Defense for Acquisition to require:

   a. An eventual total expenditure for research, development, test, and evaluation of more than $75,000,000 in fiscal year 1980 constant dollars (approximately $115,000,000 in fiscal year 1990 constant dollars), or

   b. An eventual total expenditure for procurement of more than $300,000,000 in fiscal year 1980 constant dollars (approximately $540,000,000 in fiscal year 1990 constant dollars).

   NOTE: This definition is based on the criteria established in Title 10, United States Code, Section 2302(5) "Definitions: major system" (reference (i)).

6. Nonmajor Defense Acquisition Program. A program other than a major defense acquisition program or a highly sensitive classified program.

7. Performance. Those operational and support characteristics of the system that allow it to effectively and efficiently perform its assigned mission over time. The support characteristics of the

system include both supportability aspects of the design and the support elements necessary for system operation.

8. Supplementation. The publication of directives, instructions, regulations, and related documents that add to, restrict, or otherwise modify the policies or procedures of a higher authority.

9. Additional definitions are contained in Part 15 of this Instruction.

D. POLICY AND PROCEDURES

The policies and procedures of this Instruction implement:

1. DoD Directive 5000.1, "Defense Acquisition" (reference (c)),

2. The guidelines of Office and Management and Budget Circular A-109, "Major System Acquisitions" (reference (j)), and

3. Current statutes.

E. RESPONSIBILITIES

1. Heads of DoD Components shall ensure that the policies and procedures in this Instruction and its enclosures are followed by their respective Components.

2. Offices proposing changes to individual sections of this Instruction shall coordinate proposed changes with the Director, Acquisition Policy and Program Integration, Office of the Under Secretary of Defense for Acquisition prior to DoD-wide staffing of the change.

F. INFORMATION REQUIREMENTS

The reporting requirements contained in this Instruction have been licensed in accordance with DoD Directive 7750.5, "Management and Control of Information Requirements" (reference (k)). See Section 11-D, attachment 1, for the correct report titles, Report Control Symbols, and Office of Management and Budget Control Numbers.

G. SUPPLEMENTATION AND IMPLEMENTATION

1. Unless prescribed by statute or specifically authorized herein, the policies and procedures set out in this Instruction shall not be supplemented without the prior approval of the Under Secretary of Defense for Acquisition.

2. DoD Component Heads shall distribute this Instruction and DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" to the Program Manager and appropriate field operating command level within 60 days of receipt.

3. Implementing directives, instructions, regulations, and related issuances shall be kept to the essential minimum as deemed appropriate by the DoD Component Acquisition Executive. Copies of

all such issuances shall be provided to the Director of Acquisition Policy and Program Integration, Office of the Under Secretary of Defense for Acquisition within 10 days of publication.

H. WAIVERS

Requests for exceptions or waivers to any of the mandatory provisions of this Instruction must be submitted to the Under Secretary of Defense for Acquisition via the DoD Component Acquisition Executive unless specific waiver authority has been granted below the Under Secretary level by this Instruction. Statutory requirements may not be waived.

I. EFFECTIVE DATE

1. This Instruction is effective immediately for planning purposes.

2. Defense acquisition programs scheduled for milestone reviews 6 months after the date of publication of this Instruction are subject to the new review procedures and documentation requirements identified in this Instruction.

For all matters in this Instruction relating to operational test and evaluation.

Robert C. Duncan
Director, Operational
Test and Evaluation

For all matters in this Instruction except operational test and evaluation.

Donald J. Yockey
Acting Under Secretary of
Defense for Acquisition

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PART 1

DOCUMENT BACKGROUND AND TABLE OF CONTENTS

DoD acquisition management policies and procedures have traditionally been published in numerous separate Directives and Instructions. These documents were typically supplemented by the DoD Components. Over time, this practice resulted in a heavily cross-referenced maze of guidance that stifled creativity and individual judgment and defied practical use.

This Instruction seeks to remedy that problem by establishing a core of fundamental policies and procedures that can be implemented down to the Program Manager and field operating command level without supplementation. The subject matter information in this Instruction was condensed from over 45 separate DoD issuances that have been canceled and countless DoD Component publications that are being canceled.

The contents of this Instruction must meet the diverse needs of Program Managers, milestone decision authorities, and their respective supporting staffs. Accordingly, the policies and procedures are organized along functional and organizational lines.

Individual sections within subsequent parts of this Instruction identify references appropriate to the subject matter being addressed and are structured to be self-contained. Cross-references to subject matter in other sections are provided to facilitate the effective integration of effort that is essential to success.

When appropriate, references to other sections of this Instruction are shown in the text as "(see Section 4-F)." This reference would be to Section F of Part 4.

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PART 2

GENERAL POLICIES AND PROCEDURES

References:
(a) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(b) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991 authorized by this Instruction
(c) DoD 5200.1-R, "Information Security Program Regulation," June 1986, with Change No. 1, June 27, 1988, authorized by DoD Directive 5200.1, "DoD Information Security Program," June 7, 1982
(d) DoD Directive O-5205.7, "Special Access Program (SAP) Policy," January 4, 1989
* (e) DoD Instruction 5500.15, "Review of Legality of Weapons Under International Law," October 16, 1974 (canceled) *

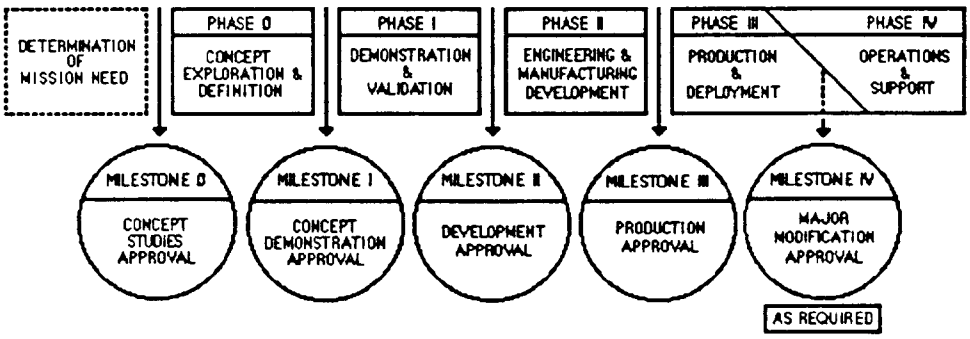
A. PURPOSE

This Part establishes general policies and procedures for managing major and nonmajor defense acquisition programs and highly sensitive classified programs. The key features and characteristics of the acquisition process are described more fully in Part 3 of this Instruction.

B. POLICIES

1. Acquisition Process. The five major milestone decision points and five phases of the acquisition process, illustrated below, shall provide a basis for comprehensive management and the progressive decisionmaking associated with program maturation.

ACQUISITION MILESTONES & PHASES



a. Milestone 0, Concept Studies Approval, marks the initial formal interface between the requirements generation and acquisition management systems. As a result of this review, studies are conducted of alternative materiel concepts to identify the most promising potential solution(s) to validated user needs.

b. Milestone I, Concept Demonstration Approval, shall mark the start of a new acquisition program.

(1) The results of the studies shall be evaluated and the acquisition strategy and proposed concept with cost, schedule, and performance objectives must be assessed in light of projected affordability constraints.

NOTE: "Performance" is defined as "those operational and support characteristics of the system which allow it to effectively and efficiently perform its assigned mission over time. The support characteristics of the system include both supportability aspects of the design and the support elements necessary for system operation."

(2) The products of the requirements generation; acquisition management; and planning, programming, and budgeting systems must be effectively integrated prior to initiating a new acquisition program.

c. Subsequent phases and milestone decision points facilitate the orderly translation of broadly stated mission needs into system-specific performance requirements and a stable design that can be produced efficiently.

2. Milestone Decision Authorities. All acquisition programs, excluding highly sensitive classified programs, shall be placed into one of four categories. This initial determination shall take place at Milestone I.

a. These categories determine the level of milestone decision authority.

b. The four categories are highlighted below and defined in the chart on page 2-3.

(1) Acquisition Category I: These are major defense acquisition programs. They have unique statutorily imposed acquisition strategy, execution, and reporting requirements. Milestone decision authority for these programs shall be:

(a) Acquisition category I D: Under Secretary of Defense for Acquisition or, if delegated by the Under Secretary,

(b) Acquisition category I C: Cognizant DoD Component Head or, if delegated, the DoD Component Acquisition Executive.

ACQUISITION CATEGORIES (ACAT) AND MILESTONE DECISION AUTHORITY

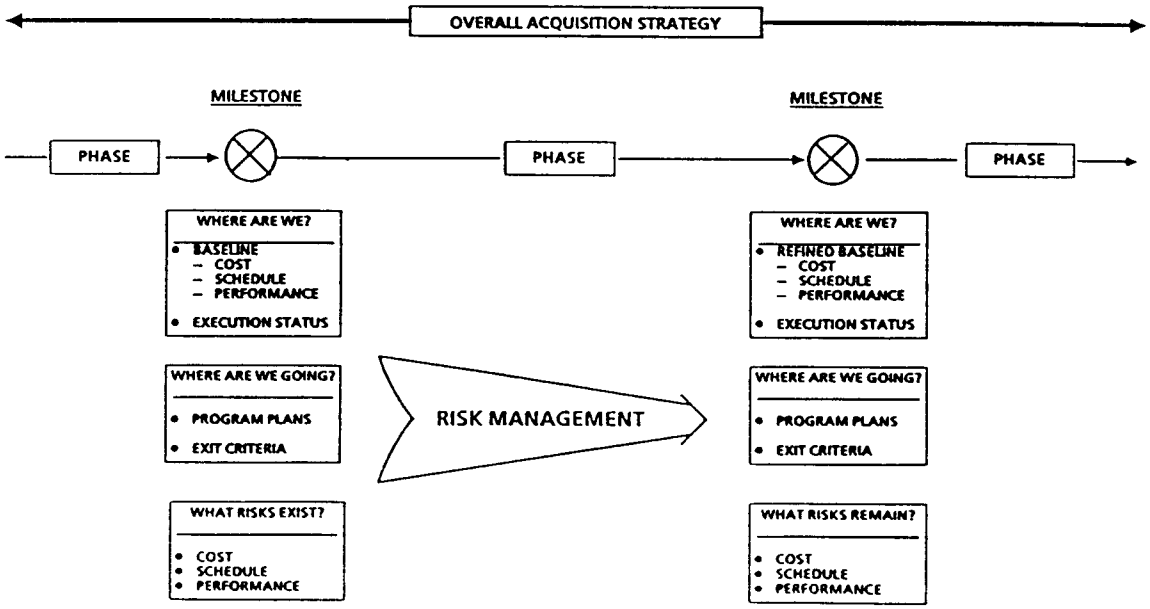
ACAT	SELECTION CRITERIA	DESIGNATION AUTHORITY	MILESTONE DECISION AUTHORITY
I	• A program not classified as highly sensitive by the Secretary of Defense that has: •• Been designated by the Under Secretary of Defense (Acquisition) as an acquisition category I program or is •• Estimated by the Under Secretary to require: - An eventual expenditure for research, development, test, and evaluation of more than $200 million in fiscal year 1980 constant dollars (approximately $300 million in fiscal year 1990 constant dollars); or - An eventual expenditure for procurement of more than $1 billion in fiscal year 1980 constant dollars (approximately $1.8 billion in fiscal year 1990 constant dollars)	• Under Secretary of Defense (Acquisition) • Acquisition category I programs are further designated by the Under Secretary of Defense (Acquisition) as either requiring decision by the: •• Under Secretary - ACAT I D •• Component Head - ACAT I C	• ACAT I D - Under Secretary of Defense (Acquisition) • ACAT I C - DoD Component Head or, if delegated, the DoD Component Acquisition Executive
II	• A program not meeting the criteria for category I that has: •• Been designated by the DoD Component Head as an acquisition category II program or is •• Estimated by the DoD Component Head to require: - An eventual expenditure for research, development, test, and evaluation of more than $75 million in fiscal year 1980 constant dollars (approximately $115 million in fiscal year 1990 constant dollars); or - An eventual expenditure for procurement of more than $300 million in fiscal year 1980 constant dollars (approximately $540 million in fiscal year 1990 constant dollars)	• DoD Component Head or, if delegated, the DoD Component Acquisition Executive	• DoD Component Head or, if delegated, the DoD Component Acquisition Executive
III	• Programs not meeting the criteria for category I and II that have been designated category III by the DoD Component Acquisition Executive	• DoD Component Acquisition Executive	• Lowest level deemed appropriate by the designation authority
IV	• All other acquisition programs for which the milestone decision authority should be delegated to a level below that required for category III	• DoD Component Acquisition Executive	• Lowest level deemed appropriate by the designation authority

(2) Acquisition Category II. These are major systems. They have unique statutorily imposed requirements in the test and evaluation area and may have statutorily imposed requirements in other areas such as Defense Enterprise Programs and multiyear procurement. Milestone decision authority for these programs shall be delegated no lower than the DoD Component Acquisition Executive.

(3) Acquisition Category III and IV. The additional distinction of acquisition categories III and IV allow DoD Component Acquisition Executives to delegate milestone decision authority to the lowest level deemed appropriate within their respective organizations. These programs may also have statutorily imposed requirements in areas such as Live Fire Test and Evaluation and multiyear procurement.

3. Acquisition Strategies, Exit Criteria, and Risk Management. Event driven acquisition strategies and program plans must be based on rigorous, objective assessments of a program's status and the plans for managing risk during the next phase and the remainder of the program. The acquisition strategy and associated contracting activities must explicitly link milestone decision reviews to events and demonstrated accomplishments in development, testing, and initial production. The acquisition strategy must reflect the interrelationships and schedule of acquisition phases and events based on a logical sequence of demonstrated accomplishments, not on fiscal or calendar expediency.

ACQUISITION PHASES AND MILESTONE DECISION POINTS



a. At each milestone decision point, assessments shall be made of the status of program execution and the plans for the next phase and the remainder of the program. The risks associated with the program and the adequacy of risk management planning must be explicitly addressed. Additionally, program-specific results to be required in the next phase, called exit criteria, shall be established.

b. Exit criteria are critical results that must be attained during the next acquisition phase. They can be viewed as gates through which a program must pass during the phase. They can include, for example, the requirement to:

(1) Achieve a specified level of performance in testing or conduct a critical design review prior to committing funds for long lead item procurement, or

(2) Demonstrate the adequacy of a new manufacturing process prior to entry into low-rate initial production.

c. Contracting activities must support the acquisition strategy by imposing the linkages between contract events and demonstrated accomplishments in development and initial production and the milestone decisions. The events set forth in contracts must also support the exit criteria for the phase.

d. The critical review of both the near and long-term aspects of the acquisition strategy and program plan is fundamental to establishing realistic objectives for cost, schedule, and performance, given affordability constraints.

e. This critical review is essential to ensuring that the acquisition strategies developed are consistent with statutorily imposed requirements regarding competitive prototyping, competitive developments and production, low-rate initial production, etc.

4. Total System Acquisition. Acquisition programs shall be managed with the goal to optimize total system performance and reduce the cost of ownership.

a. The total system includes:

* (1) The prime mission equipment (which may include multiple systems, subsystems, and components), *

(2) The soldier, sailor, airman, or marine who will operate or maintain the system,

(3) The logistics support structure for the system, and

(4) The other elements of the operational support infrastructure within which the system must operate.

b. Total system performance and cost of ownership considerations shall be addressed in the constraints imposed by the requirements generation and planning, programming, and budgeting systems; as part of cost, schedule, and performance trade-offs and the systems engineering process; and by baseline parameters, source selection factors, and test and evaluation objectives.

5. Acquisition Program Content and Tailoring. A primary goal in developing an acquisition strategy shall be to minimize the time it takes to satisfy an identified need consistent with common sense, sound business practice, and the provisions of this Instruction and DoD Directive 5000.1, "Defense Acquisition" (reference (a)).

a. The number of phases and decision points must be tailored to meet the specific needs of individual programs.

b. There are core activities that must be accomplished for every acquisition program, including highly sensitive classified programs.

(1) These core activities establish and document the threat and operational requirements, affordability, the acquisition strategy and program baseline, cost and operational effectiveness, production readiness and supportability, and developmental and operational testing.

(2) Tailoring shall focus on how these activities are conducted, the formality of reviews and documentation, and the need for other supporting activities.

c. Tailoring must be based on objective assessments of a program's status, risks, and the adequacy of proposed risk management plans.

d. Tailoring must give full consideration to statutorily imposed requirements regarding the development of acquisition strategies and other aspects of the program (e.g., live fire testing, low-rate initial production limitations, etc.).

6. Facilitating Accountability and Effective Decisionmaking. Higher level staffs have two related but distinct roles to play with regard to the milestone review process.

a. First, they must support the Program Manager of the program being reviewed by providing advice and assistance on review and documentation requirements and the technical aspects of the program.

b. Second, they must provide an independent assessment to the milestone decision authority of the program's readiness to proceed and the adequacy of the approach being proposed.

c. The distinction between advice and assistance, independent assessment, and milestone decision accountability must be

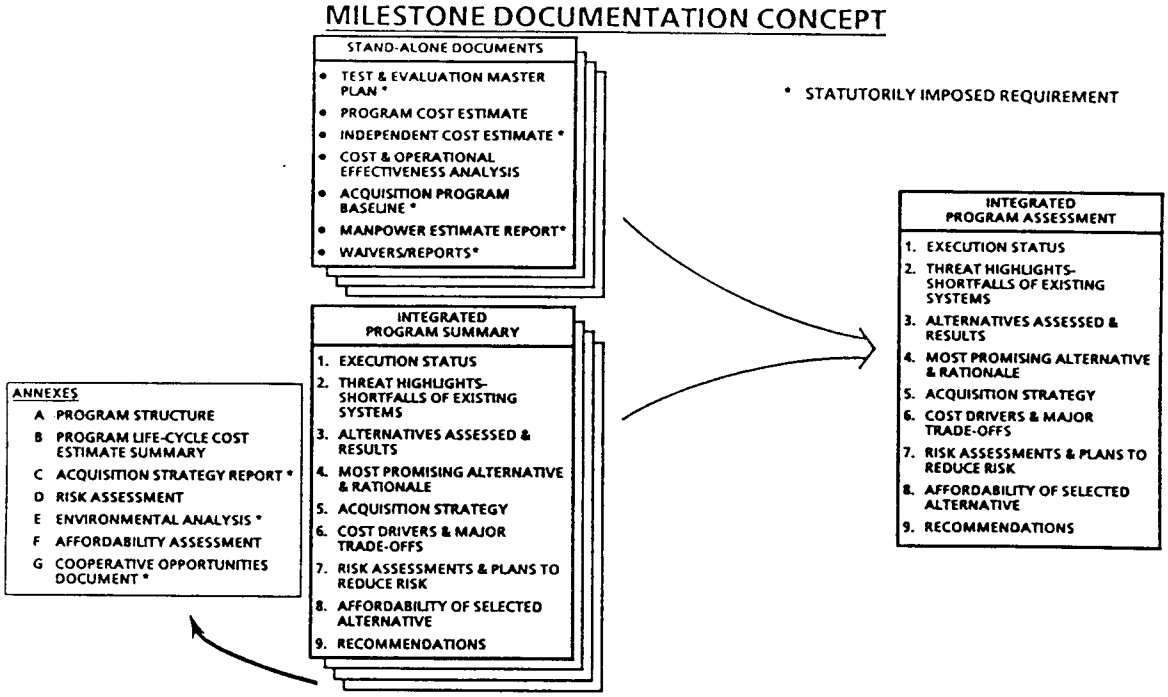
understood and strictly enforced at each level of review. Programmatic direction shall only be issued by the accountable persons in the streamlined chain of authority established by DoD Directive 5000.1, "Defense Acquisition" (reference (a)).

C. PROCEDURES

1. Milestone Review Documentation Concept. Milestone reviews require rigorous assessments of a program's status and plans for the future. The information needs of the milestone decision authority and supporting staffs at each level, however, must be satisfied without creating an undue burden on the Program Manager. Accordingly, the milestone review documentation concept established by this Instruction, highlighted below and described in more detail in Part 11, provides for:

a. Stand-alone supporting documentation requirements, and

b. Two standardized information displays, the Integrated Program Summary and the Integrated Program Assessment.



(1) The purposes of the stand-alone supporting documentation are to comply with applicable statutorily imposed requirements, such as the Test and Evaluation Master Plan and Independent Cost Estimate, and to meet the information needs of the milestone decision authority, supporting staff, and review forums.

(2) The purpose of the Integrated Program Summary is to provide a succinct integrated picture of the program's status for use by the milestone decision authority, supporting staff, and review forums.

(3) The Integrated Program Assessment summarizes the results of the independent assessments conducted by the supporting staff and review forums. It is a major issue oriented document and provides the basis for the milestone decision review agenda.

2. Major Trade-off Decisions and Solicitations. Solicitations inherently involve determinations regarding cost-schedule-performance trade-offs. This is particularly important in the case of Milestone II, Development Approval, where significant decisions on major trade-offs must be made prior to formal solicitation release. The milestone decision authority must carefully weigh the proposed major trade-off content of formal solicitations as summarized in the Acquisition Strategy Report. Formal solicitations may not be released until the milestone decision authority has approved the program Acquisition Strategy Report. The following approach, illustrated on page 2-9, should be used for approving Acquisition Strategy Reports.

a. At Milestone I, the milestone decision authority will approve the Acquisition Strategy Report (Annex C to the Integrated Program Summary) concurrent with approval of the Acquisition Decision Memorandum. The formal solicitation for Phase I, Demonstration and Validation, shall be released after the Milestone I review and program new start approval.

b. For Milestone II, the Acquisition Strategy Report shall be approved by the milestone decision authority prior to release of the formal solicitation for Phase II, Engineering and Manufacturing Development. This approval should occur as a separate major event prior to the formal Milestone II review. The approved Acquisition Strategy Report shall be included as Annex C to the Integrated Program Summary which is submitted for Milestone II.

c. For Milestone III, approval of the Acquisition Strategy Report is required prior to formal solicitation release for Phase III, Production and Deployment ONLY if a revision to the Acquisition Strategy Report approved prior to Milestone II is required. A revision may involve a change in acquisition strategy for Phase III or a major trade-off decision.

d. This approach allows the milestone decision authority to determine the major trade-offs and ensures that the solicitation reflects these judgments.

e. On an exception basis, the milestone decision authority may require a formal review meeting on the Acquisition Strategy

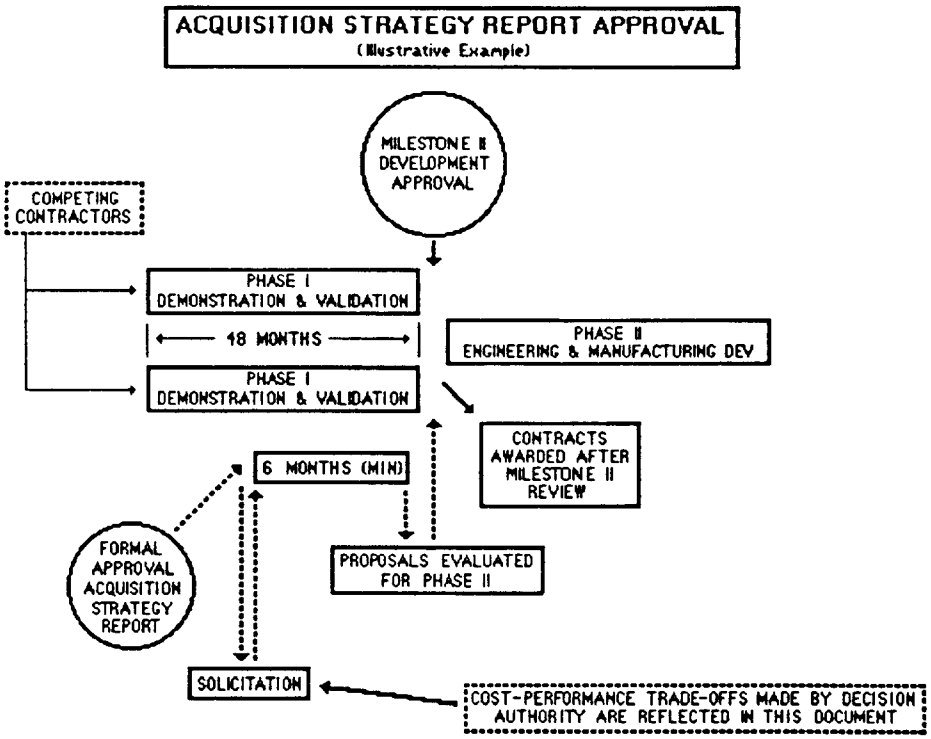
Report prior to approval.

f. The milestone decision authority will review solicitations and contracts before their release or execution for the Demonstration and Validation Phase, the Engineering and Manufacturing Development Phase, or the Production and Deployment Phase (initial production contract only).

(1) No release of a solicitation, contract award, or announcement of the winner of a contract may be made until completion of the review.

(2) For acquisition category I C programs, the Under Secretary of Defense for Acquisition will be notified 30 days in advance of a planned solicitation issuance, announcement of selected offeror, or contract award. Immediately after notification, the Under Secretary will notify the appropriate Component Acquisition Executive whether the Under Secretary intends to review the solicitation or contract.

g. Contractors will not be required to commit to prices for a substantial portion of the production requirement before the start of system development, particularly when a competitive situation exists, unless justified and approved in the acquisition strategy.



3. Tailoring of Acquisition Procedures and Documentation. The policies and procedures described in this Instruction shall apply directly to acquisition category I programs and will be tailored as defined in subsection B.5., above, for acquisition category II, III, and IV programs subject to the approval of the milestone decision authority.

a. Documentation requirements for all acquisition categories are as specified in Part 11 of this Instruction.

b. Documentation and report formats are contained in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)) and must be used for acquisition category I programs and for acquisition category II, III, and IV programs as required by statute. These formats will be used as guidance for acquisition category II, III, and IV nonstatutory documentation requirements.

c. DoD Component Acquisition Executives will establish uniform implementing guidelines and procedures for their respective organizations that define the decision reviews and the nonstatutory reporting and documentation format requirements for acquisition category II, III, and IV programs and that permit tailoring of program content, as defined in subsection B.5., above, by milestone decision authorities.

d. These guidelines and procedures must use the standard terminology and titles that apply to acquisition category I programs (e.g., Mission Need Statement, system threat assessment, operational requirements document, Acquisition Strategy Report, acquisition program baseline, Integrated Program Summary, etc.).

4. Highly Sensitive Classified Programs. Highly sensitive classified programs shall comply with the policies and procedures specified in this Instruction for the acquisition category of programs with equivalent dollar value, subject to tailoring as described in paragraph C.3. above. Specific deviations to these policies and procedures requested under DoD 5200.1-R, "Information Security Program Regulation," (reference (c)), or DoD Directive O-5205.7, "Special Access Program (SAP) Policy" (reference (d)), must have the concurrence of the milestone decision authority. For documentation requirements:

a. The milestone decision authority may waive the milestone documentation requirements of Section 11-C, except those required by statute for all programs or specifically for highly sensitive classified programs. Unless so waived, documentation required to be prepared (and in some cases submitted to Congress) by statutes which exclude highly sensitive classified programs will be prepared and submitted to the milestone decision authority for internal DoD use.

b. The only periodic reports of Section 11-D required for highly sensitive classified programs are program deviation reports and those explicitly imposed by the milestone decision authority.

5. Review of the Legality of Weapons Under International Law. All actions of the Department of Defense with respect to the acquisition and procurement of weapons, and their intended use in armed conflict, will be consistent with the obligations assumed by the U.S. Government under all applicable treaties, with customary international law, and, in particular, with the laws of war.

a. The Head of each DoD Component will insure that the Judge Advocate General of the Component conducts a legal review of all weapons intended to meet a military requirement of the Component

to ensure that the intended use of the weapon in armed conflict is consistent with the obligations assumed by the United States.

(1) The legal review will take place before the award of the engineering and manufacturing development contract and before the award of the initial production contract of that weapon. The Judge Advocate may require further legal review of any weapon as the Judge Advocate General determines to be necessary. All DoD Components having data relevant to the legal review will provide such data to the Judge Advocate General concerned upon request.

(2) Each Judge Advocate General will maintain permanent files of opinions issued by him in implementation of this Instruction.

b. The General Counsel of the Department of Defense will review any opinion issued by a Judge Advocate General in implementation of this Instruction if requested to do so by the Secretary of Defense, Under Secretary of Defense for Acquisition, or any DoD Component Head.

c. Paragraph C.5. replaces DoD Instruction 5500.15, "Review of Legality of Weapons Under International Law" (reference (e)), which has been canceled.

D. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix below identifies the offices to be contacted for additional information on this Part. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

PART 3

ACQUISITION PROCESS AND PROCEDURES

References:
(a) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(b) DoD 7290.3-M, "Foreign Military Sales Financial Management Manual," September 1986, authorized by DoD Instruction 7290.3, "Foreign Military Sales Financial Management," June 29, 1981
(c) DoD 5105.38-M, "Security Assistance Management Manual," October 1988, authorized by DoD Directive 5105.38, "Defense Security Assistance Agency," August 10, 1978
(d) Title 42, United States Code, Sections 4321-4347, "National Environmental Policy Act"
* (e) Title 10, United States Code, Section 2438, "Major programs: competitive prototyping" *
* (f) Title 10, United States Code, Section 2439, "Major programs: competitive alternative sources" *
* (g) Title 10, United States Code, Section 2440, "Technology and industrial base plans" *
(h) Title 10, United States Code, Section 2350a.(e), "Cooperative opportunities document"
(i) Title 10, United States Code, Section 2400, "Low-rate initial production of new systems"
(j) Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs"
(k) Title 10, United States Code, Section 2366, "Major systems and munitions programs: survivability testing and lethality testing required before full-scale production"
(l) Title 40, Code of Federal Regulations, Parts 1500-1508, "National Environmental Policy Act Regulations"
(m) Defense Federal Acquisition Regulation Supplement (DFARS), Part 207, Subpart 207.1, "Acquisition Plans"
(n) Title 10, United States Code, Section 2435, "Enhanced program stability"
(o) Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements"

1. PURPOSE

a. This Part highlights the key features and characteristics of the acquisition process.

b. The acquisition process described establishes a basic framework for managing acquisition category I, II, III, and IV programs and highly sensitive classified programs.

(1) Objectives, decision criteria, minimum required accomplishments, and the information to be reflected in acquisition decision memoranda are highlighted in chart form.

(2) The content of these charts, coupled with the specific policies and procedures contained in Parts 4 through 13 of this Instruction, provide a uniform basis for implementing the policies established in DoD Directive 5000.1, "Defense Acquisition" (reference (a)) and Part 2 of this Instruction.

c. Unique requirements applicable to managing acquisition category I and other acquisition category programs are highlighted.

d. When foreign military sales requirements are imposed on an acquisition program, DoD 7290.3-M, "Foreign Military Sales Financial Management Manual" and DoD 5015.38-M, "Security Assistance Management Manual" (references (b) and (c)) should be consulted.

2. DETERMINATION OF MISSION NEED

All acquisition programs are based on identified mission needs. These needs are generated as a direct result of continuing assessments of current and projected capabilities in the context of changing military threats and national defense policy.

a. Identifying Mission Needs. A mission need may be to establish a new operational capability or to improve an existing capability (see Section 4-B). It may also reflect a desire to exploit an opportunity that will result in significantly reduced ownership costs or improve the effectiveness of existing materiel.

* (1) Mission needs may be identified by any DoD Component. *

(2) Mission needs must first be evaluated to determine if they can be satisfied by nonmateriel solutions. Nonmateriel solutions include changes in doctrine, operational concepts, tactics, training, or organization.

(3) When a need cannot be met by such changes, a broad statement of mission need -- expressed in terms of an operational capability not a system-specific solution -- is identified in a Mission Need Statement. The mission need should be prioritized relative to other documented needs.

(4) The Mission Need Statement also identifies the threat to be countered and the projected threat environment.

b. Mission Need Statements and Acquisition Categories. The originator of a Mission Need Statement determines if the identified need could potentially result in the initiation of either a new acquisition category I program or an acquisition category II, III, or IV program. This determination is highly subjective. In general, an identified need should be considered as acquisition category I when:

(1) It could potentially result in a capability that may require the use of new, leading edge technologies and an extensive development effort,

(2) It could potentially result in the initiation of a major performance envelope upgrade to an existing system that is fielded in significant quantities, or

(3) There is doubt regarding the appropriate category.

c. Processing Mission Need Statements for Acquisition Category II, III, and IV Programs. Statements that could potentially result in the initiation of new acquisition category II, III, or IV programs are sent to the appropriate DoD Components for action.

(1) These Statements are "validated" by the DoD Component. "Validated" in this context means a designated operational authority has reviewed the identified need and confirmed that it can not be satisfied by a change in doctrine, operational concepts, tactics, training, or organization (see Section 4-B).

(2) Validated Statements are forwarded to the DoD Component Acquisition Executive to determine whether to assign a milestone decision authority to conduct a Milestone 0, Concept Studies Approval, review. *

d. Processing Mission Need Statements for Acquisition Category I Programs. Statements that could potentially result in the initiation of new acquisition category I programs are forwarded to the Joint Requirements Oversight Council (see Section 13-D).

(1) The Council reviews each Statement and confirms that the mission need can not be satisfied by a nonmateriel solution.

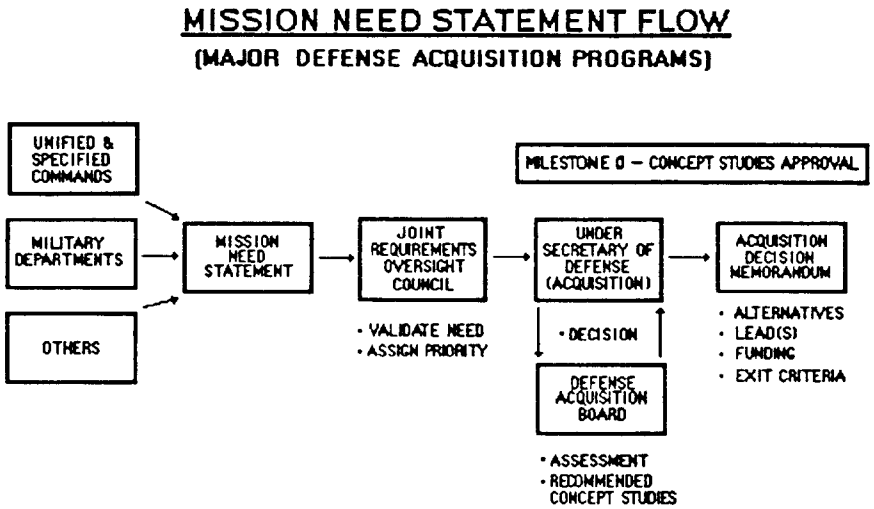
(2) When a nonmateriel solution is not considered to be feasible, the Council determines the validity of the identified need and forwards the Mission Need Statement to the Under Secretary of Defense for Acquisition as either approved or disapproved. *

(3) For approved Mission Need Statements or as deemed appropriate by the Under Secretary of Defense for Acquisition, a subordinate committee of the Defense Acquisition Board reviews the Statement prior to the Board convening for a Milestone 0, Concept Studies Approval, review. The purpose of the committee review is to identify:

(a) Materiel alternatives that could potentially satisfy the identified need, and

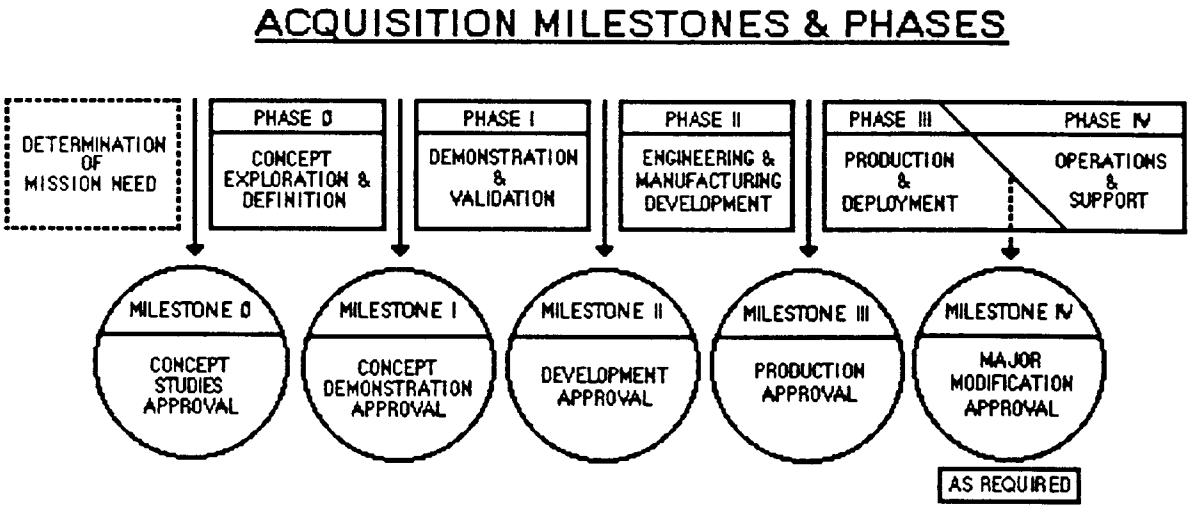
(b) Recommended study efforts for consideration by the Board and decision by the Under Secretary of Defense for Acquisition at the Milestone 0 decision review.

(4) This overall process, as provided for in DoD Directive 5000.1, "Defense Acquisition" (reference (a)), is depicted below for an approved Mission Need Statement.



3. ACQUISITION PROCESS AND PROCEDURES

The key features and characteristics of the acquisition process are highlighted in the following paragraphs. Each milestone decision point and acquisition phase is described separately. The process, illustrated below, begins with Milestone 0, Concept Studies Approval.



a. Milestone 0, Concept Studies Approval. Milestone 0 marks the initial formal interface between the requirements generation and the acquisition management systems.

(1) The milestone decision authority decides what action should be taken on the Mission Need Statement at this decision point.

(2) For those Mission Need Statements receiving favorable consideration, the milestone decision authority authorizes studies of a minimum set of materiel alternative concepts.

(3) A decision to proceed at this point does not establish a new acquisition program. Instead, it merely reflects approval to proceed with studies of alternative concepts that could satisfy the identified mission need.

(4) The studies may be done by in-house or contract efforts, or by a combination of both.

(5) The basic objectives, decision criteria, and contents of the acquisition decision memorandum for Milestone 0 are highlighted in the chart on page 3-6.

MILESTONE 0 - CONCEPT STUDIES APPROVAL

OBJECTIVES

The objectives of Milestone 0 are to:

- Determine if a documented mission need warrants the initiation of study efforts of alternative concepts and
- Identify the minimum set of alternative concepts to be studied to satisfy the need.

DECISION CRITERIA

Studies of alternative concepts and entry into Phase 0 may not be approved unless the milestone decision authority determines that the mission need:

- Is based on a validated projected threat (see Section 4-A),
- Cannot be satisfied by a nonmateriel solution, and
- Is sufficiently important to warrant the funding of study efforts to explore and define alternative concepts to satisfying the need.

ACQUISITION DECISION MEMORANDUM

The Acquisition Decision Memorandum for this decision point should:

- Define the minimum set of alternative concepts to be examined,
- Identify the lead organization or organizations for the study efforts,
- Establish any exit criteria information or analyses that must be presented at Milestone I, and
- Identify the dollar amount and source of funding for the study efforts to be conducted.

b. Phase 0, Concept Exploration and Definition. Competitive, parallel, short term studies by the Government and/or industry will normally be used during this phase. The focus is on defining and evaluating the feasibility of alternative concepts and providing the basis for assessing the relative merits of the concepts at the Milestone I, Concept Demonstration Approval, decision point.

(1) Early life cycle cost estimates (see Section 10-A) of the competing alternatives will be analyzed during the phase relative to the value of the expected increase in operational capability for each alternative.

(a) This analysis, generally referred to as a cost and operational effectiveness analysis (see Section 4-E), will facilitate comparisons of the alternative concepts.

(b) Trade-offs will be made among cost, schedule, and performance as a result of this analysis. To assist alternative concepts generation, conceptual design and design trade-off studies may be performed.

(2) The most promising system concept(s) will be defined in terms of initial objectives for cost, schedule, and performance (see Section 11-A) and overall acquisition strategy (see Section 5-A).

(a) Critical system characteristics and operational constraints (e.g., survivability, transportability, interoperability and security), projected surge and mobilization objectives, and infrastructure support requirements will be defined interactively with users or their representatives (see Sections 4-B/C, 5-E, and 7-A/B/C).

(b) Establishing detailed performance requirements and mandatory delivery dates must be avoided at this time. Premature detailed requirements are counter to evolutionary requirements definition and inhibit cost, schedule, and performance trade-offs.

(3) The acquisition strategy should provide for the validation of the technologies and processes required to achieve critical characteristics and meet operational constraints (see Sections 4-B/C). It should also address the need and rationale for concurrency and for prototyping considering the results of technology development and demonstration (see Sections 5-A/C/D).

(4) Plans for the next phase must address risk areas (see Section 5-B).

(5) The basic objectives and minimum required accomplishments for Phase 0 are highlighted on page 3-8.

(6) Unique requirements that must be accommodated by programs in acquisition category I and other acquisition categories are highlighted on page 3-9.

PHASE 0 - CONCEPT EXPLORATION & DEFINITION

OBJECTIVES

The objectives of Phase 0 are to:

- Explore various materiel alternatives to satisfying the documented mission need,
- Define the most promising system concept(s),
- Develop supporting analyses and information to include identifying high risk areas and risk management approaches to support the Milestone I decision, and
- Develop a proposed acquisition strategy and initial program objectives for cost, schedule, and performance for the most promising system concept(s).

MINIMUM REQUIRED ACCOMPLISHMENTS

The following are minimum required accomplishments for this phase:

- A validated system threat assessment (see Section 4-A),
- Assessments of the major pros and cons of each alternative given the projected threat (see Section 4-E),
- A proposed acquisition strategy (see Section 5-A) for the most promising alternative(s) that addresses:
  - Key system characteristics and operational constraints (see Sections 4-B and 4-C),
  - Cost, schedule, and performance trade-off opportunities,
  - Proposed objectives for cost, schedule, and performance (see Section 11-A), and
  - The risks associated with the concept(s) and risk management approach (see Sections 5-A and 5-B),
- Identification of potential environmental consequences (42 U.S.C. 4321-4347 (reference (d))), and
- Proposed program-specific exit criteria that must be accomplished during Phase I, Demonstration and Validation.

PHASE 0- CONCEPT EXPLORATION & DEFINITION

ACQUISITION CATEGORY I PROGRAMS

- Acquisition Strategies. The following statutorily imposed requirements apply during Phase 0:

  - Competitive Prototyping. Acquisition strategies must include provisions for competitive prototyping unless the milestone decision authority determines that competitive prototyping is not practicable and such rationale is included in the Acquisition Strategy Report. (10 U.S.C.2438 (reference (e)))

  - Competitive Alternative Development and Production. Acquisition strategies must be prepared by the Secretary of Defense (as delegated) and must allow the option for competitive alternative sources for the system and each major subsystem under the program throughout the period from the beginning of full scale (engineering and manufacturing) development through the end of procurement. (10 U.S.C. 2439 (reference (f)))

- Defense Industrial Base. The capabilities of the defense industrial base to develop, produce, maintain, and support the program must be analyzed. (10 U.S.C. 2440 (reference (g)))

- Cooperative Opportunities. A Cooperative Opportunities Document evaluating the potential for cooperative research, development and production must be prepared in support of Milestone I and updated as necessary at subsequent milestones. (10 U.S.C. 2350a.(e) (reference (h)))

- Design to Average Unit Procurement Cost Objective. A design to average unit procurement cost objective must be developed for approval at Milestone I. (DoD Directive 5000.1 (reference (a)))

- Low-Rate Initial Production. The acquisition strategy must provide for the milestone decision authority to determine the quantities to be procured for low-rate initial production at the Milestone II decision point. (10 U.S.C. 2400(a) (reference (i)))

  - Low-Rate Initial Production of Weapon Systems. Low-rate initial production quantities for new weapons systems (excluding ships and satellites, discussed below) shall be limited to those quantities required to: (10 U.S.C. 2400(b) (reference (i)))

    - Provide production configured or representative articles for operational test pursuant to 10 U.S.C. 2399 (reference (j)),

    - Establish an initial production base for the system, and

    - Permit an orderly increase in the production rate for the system sufficient to lead to full rate production upon the successful completion of operational testing.

  - Low-Rate Initial Production of Naval Vessel and Satellite Programs. Low-rate initial production for these programs is defined as the production of items at the minimum quantity and rate that preserves the mobilization production base for that system and is feasible, as determined pursuant to the policy and procedures of paragraph 3.e(5), page 3-16. A report, defined in DoD 5000.2-M, Part 9, must be submitted to Congress. (10 U.S.C. 2400(c) (reference (i)))

UNIQUE REQUIREMENTS FOR CERTAIN ACAT I, II, AND OTHER PROGRAMS

- Live Fire Testing. The acquisition strategy must include provisions for conducting live fire testing on covered major systems, major munitions programs and missile programs (and covered product improvement programs thereto) unless the Secretary of Defense (or as delegated to the Under Secretary of Defense (Acquisition) or Director, Defense Research & Engineering) previously waived live fire testing prior to the start of full scale (engineering and manufacturing) development and certified to Congress that such testing would be unreasonably expensive and impractical. (10 U.S.C. 2366 (reference (k)))

- Arms Control Treaty Compliance. The acquisition strategy must comply with all relevant arms control treaties.

c. Milestone I, Concept Demonstration Approval. Milestone decision authorities must assess the affordability (see Section 4-D) of a proposed new acquisition program at Milestone I. Thus, this decision point marks the first direct interaction between the planning, programming, and budgeting and acquisition management systems.

(1) The primary documents produced during the planning phase of the planning, programming, and budgeting system form the basis for such assessments. These documents are the Defense Planning Guidance, the long range modernization and investment plans, and internal planning documents generated by the DoD Components.

(2) A favorable decision at Milestone I establishes a new acquisition program and a Concept Baseline (see Section 11-A) and authorizes entry into Phase I, Demonstration and Validation, or Contract Design in the case of ships. The Program Management Office will be established and the Program Manager assigned within 6 months of a favorable decision.

(3) A design to average unit procurement cost objective is established at this milestone and refined and updated at subsequent milestones for an acquisition category I program. Similar objectives for acquisition category II, III, and IV and highly sensitive classified programs may be established at this point (see Section 6-J).

(4) The Under Secretary of Defense for Acquisition and the Vice Chairman, Joint Chiefs of Staff, establish annual Milestone I review windows for acquisition category I programs.

(a) The purpose of these review windows is to facilitate affordability assessments and permit more effective interaction between the planning, programming, and budgeting and acquisition management systems.

(b) The results of the reviews are highlighted in a Major New Start issues paper prepared by the Under Secretary of Defense for Acquisition. Following a discussion of the issue paper in the Defense Planning and Resources Board forum, the Deputy Secretary of Defense will decide those programs that will be pursued and will establish affordability constraints for each approved program.

(c) The acquisition decision memorandum issued by the Under Secretary of Defense for Acquisition reflects the decisions made and direction provided by the Deputy Secretary. It also contains additional acquisition direction such as program-specific exit criteria.

(5) The basic objectives, decision criteria, and acquisition decision memorandum contents for Milestone I are highlighted on page 3-11.

(6) Unique requirements that must be accommodated by programs in acquisition category I and other acquisition categories are highlighted on page 3-12.

MILESTONE I - CONCEPT DEMONSTRATION APPROVAL

OBJECTIVES

The objectives of Milestone I are to:

- Determine if the results of Phase 0 warrant establishing a new acquisition program and
- Establish a Concept Baseline containing initial program cost, schedule, and performance objectives for an approved new program (see Section 11-A).

DECISION CRITERIA

A new program may not be established unless the milestone decision authority confirms that:

- The system threat assessment and the performance objectives and thresholds have been validated (see Sections 4-A and 11-B),
- The study efforts conducted support the need for a new program,
- The potential environmental consequences of the most promising alternative have been analyzed and appropriate mitigation measures have been identified (42 U.S.C. 4321-4347 and 40 C.F.R. 1500-1508 (references (d) and (l))),
- Projected life-cycle costs and annual funding requirements are affordable in the context of long-range investment plans or similar plans (see Sections 4-D and 10-A), and
- Adequate resources (people and funds) to support the program are, or can be, programmed.

NOTE: The order of preference for new programs is prescribed In DoD Directive 5000.1 (reference (a)) as:

- Use or modification of an existing U.S. military system,
- Use or modification of an existing commercially developed or Allied system that fosters a nondevelopmental acquisition strategy,
- A cooperative research and development program with one or more Allied nations,
- A new joint Service development program,
- A new Service-unique development program.

ACQUISITION DECISION MEMORANDUM

The Acquisition Decision Memorandum for this decision point should:

- Approve the initiation of a new program and entry into Phase I, Demonstration and Validation,
- Approve the proposed or modified acquisition strategy and Concept Baseline,
- Establish program-specific exit criteria that must be accomplished during Phase I, and
- Identify affordability constraints derived from the planning, programming, and budgeting system.

MILESTONE I - CONCEPT DEMONSTRATION APPROVAL

ACQUISITION CATEGORY I PROGRAMS

- Acquisition Strategies. Milestone decision authorities must assess compliance with the following statutorily imposed requirements at the Milestone I review:

  - Competitive Prototyping. Acquisition strategies must include provisions for competitive prototyping unless the milestone decision authority determines that competitive prototyping is not practicable and such rationale is included in the Acquisition Strategy Report. (10 U.S.C. 2438 (reference (e)))

  - Competitive Alternative Development and Production. Acquisition strategies must be prepared by the Secretary of Defense (as delegated) and must allow the option for competitive alternative sources for the system and each major subsystem under the program throughout the period from the beginning of full scale (engineering and manufacturing) development through the end of procurement. (10 U.S.C. 2439 (reference (f)))

- Defense Industrial Base. The capabilities of the defense industrial base to develop, produce, maintain, and support the program must be analyzed. (10 U.S.C. 2440 (reference (g)))

- Cooperative Opportunities. A Cooperative Opportunities Document must be prepared and assessed by the milestone decision authority at Milestone I. As necessary it must be updated and reviewed at subsequent milestones. (10 U.S.C. 2350a.(e) (reference (h)))

- Design to Average Unit Procurement Cost Objective. An initial design to average unit procurement cost objective must be established. (DoD Directive 5000.1 (reference (a)))

- Low-Rate Initial Production. Acquisition strategies must provide for the milestone decision authority to determine the quantities to be procured for low-rate initial production at the Milestone II decision point. (10 U.S.C. 2400 (a) (reference (i)))

  - Low-Rate Initial Production of Weapon Systems. Low-rate initial production quantities for weapons systems (excluding ships and satellites, discussed below) shall be limited to those quantities required to: (10 U.S.C. 2400 (b) (reference (i)))

    - Provide production configured or representative articles for operational test pursuant to 10 U.S.C. 2399 (reference (j)),

    - Establish an initial production base for the system, and

    - Permit an orderly increase in the production rate for the system sufficient to lead to full rate production upon the successful completion of operational testing.

  - Low-Rate Initial Production of Naval Vessel and Satellite Programs. Low-rate initial production for these programs is defined as the production of items at the minimum quantity and rate that preserves the mobilization production base for that system and is feasible, as determined by the policy and procedures of paragraph 3.e. A report, defined in DoD 5000.2-M, Part 9, must be submitted to Congress. (10 U.S.C. 2400 (c) (reference (i)))

UNIQUE REQUIREMENTS FOR CERTAIN ACAT I, II, AND OTHER PROGRAMS

- Live Fire Testing. The acquisition strategy must include provisions for conducting live fire testing on covered major systems, major munitions programs and missile programs (and covered product improvement programs thereto) unless the Secretary of Defense (or as delegated to the Under Secretary of Defense (Acquisition) or Director, Defense Research & Engineering) previously waived live fire testing prior to the start of full scale (engineering and manufacturing) development and certified to Congress that such testing would be unreasonably expensive and impractical. (10 U.S.C. 2366 (reference (k)))

- Arms Control Treaty Compliance. The acquisition strategy must comply with all relevant arms control treaties.

d. Phase I, Demonstration and Validation. When warranted, multiple design approaches and parallel technologies are pursued within the system concept(s) during this phase.

(1) Supportability and manufacturing process design considerations must be integrated into the system design effort early. This is essential to preclude costly redesign efforts downstream in the process (see Sections 6-C/E/H/O and 7-A/B/C).

(2) Prototyping, testing, and early operational assessment of critical systems, subsystems, and components will be emphasized (see Section 5-D). This is essential to:

(a) Identifying and reducing risk, and

(b) Assessing if the most promising design approach(es) will operate in the intended operational environment including both people and conditions.

(3) Cost drivers and alternatives are identified and analyzed. Further, the costs of the design approach(es) must also be analyzed as a function of risk and the expected increase in operational capability.

(a) This analysis, generally referred to as a cost and operational effectiveness analysis (see Section 4-E), must provide comparisons of the alternative design approaches.

(b) Cost, schedule, and performance trade-offs will be made as a result of this analysis.

(c) The affordability and design to cost constraints established at Milestone I will be used in evaluating the results of the analysis.

(4) Consistent with evolutionary requirements definition, the program manager works with the user or user's representative to:

(a) Establish proposed performance objectives,

* (b) Identify production rate requirements for peacetime, *
* contingency support, and reconstitution objectives, and *

(c) Develop proposed cost-schedule-performance trade-offs for decision at Milestone II.

(5) The basic objectives and minimum required accomplishments of Phase I are highlighted on page 3-14.

(6) Unique requirements that must be accommodated by programs in acquisition category I and other acquisition categories are highlighted on page 3-15.

PHASE I - DEMONSTRATION & VALIDATION

OBJECTIVES

The objectives of Phase I are to:

- Better define the critical design characteristics and expected capabilities of the system concept(s),
- Demonstrate that the technologies critical to the most promising concept(s) can be incorporated into system design(s) with confidence,
- Prove that the processes critical to the most promising system concept(s) are understood and attainable,
- Develop the analyses/information needed to support a Milestone II decision, and
- Establish a proposed Development Baseline containing refined program cost, schedule, and performance objectives for the most promising design approach (see Sections 4-B and 11-A).

MINIMUM REQUIRED ACCOMPLISHMENTS

The following are minimum required accomplishments for this phase:

- A validated system threat assessment (see Section 4-A),
- Identification of major cost, schedule, and performance trade-off opportunities,
- A Development Baseline which includes proposed cost, schedule, and performance objectives (see Section 11-A),
- Developmental test results that indicate the degree to which new or emerging technologies pose a risk to the program,
- A refined acquisition strategy (see Section 5-A) that identifies:
  - High risk areas and the risk management approach for these areas (see Section 5-B) and
  - Low-rate initial production quantities, if appropriate,
- An assessment of the defense industrial base capability to support the program (DFARS, Part 207, Subpart 207.1 (reference (m))),
- Identification of potential environmental consequences and identification of appropriate mitigation measures (42 U.S.C. 4321-4347 and 40 C.F.R. 1500-1508 (references (d) and (l))),
- An updated assessment that shows projected life-cycle costs and annual funding requirements are affordable in the context of long-range investment plans or similar plans (see Sections 4-D and 10-A),
- Programming of adequate resources to support the proposed program, and
- Proposed program-specific exit criteria that must be accomplished during Phase II, Engineering and Manufacturing Development.

PHASE I - DEMONSTRATION & VALIDATION

ACQUISITION CATEGORY I PROGRAMS

- Acquisition Strategies. The following statutorily imposed requirements apply during Phase I:
  - •• Competitive Prototyping. There must be competitive prototyping unless the milestone decision authority determines that competitive prototyping is not practicable and such rationale is included in the Acquisition Strategy Report. (10 U.S.C. 2438 (reference (e)))
  - •• Competitive Alternative Development and Production. Acquisition strategies must be prepared by the Secretary of Defense (as delegated) and must allow the option for competitive alternative sources for the system and each major subsystem under the program throughout the period from the beginning of full scale (engineering and manufacturing) development through the end of procurement. (10 U.S.C. 2439 (reference (f)))
- Defense Industrial Base. The capabilities of the defense industrial base to develop, produce, maintain, and support the program must be analyzed. (10 U.S.C. 2440 (reference (g)))
- Cooperative Opportunities. As necessary, the Cooperative Opportunities Document prepared at Milestone I must be updated and reviewed at Milestone II. (10 U.S.C. 2350a.(e) (reference (h)))
- Design to Average Unit Procurement Cost Objective. The design to average unit procurement cost objective must be refined for approval at Milestone II. (DoD Directive 5000.1 (reference (a)))
- Low-Rate Initial Production. The acquisition strategy must provide for the milestone decision authority to determine the quantities to be procured for low-rate initial production at the Milestone II decision point. (10 U.S.C. 2400 (a) (reference (i)))
  - •• Low-Rate Initial Production of Weapon Systems. Low-rate initial production quantities for new weapon systems (excluding ships and satellites, discussed below) shall be limited to those quantities required to: (10 U.S.C. 2400 (b) (reference (i)))
    - -- Provide production configured or representative articles for operational test pursuant to 10 U.S.C. 2399 (reference (j)),
    - -- Establish an initial production base for the system, and
    - -- Permit an orderly increase in the production rate for the system sufficient to lead to full rate production upon the successful completion of operational testing.
  - •• Low-Rate Initial Production of Naval Vessel and Satellite Programs. Low-rate initial production for these programs is defined as the production of items at the minimum quantity and rate that preserves the mobilization production base for that system and is feasible, as determined pursuant to the policy and procedures of paragraph 3.e(5), page 3-16. A report, defined in DoD 5000.2-M, Part 9, must be submitted to Congress. (10 U.S.C. 2400 (c) (reference (i)))

UNIQUE REQUIREMENTS FOR CERTAIN ACAT I, II, AND OTHER PROGRAMS

- Live Fire Testing. The acquisition strategy must include provisions for conducting live fire testing on covered major systems, major munitions programs and missile programs (and covered product improvement programs thereto) unless the Secretary of Defense (or as delegated to the Under Secretary of Defense (Acquisition) or Director, Defense Research & Engineering) previously waived live fire testing prior to the start of full scale (engineering and manufacturing) development and certified to Congress that such testing would be unreasonably expensive and impractical. (10 U.S.C. 2366 (reference (k)))
- Arms Control Treaty Compliance. The acquisition strategy must comply with all relevant arms control treaties.

e. Milestone II, Development Approval. Milestone decision authorities must rigorously assess the affordability of the program and establish a Development Baseline at this decision milestone.

(1) The Defense Planning Guidance, long-range modernization and investment plans, and internally generated planning documents of the DoD Components form the basis for making this assessment.

(2) Program risks and risk management plans must also be rigorously assessed. This is critical because of the significant resource commitment that is associated with this decision.

(3) Establishing the Development Baseline (see Section 11-A) requires effective interaction among the requirements generation, acquisition management, and planning, programming, and budgeting systems.

(4) Development approval will typically involve a commitment to low-rate initial production. Low-rate initial production quantities must be identified by the milestone decision authority for acquisition category I programs. The Director of Operational Test and Evaluation will determine the quantity of articles required for operational testing for a major defense acquisition program and to be included in the low-rate initial production quantity at Milestone II of that program (see Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs" (reference (j))). For acquisition category I programs, authority to proceed with low-rate initial production may require a separate program review and milestone decision authority approval at a point specified in the Milestone II decision.

(5) The following policy and procedures apply to acquisition category I low-rate initial production for naval vessel and military satellite programs (Title 10, United States Code, Section 2400(c)):

(a) The determination of the low-rate initial production quantity to be procured before completion of initial operational test and evaluation shall be made by the milestone decision authority at Milestone II in consultation with the Director, Operational Test and Evaluation.

(b) The following shall be considered in making the quantity determination:

1 The fabrication complexity of the system,

2 The relatively small number to be procured and high unit cost,

3 The length of the production period,

4 The need to preserve the industrial base for the system, and

5 The acquisition strategy that is most advantageous to the Government.

(c) For programs past Milestone II, but not past low-rate initial production, the determination of low-rate initial production quantity shall be made as soon as reasonably possible.

(d) Provisions shall be made to ensure that major systems and equipment, integral to construction of naval vessels, will be produced and tested so that the ship weapon system is introduced into the fleet in a logical and consistent manner.

(e) The test program leading up to full operational test and evaluation in ship and satellite programs should be structured to generate the maximum level of confidence deemed practicable in assessing the ultimate operational suitability and effectiveness of the systems.

(f) The milestone decision authority shall submit to Congress the report required by Title 10, United States Code, Section 2400(c) and defined in DoD 5000.2-M, Part 9.

(6) Low-rate initial production quantities for acquisition category II, III, and IV programs should be determined using the requirements for acquisition category I programs as guidelines.

(7) The basic objectives, decision criteria, and contents of an acquisition decision memorandum for Milestone II are highlighted on page 3-18.

(8) Unique requirements that must be accommodated by programs in acquisition category I and other acquisition categories are shown on page 3-19.

MILESTONE II - DEVELOPMENT APPROVAL

OBJECTIVES

The objectives of Milestone II are to:

- Determine if the results of Phase I, Demonstration and Validation, warrant continuation and
- Establish a Development Baseline containing refined program cost, schedule, and performance objectives for a program approved for continuation (see Sections 4-B and 11-A).

DECISION CRITERIA

A program may not enter Phase II, Engineering and Manufacturing Development, unless the milestone decision authority confirms that:

- The system threat assessment and the performance objectives and thresholds have been validated (see Sections 4-A and 11-B),
- Prototyping and demonstration results to date provide reasonable assurance that the technologies and processes critical to success are attainable (see Sections 5-C and 5-D),
- The potential environmental consequences of the program have been analyzed and appropriate mitigation measures have been identified (42 U.S.C. 4321-4347 and 40 C.F.R. 1500-1508 (references (d) and (l))),
- Projected life-cycle cost and annual funding requirements are affordable in the context of long-range investment plans or similar plans (see Sections 4-D and 10-A), and
- Adequate resources (people and funds) to support the program have been, or are committed to be, programmed.

ACQUISITION DECISION MEMORANDUM

The Acquisition Decision memorandum for this decision point should:

- Approve entry into Phase II, Engineering and Manufacturing Development,
- Approve the proposed or modified acquisition strategy and Development Baseline,
- Establish program-specific exit criteria that must be accomplished during Phase II, and
- Identify low-rate initial production quantities, if appropriate.

MILESTONE II - DEVELOPMENT APPROVAL

ACQUISITION CATEGORY I PROGRAMS

- Acquisition Strategies. Milestone decision authorities must assess compliance with the following statutorily imposed requirements at the Milestone II review:

  - Competitive Alternative Development and Production. Acquisition strategies must be prepared by the Secretary of Defense (as delegated) and must allow the option for competitive alternative sources for the system and each major subsystem under the program throughout the period from the beginning of full scale (engineering and manufacturing) development through the end of procurement. (10 U.S.C. 2439 (reference (f)))

- Acquisition Program Baseline. A development baseline shall be established at Milestone II. (10 U.S.C. 2435 (reference (n)))

- Independent Cost Estimate. An independent cost estimate is required prior to approval to enter the full scale engineering (engineering and manufacturing) development phase. (10 U.S.C. 2434 (reference (o)))

- Manpower Estimate Report. A manpower estimate report is required to be submitted to Under Secretary of Defense (Acquisition) prior to approval to enter the full scale engineering (engineering and manufacturing) development phase. (10 U.S.C. 2434 (reference (o)))

- Defense Industrial Base. The capabilities of the defense industrial base to develop, produce, maintain, and support the program must be analyzed. (10 U.S.C. 2440 (reference (g)))

- Cooperative Opportunities. As necessary, the Cooperative Opportunities Document prepared at Milestone I must be reviewed and updated at this and subsequent milestones. (10 U.S.C. 2350a.(e) (reference (h)))

- Design to Average Unit Procurement Cost Objective. A refined design to average unit procurement cost objective must be established. (DoD Directive 5000.1 (reference (a)))

- Low-Rate Initial Production. The milestone decision authority must determine the quantities to be procured for low-rate initial production at the Milestone II decision point. All increases from the quantities established at Milestone II must be approved by the milestone decision authority. (10 U.S.C. 2400 (a) (reference (i)))

  - Low-Rate Initial Production of Weapon Systems. Low-rate initial production quantities for new weapon systems (excluding ships and satellites, discussed below) shall be limited to those quantities required to: (10 U.S.C. 2400 (b) (reference (i)))

    - Provide production configured or representative articles for operational test pursuant to 10 U.S.C. 2399 (reference (j)),
    - Establish an initial production base for the system, and
    - Permit an orderly increase in the production rate for the system sufficient to lead to full rate production upon the successful completion of operational testing.

  - Low-Rate Initial Production of Naval Vessel and Satellite Programs. Low-rate initial production for these programs is defined as the production of items at the minimum quantity and rate that preserves the mobilization production base for that system and is feasible, as determined pursuant to the policy and procedures of paragraph 3.e.(5), page 3-16. A report, defined in DoD 5000.2-M, Part 9, must be submitted to Congress. (10 U.S.C. 2400 (c) (reference (i)))

UNIQUE REQUIREMENTS FOR CERTAIN ACAT I, II, AND OTHER PROGRAMS

- Live Fire Testing. The acquisition strategy must include provisions for conducting live fire testing on covered major systems, major munitions programs and missile programs (and covered product improvement programs thereto) unless the Secretary of Defense (or as delegated to the Under Secretary of Defense (Acquisition) or Director, Defense Research & Engineering) previously waived live fire testing prior to the start of full scale (engineering and manufacturing) development and certified to Congress that such testing would be unreasonably expensive and impractical. (10 U.S.C. 2366 (reference (k)))

- Arms Control Treaty Compliance. The acquisition strategy must comply with all relevant arms control treaties.

f. Phase II, Engineering and Manufacturing Development. Effective risk management is especially critical during this phase.

(1) To assist in managing risk:

(a) Resources should only be committed during this phase commensurate with the reduction and closure of risk.

(b) Configuration control must be established for both design and processes (see Section 9-A).

(c) Development and test activities should:

1 Focus on high risk areas,

2 Address the operational environment, and

3 Be phased to support internal decisionmaking and the Milestone III decision review (see Part 8).

(2) When possible, developmental testing should support and provide data for operational assessment prior to the beginning of formal initial operational test and evaluation by the operational test activity.

(3) System-specific performance requirements will be developed for contract specifications in coordination with the user or the user's representative (see Sections 4-B and 11-A).

(4) Planning for Phase III, Production and Deployment, will address design stability, production, industrial base capacity, configuration control, deployment, and support including, as appropriate, the transition from interim contract to in-house support (see Sections 6-O, 7-A/B/C, and 9-A/B).

(5) Program budget execution status will be periodically reviewed by both the planning, programming, and budgeting and acquisition management systems during this phase.

(a) Changes to the program that result in an actual or projected breach of an established program baseline parameter must be identified.

(b) Such changes may require a formal notification to the milestone decision authority (see Section 11-A)

(6) The objectives and minimum required accomplishments of Phase II are highlighted on page 3-21.

(7) Unique requirements that must be accommodated by programs in acquisition category I and other categories are highlighted on page 3-22.

PHASE II - ENGINEERING AND MANUFACTURING DEVELOPMENT

OBJECTIVES

The objectives of Phase II are to:

- Translate the most promising design approach developed in Phase I, Demonstration and Validation, into a stable, producible and cost effective system design,
- Validate the manufacturing or production process, and
- Demonstrate through testing that the system capabilities:
  - Meet contract specification requirements, and
  - Satisfy the mission need and meet minimum acceptable operational performance requirements (see Section 4-B)

MINIMUM REQUIRED ACCOMPLISHMENTS

The following are minimum required accomplishments for this phase:

- A validated system threat assessment (see Section 4-A),
- Test results that provide a realistic portrait of performance under operational conditions,
- Low-rate initial production experience that:
  - Verifies the adequacy of the manufacturing or production process,
  - Confirms the stability and producibility of the design, and
  - Provides a realistic estimate of production costs,
- A refined acquisition strategy and system cost estimate (see Sections 5-A and 10-A).
- A Production Baseline that includes refined program cost, schedule, and performance objectives (see Sections 4-B and 11-A),
- An assessment of the defense industrial base capability to support the program is required by the Defense Federal Acquisition Regulation Supplement, Part 207, Subpart 207.1, reference (m),
- A system configuration baseline (see Section 9-A),
- Identification of potential environmental consequences and development of appropriate mitigation measures (42 U.S.C. 4321-4347 and 40 C.F.R. 1500-1508 (references (d) and (l))),
- An updated assessment that shows projected life-cycle costs and annual funding requirements are affordable in the context of long-range investment plans or similar plans (see Sections 4-D and 10-A), and
- Programming of adequate resources to support production, deployment, and support.

PHASE II - ENGINEERING AND MANUFACTURING DEVELOPMENT

ACQUISITION CATEGORY I PROGRAMS

- Acquisition Strategies. The following statutorily imposed requirements apply during Phase II:
  - Competitive Alternative Development and Production. Acquisition strategies must be prepared by the Secretary of Defense (as delegated) and must allow the option for competitive alternative sources for the system and each major subsystem under the program throughout the period from the beginning of full scale (engineering and manufacturing) development through the end of procurement. (10 U.S.C. 2439 (reference (f)))
- Defense Industrial Base. The capabilities of the defense industrial base to produce, maintain, and support the program must be analyzed. (10 U.S.C. 2440 (reference (g)))
- Design to Average Unit Procurement Cost Objective. The design to average unit procurement cost objective must be updated for approval at Milestone III. (DoD Directive 5000.1 (reference (a)))
- Operational Test and Evaluation. Operational test and evaluation may not be conducted until the Director of Operational Test and Evaluation, Office of the Secretary of Defense, approves in writing the adequacy of the plans, including the projected level of funding, for the operational test and evaluation to be conducted. (10 U.S.C. 2399 b) (reference (j)))
- Low-Rate Initial Production. All increases from the low-rate initial production quantities established at Milestone II must be approved by the milestone decision authority. (10 U.S.C. 2400 (a) (reference (i)))
- Beyond Low-Rate Initial Production. The milestone decision authority shall not approve proceeding beyond low-rate initial production until:
  - Initial operational test and evaluation of the program is completed and
  - The Director of Operational Test and Evaluation, Office of the Secretary of Defense, prepares and submits a Beyond Low-Rate Initial Production Report to the Secretary of Defense, Under Secretary of Defense (Acquisition), and Congressional defense committees and the Congressional defense committees have received this report. (10 U.S.C. 2399(b) (reference (j)))

ACQUISITION CATEGORY I AND II PROGRAMS

- Beyond Low-Rate Initial Production. The milestone decision authority shall not approve proceeding beyond low-rate initial production for a conventional weapons system that is designed for use in combat until:
  - Initial operational test and evaluation of the program is completed. (10 U.S.C. 2399(a) (reference (j)))
- Arms Control Treaty Compliance. The acquisition strategy must comply with all relevant arms control treaties.

UNIQUE REQUIREMENTS FOR CERTAIN ACAT I, II, AND OTHER PROGRAMS

- Live Fire Testing. The acquisition strategy must include provisions for conducting live fire testing on covered major systems, major munitions programs and missile programs (and covered product improvement programs thereto) unless the Secretary of Defense (or as delegated to the Under Secretary of Defense (Acquisition) or Director, Defense Research & Engineering) previously waived live fire testing prior to the start of full scale (engineering and manufacturing) development and certified to Congress that such testing would be unreasonably expensive and impractical. (10 U.S.C. 2366 (reference (k)))

g. Milestone III, Production (or Construction) Approval. A favorable decision at this point represents a commitment to build, deploy, and support the system. In the case of ships, it also represents the commitment to construct follow ships.

(1) Milestone decision authorities must:

(a) Confirm the affordability of the proposed program,

(b) Determine that the materiel item is approved for service use as part of the production approval process,

(c) Ensure that the design is stable and producible and that production processes have been proofed, and

(d) Establish a realistic Production Baseline.

(2) Particular attention must be placed on:

(a) Assessing developmental and operational test and evaluation results,

(b) Establishing the most economic production rate that can be sustained, given affordability constraints,

(c) Identifying the criteria to be used to declare when operational capability is attained,

(d) Ensuring that planning for deployment and support is complete and adequate, (See Section 7) and

(e) Planning for a possible transition to contingency support or reconstitution.

(3) Establishing the Production Baseline (see Section 11-A) requires effective interaction among all three major decision support systems. This is particularly critical to establishing economic production rates.

(4) The basic objectives, decision criteria, and contents of an acquisition decision memorandum for Milestone III are highlighted on page 3-24.

(5) Unique requirements that must be accommodated by programs in acquisition category I and other acquisition categories are highlighted on page 3-25.

MILESTONE III - PRODUCTION APPROVAL

OBJECTIVES

The objectives of Milestone III are to:

- Determine if the results of Phase II, Engineering and Manufacturing Development, warrant continuation and
- Establish a Production Baseline containing refined program cost, schedule, and performance objectives for a program approved for continuation (see Sections 4-B and 11-A).

DECISION CRITERIA

A program may not enter full rate production (or construction in the case of ships and satellites) unless the milestone decision authority confirms that:

- The system threat assessment and the performance objectives and thresholds have been validated (see Sections 4-A and 11-B),
- Test results and low-rate initial production provide reasonable assurance that the design is:
  - -- Stable, operationally acceptable, logistically supportable, and
  - -- Capable of being produced efficiently,
- The potential environmental consequences of the program have been analyzed and appropriate mitigation measures have been developed (42 U.S.C. 4321-4347 and 40 C.F.R. 1500-1508 (references (d) and (l))),
- Projected life-cycle costs and annual funding requirements are affordable in the context of long-range investment plans or similar plans (see Section 4-D and 10-A), and
- Adequate resources (people and funds) to support production, deployment, and support have been programmed.

ACQUISITION DECISION MEMORANDUM

The Acquisition Decision Memorandum for this decision point should:

- Approve entry into Phase III, Production and Deployment,
- Approve the proposed or modified acquisition strategy and Production Baseline, and
- Establish program-specific exit criteria that must be accomplished during Phase III, if appropriate.

MILESTONE III - PRODUCTION APPROVAL

ACQUISITION CATEGORY I PROGRAMS

- Acquisition Strategies. Milestone decision authorities must assess compliance with the following statutorily imposed requirements at the Milestone III review:
  - Competitive Alternative Production. Acquisition strategies must be prepared by the Secretary of Defense (as delegated) and must allow the option for competitive alternative sources for the system and each major subsystem under the program throughout the period from the beginning of full scale (engineering and manufacturing) development through the end of procurement. (10 U.S.C. 2439 (reference (f)))
- Acquisition Program Baseline. A production baseline shall be established at Milestone III. (10 U.S.C. 2435 (reference (n)))
- Independent Cost Estimate. An independent cost estimate is required prior to approval to enter the production and deployment phase. (10 U.S.C. 2434 (reference (o)))
- Manpower Estimate Report. A manpower estimate report is required to be submitted to the Under Secretary of Defense (Acquisition) prior to approval to enter the production and deployment phase. (10 U.S.C. 2434 (reference (o)))
- Defense Industrial Base. The capabilities of the defense industrial base to produce, maintain, and support the program must be analyzed. (10 U.S.C. 2440 (reference (g)))
- Design to Average Unit Procurement Cost Objective. An updated design to average unit procurement cost objective must be established. (DoD Directive 5000.1 (reference (a)))
- Beyond Low-Rate Initial Production. The milestone decision authority shall not approve proceeding beyond low-rate initial production until:
  - Initial operational test and evaluation of the program is completed and
  - The Director of Operational Test and Evaluation, Office of the Secretary of Defense, prepares and submits a Beyond Low-Rate Initial Production Report to the Secretary of Defense, Under Secretary of Defense (Acquisition), and Congressional defense committees and the Congressional defense committees have received this report. (10 U.S.C. 2399(b) (reference (j)))

ACQUISITION CATEGORY I AND II PROGRAMS

- Beyond Low-Rate Initial Production. The milestone decision authority shall not approve proceeding beyond low-rate initial production for a conventional weapon system that is designed for use in combat until:
  - Initial operational test and evaluation of the program is completed. (10 U.S.C. 2399(a) (reference (j)))

UNIQUE REQUIREMENTS FOR CERTAIN ACAT I, II, AND OTHER PROGRAMS

- Live Fire Testing. The acquisition strategy must include provisions for conducting live fire testing on covered major systems, major munitions programs and missile programs (and covered product improvement programs thereto) unless the Secretary of Defense (or as delegated to the Under Secretary of Defense (Acquisition) or Director, Defense Research & Engineering) previously waived live fire testing prior to the start of full scale (engineering and manufacturing) development and certified to Congress that such testing would be unreasonably expensive and impractical. (10 U.S.C. 2366 (reference (k)))
- Arms Control Treaty Compliance. The acquisition strategy must comply with all relevant arms control treaties.

h. Phase III, Production and Deployment. System performance and quality will be monitored by follow-on operational test and evaluation during this phase.

(1) Program budget execution status will be periodically reviewed by both the planning, programming, and budgeting and acquisition management systems.

(2) The results of field experience to include operational readiness rates will be continuously monitored, particularly during the early stages of this phase. The objectives are to:

(a) Assess the ability of the system to perform as intended,

(b) Identify and incorporate into production lots minor engineering change proposals to meet required capabilities, and

(c) Identify the need for major upgrades or modifications that require a Milestone IV, Major Modification Approval, review.

(3) Support plans will be implemented to ensure support resources are acquired and deployed with the system.

(4) The basic objectives and minimum required accomplishments of Phase III are highlighted on page 3-27.

PHASE III - PRODUCTION AND DEPLOYMENT

OBJECTIVES

The objectives of Phase III are to:

- Establish a stable, efficient production and support base,
- Achieve an operational capability that satisfies the mission need, and
- Conduct follow-on operational and production verification testing to confirm and monitor performance and quality and verify the correction of deficiencies.

MINIMUM REQUIRED ACCOMPLISHMENTS

The following are minimum required accomplishments for this phase:

- Updated configuration baseline(s) (see Section 9-A),
- Updated and validated system threat assessment(s),
- Refined cost information,
- Execution of operational and support plans to include transition from contractor to in-house support, if appropriate, and
- Identification of operational and/or support problems.

i. Milestone IV, Major Modification Approval (As Required). The intent of this milestone is to ensure that all reasonable alternatives are thoroughly examined prior to committing to a major modification or upgrade program for a system that is still being produced.

(1) A "modification" is a change to a system (whether for safety, to correct a deficiency, or to improve program performance) that is still being produced. An "upgrade" is a change to a system (whether for safety, to correct a deficiency, or to improve program performance) to a system that is out of production. A "major modification" to a program is defined as a modification that in and of itself meets the criteria of acquisition category I or II or is designated as such by the milestone decision authority. Major modifications require a Milestone IV decision unless the decision to modify results from one of the alternatives considered as part of the Milestone I decision process. Upgrades are part of the Milestone 0 decision process.

(2) The need for a major modification program may be brought about by one or more of the following factors:

(a) A change in threat or Defense Planning Guidance,

(b) A deficiency identified during follow-on operational testing or operational training and support, or

(c) An opportunity to reduce the cost of ownership.

(3) Prior to committing to a major modification program the milestone decision authority must carefully consider the availability of other alternatives to address the deficiency. This includes the option of entering Phase 0, Concept Exploration and Definition, to evaluate fully these alternatives.

(4) If a major modification program is approved, the milestone decision authority will determine which acquisition phase should be entered. This decision will be based on the level of risk, the adequacy of risk management planning, and the amount of resources to be committed.

(5) The basic objectives, decision criteria, and contents of an acquisition decision memorandum for Milestone IV are highlighted on page 3-29.

MILESTONE IV - MAJOR MODIFICATION APPROVAL

OBJECTIVES

The objectives of Milestone IV are to:

* Determine if major modifications to a system currently in production are warranted and, for a system where such action is warranted, *

- Establish an approved acquisition strategy and baseline (Concept, Development, or Production) for the program (see Sections 5-A and 11-A).

NOTE: This Milestone is scheduled as required during Phase III, Production and Deployment.

- When a system is no longer in production, a deficiency resulting from a change in threat, defense policy, or technology must be defined in a new Mission Need Statement.

* The intent is that potential system upgrades should compete with all other possible alternatives during a new Phase 0, Concept Exploration and Definition. *

DECISION CRITERIA

* A new major modification program may not be established unless the milestone decision authority confirms that: *

- The system threat assessment and the performance objectives and thresholds have been validated (see Sections 4-A and 11-B),
- Field experience and results support the need for such a program,
- Reasonable assurance exists that the technologies and processes critical to success have been identified and are attainable in the context of the acquisition strategy and phase being proposed,
- The potential environmental consequences of the program have been analyzed and appropriate mitigation measures have been identified (42 U.S.C. 4321-4347 and 40 C.F.R. 1500-1508 (references (d) and (l)))
- Projected life-cycle costs and annual funding requirements are affordable in the context of long-range investment plans or similar plans (see Section 4-D and 10-A), and
- Adequate resources (people and funds) to support the program have been, or are committed to be, programmed.

ACQUISITION DECISION MEMORANDUM

The Acquisition Decision Memorandum for this decision point should:

- Define the phase of the process the program is approved to enter,
- Approve the proposed or modified acquisition strategy and baseline (Concept, Development, or Production) (see Section 11-A), and
- Establish program-specific exit criteria that must be accomplished.

j. Phase IV, Operations and Support. This phase overlaps with Phase III, Production and Deployment. It begins after initial systems have been fielded.

(1) The beginning of this phase is marked by either the declaration of an operational capability or the transition of management responsibility from the developer to the maintainer. It continues until the system leaves the inventory.

(2) Quality and safety problems will be corrected as identified during this phase.

(3) Fielded systems will be monitored to assess the effects of aging on system capabilities. When appropriate, modifications will be undertaken to extend service life. Care must be taken, however, to minimize proliferation of system configurations.

(4) Post-fielding supportability/readiness reviews will be conducted, as appropriate, to identify and resolve operational and supportability problems.

(5) The basic objectives and minimum required accomplishments of Phase IV are highlighted below.

PHASE IV - OPERATIONS AND SUPPORT

OBJECTIVES

The objectives of Phase IV are to:

- Ensure the fielded system continues to provide the capabilities required to meet the identified mission need and
- Identify shortcomings or deficiencies that must be corrected to improve performance.

MINIMUM REQUIRED ACCOMPLISHMENTS

The following are minimum required accomplishments for this phase:

- Updated configuration baseline(s) (see Section 9-A),
- Attainment and maintenance of required performance characteristics and capabilities, and
- Conduct of service life extension programs, as appropriate.

4. REVIEW, DOCUMENTATION, AND REPORTING REQUIREMENTS

a. Milestone review procedures associated with the acquisition process are described in Section 11-C.

b. The milestone documentation requirements associated with the acquisition process are discussed in Section 11-C.

c. Periodic reporting requirements are discussed in Section 11-D.

5. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix below identifies the offices to be contacted for additional information on this Part. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

PART 4

REQUIREMENTS EVOLUTION AND AFFORDABILITY

The underlying principles of evolving and updating objectives and constraints and conducting early and continuous cost-schedule-performance trade-offs are fundamental to the entire acquisition process. Trade-offs must keep the user's requirements in mind and ensure the mission need is still being met.

The key policies and procedures to be used in translating operational needs into stable and affordable acquisition programs are identified in this Part. Use of these procedures will help ensure that programs approved to enter engineering and manufacturing development, and potentially full rate production, are well defined and carefully structured and represent a judicious balance of cost, schedule, and performance, compatible with mission needs and affordability constraints.

SECTION	SUBJECT
A	Intelligence Support
B	Evolutionary Requirements Definition
C	Critical System Characteristics
D	Affordability
E	Cost and Operational Effectiveness Analysis

PART 4

SECTION A

INTELLIGENCE SUPPORT

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

These policies and procedures establish the basis for production, review, and validation of intelligence information in support of defense acquisition programs to ensure that each system is mission capable in its intended operational environment during its expected life. Intelligence support includes:

a. Preparation and validation of threat and threat risk information for the acquisition decision process and system development process, and

b. Assessment of the projected life-cycle costs of intelligence support for the operational system.

2. POLICIES

a. Mission needs and defense acquisition programs that may result therefrom shall be based on current, authoritative threat information.

(1) Threat information, to include the target data base, must be validated by the Defense Intelligence Agency for acquisition programs subject to review by the Defense Acquisition Board or approved by the appropriate DoD Component intelligence agency or command for other programs.

(2) Early and continued collaboration among the intelligence, requirements generation, and acquisition management communities shall be maintained to ensure the timely availability of validated threat information.

b. Initial system threat assessments shall be prepared to support program initiation at Milestone I, Concept Demonstration Approval, and maintained in a current and approved or validated status throughout the acquisition process. These assessments shall be system-specific to the degree of system definition at the time the assessment is made. They shall be produced at the lowest possible classification level consistent with user needs.

c. Intelligence production requirements in support of threat assessments or the employment of systems shall be identified early and included in program plans and cost estimates.

3. PROCEDURES

a. Threat and Projected Threat Environment. The threat to be countered and the projected threat environment will be fully defined in the process of identifying mission needs or deficiencies. These threats, summarized in the Mission Need Statement (see Section 4-B), will be based on threat projections derived from Defense Intelligence Agency produced or validated data base documents which, as a group, address the period extending 10 to 20 years into the future.

b. System Threat Assessments. The threat to the proposed concept or system will be assessed by the DoD Component and documented in a system threat assessment at each milestone decision point beginning with Milestone I.

(1) The full spectrum of agreed intelligence products will be used to develop these assessments.

(2) The focus of these assessments will be directed toward identifying those projected capabilities -- doctrine, strategy, tactics, organization, equipment, and military forces -- that a potential enemy could use to defeat, destroy, degrade, or deny the effectiveness of a concept proposed or system being developed or produced.

(3) The threat assessment will address the hostile intelligence collection threat and the potential vulnerabilities of the system resulting from disclosure of sensitive technologies and unique system features identified as Essential Elements of Friendly Information (see Section 5-F).

(4) The system threat assessment will be maintained in a current status and updated by the DoD Component prior to critical program events during each phase as determined by the milestone decision authority. It will be the system threat reference for all other program documentation.

c. Threat Validation. The threat to be countered contained in the Mission Need Statement and the system threat assessment and subsequent changes will be validated by the appropriate agency or command of the intelligence community. In validating the threat assessment, the agency or command will focus on the description of the proposed concept or system and its concept of operation. Validation will stress the:

(1) Appropriateness and completeness of the intelligence,

(2) Reasonableness of the judgments,

(3) Consistency with existing intelligence positions, and

(4) Logic of extrapolations from existing intelligence.

d. Intelligence Production Requirements. Intelligence production requirements will be identified and addressed in the evaluation of alternative concepts at Milestone I and alternative design approaches at Milestone II, Development Approval.

(1) These requirements may be generated to provide intelligence information for a critical intelligence parameter that is not adequately addressed by an existing intelligence product.

(2) They may be developed to provide intelligence source materials required for operation of the system or one of its subsystems such as a navigation sensor. Such products will be identified as supportability requirements and included in program logistics planning.

e. Written Intelligence Reports. A written intelligence report will be provided by the appropriate intelligence agency or command to the milestone decision authority prior to each milestone decision review.

(1) For Milestone 0, Concept Studies Approval, the intelligence report will confirm the validity of the data base documents used to define the threat to be countered and projected threat environment for the Mission Need Statement.

(2) For Milestones I through IV, the intelligence report will confirm the validation of system threat assessments used in support of the acquisition program and address any threat issues, risks, or unresolved threat concerns affecting the program.

f. Acquisition Category I Programs. The following procedures apply to support of the review process for acquisition category I programs.

(1) For Mission Need Statements requiring action by the Joint Requirements Oversight Council:

(a) The appropriate threat environment projection documents produced by the DoD Components and validated by the Defense Intelligence Agency -- the Army Soviet Battlefield Development Plan, the Navy Pyramid documents, and the Air Force Threat Environment Descriptions -- will be used to support development of the Mission Need Statement and plans for Phase 0, Concept Exploration and Definition.

(b) When these recurring products do not suffice, a special threat environment projection will be developed.

(2) DoD Components will prepare a System Threat Assessment Report (STAR) and ensure that it is validated and current prior to each milestone decision review beginning with Milestone I. The

System Threat Assessment Report will be updated during each acquisition phase as determined by the milestone decision authority.

(a) The System Threat Assessment Report is the basic authoritative system threat assessment tailored for and focused on a particular defense acquisition program. It will explicitly identify critical intelligence parameters and the associated intelligence production requirement control numbers. These parameters are a series of threat capabilities or thresholds established by the program, changes to which could critically impact the effectiveness and survivability of the proposed system.

(b) This report will be the primary threat reference for the Operational Requirements Document (see Section 4-B), the Integrated Program Summary (see Section 11-C), the Cost and Operational Effectiveness Analysis (see Section 4-E), and the Test and Evaluation Master Plan (see Section 11-C) developed in support of a milestone decision review.

(c) The format for this report is contained in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)).

(3) The Director, Defense Intelligence Agency will:

(a) Provide intelligence support and serve as principal advisor on intelligence matters to the Defense Acquisition Board and Joint Requirements Oversight Council review processes (see Part 13),

(b) Validate all System Threat Assessment Reports and other threat information developed by DoD Components for Defense Acquisition Board review and any changes thereto during each acquisition phase, and

(c) Prepare the intelligence report, described in paragraph 3.e., in support of each Defense Acquisition Board milestone decision review. This report will be submitted to the Defense Acquisition Board Executive Secretary and to the appropriate DoD Component in accordance with procedures contained in Section 13-A.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(C3I)	DASD(I)
Dept of Army	DCSI	DAMI-FIT-TI
* Dept of Navy	CNO(N22) HQMC/C4I2	NTIC (DA 00-30) HQMC/C4I2(INT) *
Dept of Air Force	AF/IN	AFIA/INK
CJCS (Joint Staff)	DJ8	J8/SPED
Other DoD Components	DIA	DIA/DT-AS

PART 4

SECTION B

EVOLUTIONARY REQUIREMENTS DEFINITION

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

These policies and procedures establish the basis for the determination, evolution, documentation, and validation of mission needs and system performance requirements.

2. POLICIES

a. DoD Components shall document deficiencies in current capabilities and opportunities to provide new capabilities in a Mission Need Statement (MNS) expressed in broad operational terms.

b. System performance objectives and minimum acceptable requirements shall be developed from, and remain consistent with, the initial broad statements of operational capability need. They will become progressively more detailed at successive milestone decision points, in both number and specificity, as a consequence of cost-schedule-performance trade-offs during each phase of the acquisition process.

c. At each milestone beginning with Milestone I, Concept Demonstration Approval, objectives and minimum acceptable requirements for Operational performance of the proposed concept or system shall be documented by the user or user's representative in an Operational Requirements Document (ORD). Key performance parameters shall be included in the appropriate acquisition program baseline (see Section 11-A). Performance parameters will include supportability.

(1) A minimum acceptable requirement is the value for a performance parameter which, in the user's judgment, is necessary to provide an operational capability that will satisfy the mission need. It is a threshold.

(2) An objective is a value beyond the threshold that could potentially have a measurable, beneficial impact on capability or operations and support above that provided by the threshold value (e.g., additional range that might reduce the number of refueling systems required or improve survivability by being able to avoid additional enemy defenses).

(3) The value for an objective in the Operational Requirements document should not differ from the value for a like objective

in the acquisition program baseline. However, objectives in the acquisition program baseline must consider not only user operational objectives in the Operational Requirements Document, but also results of cost and operational effectiveness analyses and the impact of affordability constraints.

(4) User or user representative participation in each acquisition phase is essential to help synchronize performance objectives in the Operational Requirements Document and the acquisition program baseline and to keep these objectives operationally meaningful.

d. In keeping with the objective of evolutionary requirements definition, the initial broad objectives and minimum acceptable requirements established at Milestone I shall be progressively refined and become more detailed in both number and specificity at successive milestone decision points. The intent is to:

(1) Keep all reasonable options open and facilitate cost-schedule-performance trade-offs early in the process and

(2) Avoid premature commitment to a system-specific solution.

e. Mission needs and the performance objectives and thresholds contained in the baseline shall be validated by an operational authority other than the user prior to each milestone decision
* review. The Chiefs of the Military Services and the Heads of other *
* DoD Components are validation and approval authorities for other *
* than acquisition category I D programs and are not viewed as users. *

(1) The validation authority shall ensure adherence to the guidelines established in paragraphs 2.b., 2.c., and 2.d., above.

(2) Validation of performance objectives and thresholds shall confirm that the proposed concept or system will provide a capability that satisfies the mission need.

f. Formats for the Mission Need Statement and Operational Requirements Document shall be uniform across the DoD Components and apply to all acquisition categories.

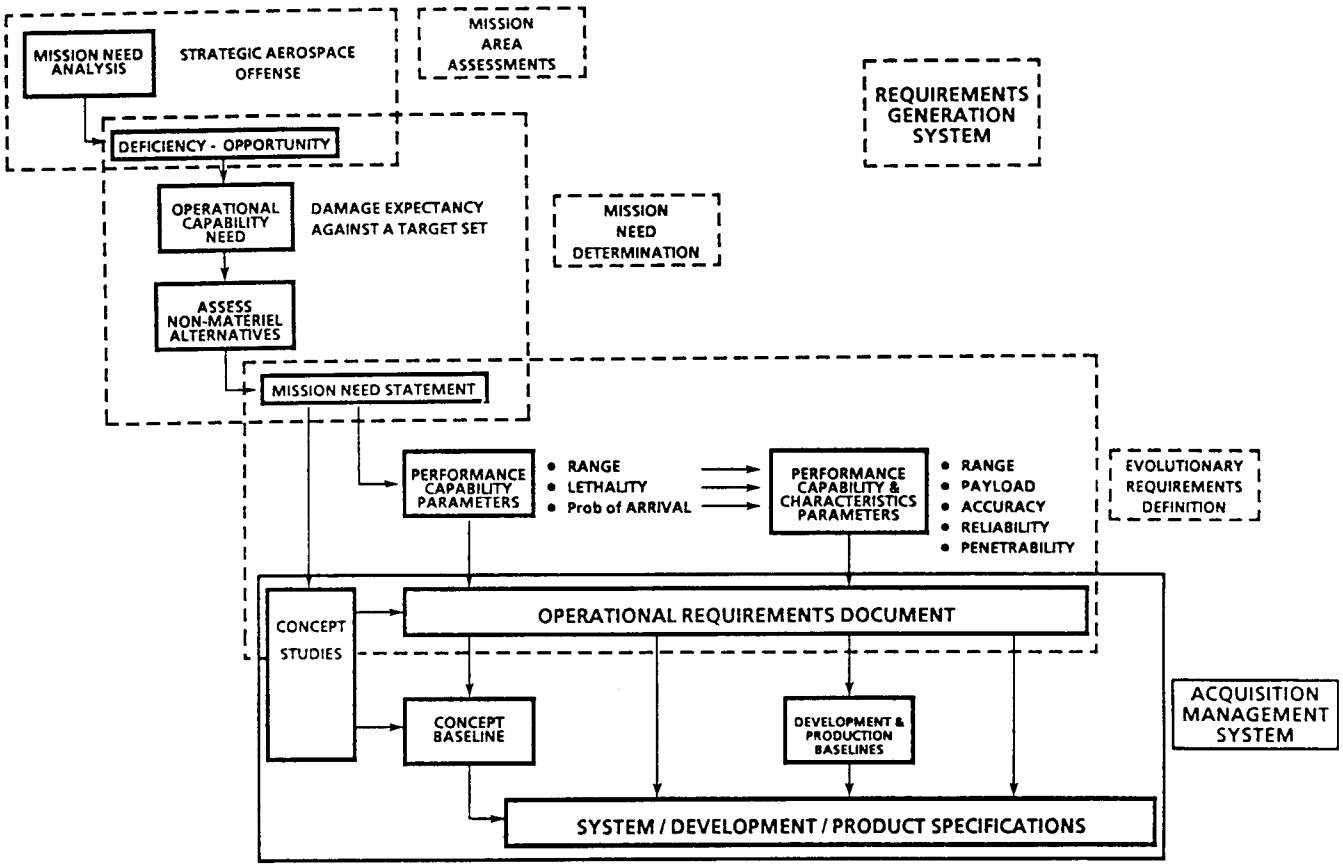
(1) The formats are described in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)).

(2) The Mission Need Statement and Operational Requirements Document replace such Service documents as the Statement of Need, Required Operational Capability, Tentative Operational Requirement, Operational Requirement, System Operational Requirements Document, Joint Statement of Operational Requirements, and Multi-Command Required Operational Capability.

(3) For programs past Milestone II prior to six months after the date of this Instruction, current approved or validated Service documents described in paragraph 2.f.(2), above, need not be rewritten to comply with the Mission Need Statement and Operational Requirements Document formats.

3. PROCEDURES

a. Overview. The following chart depicts the evolutionary requirements definition process and its relationship to the requirements generation and acquisition management systems. Examples of capability needs and performance parameters are included. The process is described in detail in the following paragraphs.



b. Mission Need Determination. DoD Components' requirements generation systems will focus on identifying deficiencies in current capabilities and opportunities to provide new capabilities.

(1) These deficiencies and opportunities will be described in terms of broad operational capability needs and evaluated to determine if they can be satisfied by nonmateriel solutions. Nonmateriel solutions include changes in operational doctrine, concepts, tactics, training, or organization.

(2) When an identified need cannot be met by such changes, a Mission Need Statement describing the deficiency in broad operational capability terms (nonsystem-specific) and identifying operational constraints will be prepared using the format in DoD

5000.2-M (reference (a)) and submitted to the appropriate operational authority for review and validation.

(a) An example of a broad operational capability need might be to achieve a specific damage expectancy against a certain target or class of targets defined as the threat to be countered.

(b) The Mission Need Statement will also identify the projected threat environment and applicable operational constraints.

(3) The validation authority will confirm that a nonmateriel solution is not feasible.

(4) The validation authority will forward the Statement to the appropriate acquisition milestone decision authority.

c. Phase 0, Concept Exploration and Definition. The user or user's representative will participate with the lead organization(s) during this phase to assist in evaluating potential materiel alternatives and identifying opportunities for cost-schedule-performance trade-offs within and among the various alternatives.

(1) The user or user's representative will develop an Operational Requirements Document for the most promising system concept(s) as described in DoD 5000.2-M (reference (a)). This document is the bridge connecting the Mission Need Statement to the acquisition program baseline and the specifications for the concept or system. At each milestone decision point, it reflects the current state of evolutionary requirements definition.

(2) At Milestone I, Concept Demonstration Approval, the Operational Requirements Document will establish objectives and minimum acceptable requirements, as defined above, for those performance capability parameters necessary to characterize the proposed system concept.

(a) If, in the example of the operational capability need cited above, the most promising concept is a standoff weapon, these parameters might include operational capability descriptors such as range, lethality, availability, and probability of arrival and physical/interface descriptors such as size and weight constraints and intended operational environment.

(b) If achieving an operational capability within a certain timeframe is an important consideration, the appropriate target dates should be identified in the document.

(c) An initial list of critical system characteristics (see Section 4-C), dictated by operational capability needs and constraints, will also be included in the Operational

Requirements Document. An example of such a characteristic would be hardening for high altitude electromagnetic pulse.

(3) Minimum acceptable requirements for key parameters in the Operational Requirements Document will be incorporated in the Concept Baseline (see Section 11-A) and the Test and Evaluation Master Plan (see Part 8) as thresholds.

(a) Objectives for these parameters will be used to establish the objectives in the Concept Baseline as described in subparagraph 2.c.(3), above.

(b) Performance objectives and thresholds in the Concept Baseline will be reviewed by the validation authority prior to the Milestone I decision point to confirm that they provide an operational capability that satisfies the mission need.

(4) The Operational Requirements Document will be used to develop requirements for the draft system specification.

d. Phase I, Demonstration and Validation. The user or user's representative will interact with the program office and the DoD Component operational test and evaluation activity during this phase to assist in the evaluation of design alternatives, to support in developing operational assessments of any prototypes built, and to identify opportunities for cost-schedule-performance trade-offs among the various design approaches.

(1) The user or user's representative will update and expand the Operational Requirements Document to reflect system definition and prototype experience during Phase I, Demonstration and Validation.

(2) At Milestone II, Development Approval, the Operational Requirements Document will establish objectives and minimum acceptable requirements for those performance capability and performance characteristic parameters that characterize the proposed system design approach. Target dates for achieving operational capability should also be identified. A final list of critical system characteristics (see Section 4-C) must be included.

(a) In the case of the example cited above, the performance capability parameter of lethality may now be translated into the performance characteristic parameters of payload and accuracy, and probability of arrival may be functionally decomposed into reliability and penetrability.

(b) Whenever possible, objectives and minimum acceptable requirements should be expressed in terms of overall system performance to allow for trade-offs among subsystems during development.

(3) Minimum acceptable requirements for key parameters in the Operational Requirements Document will be incorporated in the Development Baseline as thresholds.

(a) Objectives for these parameters will be included as described in paragraph 2.c.(3).

(b) Performance objectives and thresholds in the Development Baseline will be reviewed by the validation authority prior to Milestone II to confirm that they provide an operational capability that satisfies the mission need.

(4) The Operational Requirements Document will be used to develop requirements for the system and development specifications.

e. Phase II, Engineering and Manufacturing Development. During this phase, the user or user's representative continues to interact with the program office to participate in the trade-offs necessary to refine system and development specifications and develop product specifications.

(1) The ability of the system to satisfy performance requirements described in these specifications will be verified by development test and evaluation and engineering design analyses (as appropriate).

(2) The minimum acceptable operational performance specified in the Operational Requirements Document will be used to establish test criteria for operational test and evaluation. Operational test and evaluation will also provide data to characterize actual system performance capabilities in the intended operational environment.

(3) After Milestone II, the Operational Requirements Document should be modified only as a result of a change in the Mission Need Statement or cost-schedule-performance trade-offs during development.

(4) The validation authority will confirm that the performance objectives and thresholds in the Production Baseline provide an operational capability that satisfies the mission need prior to Milestone III, Production Approval.

f. Acquisition Category I Programs. The following specific procedures apply with regard to acquisition category I programs.

(1) The Joint Requirements Oversight Council, chaired by the Vice Chairman of the Joint Chiefs of Staff, will be the validation authority for all mission needs and for performance objectives and thresholds in the acquisition program baseline for programs coming to the Defense Acquisition Board for review.

(2) Mission Need Statements that potentially could result in the initiation of an acquisition category I program will be

submitted to the Joint Requirements Oversight Council (see Section 13-D). The Council will:

(a) Determine the validity of the identified need,

* (b) Forward the Mission Need Statement to the Under Secretary of Defense for Acquisition with its approval or disapproval, and *

* (c) Designate an approval authority for the Operational Requirements Document. *

(3) The Council will review the proposed performance objectives and thresholds in the acquisition program baseline for acquisition category I D programs at each successive milestone to confirm that they provide a capability that satisfies the Mission Need Statement (see Section 13-D).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	DCSOPS	DAMO-FDR
* Dept of Navy	ASN(RDA)	CNO (N8) HQMC/PP&O *
Dept of Air Force	AF/XO	AF/XOR
CJCS (Joint Staff)	VCJCS	J7/ORD

PART 4

SECTION C

CRITICAL SYSTEM CHARACTERISTICS

References: (a) DoD Directive 4140.43, "Fuel standardization," March 11, 1988 (canceled)
(b) DoD Directive 4500.37, "Management of DoD Intermodal Container System," April 2, 1987 (to be canceled and combined with DoD Directive 4500.9)

1. PURPOSE

a. This section replaces DoD Directive 4140.43, "Fuel Standardization" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for identifying, considering, and documenting critical system characteristics during the defense acquisition process to:

(1) Ensure early resolution of cost and risk issues,

(2) Ensure incorporation of truly essential and cost-effective system design characteristics into operational requirements and program baseline documentation,

(3) Avoid the cost and delay of incorporating these characteristics into the design at a later stage of the program, and

(4) Enhance program stability and ultimate operational success.

2. POLICIES

a. System characteristics dictated by operational capability needs and constraints and critical to the successful operation and support of a new or modified weapon system shall be identified early and specifically addressed in cost-schedule-performance trade-offs.

(1) Critical system characteristics are those design features that determine how well the proposed concept or system will function in its intended operational environment.

* (2) Critical system characteristics include survivability; *
* transportability; energy efficiency; and interoperability, *
standardization, and compatibility with other forces and systems including support infrastructure.

* (3) An assessment of a system's electronic-counter countermeasures *
* capabilities is required in order to identify a proposed concept *
* or system's vulnerabilities and susceptibilities to electronic *
* warfare. *

* b. Critical system characteristics shall be identified beginning at Milestone I. The cost and risk of providing the necessary system characteristics to meet operational capability needs and constraints shall be assessed prior to Milestone II, Development Approval. *

c. At Milestone II, the milestone decision authority, with the advice of the user or user representative and the validation authority, shall determine the critical characteristics that must be included in the system design.

d. Thresholds and objectives for critical system characteristics shall be identified in the Operational Requirements Document (see Section 4-B). Selected critical characteristics shall be included in the acquisition program baseline (see Section 11-A) and as critical technical parameters in the Test and Evaluation Master Plan (see Part 8).

3. PROCEDURES

a. Operational Constraints. Operational constraints will initially be identified in the Mission Need Statement (see Section 4-B). As a minimum, these constraints shall consider the expected threat and natural environments, the possible modes of transportation into and within expected areas of operation, the expected electronic warfare environment, the potential for NATO application, operational manning limitations, and existing infrastructure support capabilities (see Section 7-B).

(1) The expected threat environment will be addressed for each of the survivability threat categories (conventional; electronic; initial nuclear weapons effects; nuclear, biological, and chemical contamination; advanced threats such as high power microwave, kinetic energy weapons, and directed energy weapons; and terrorism or sabotage).

(2) The expected natural environment will be addressed in two aspects:

(a) Logistically: deployment, maintenance, and storage impacts. These may include effects of such parameters as temperature ranges, humidity ranges, sand or dust, wind forces, sea characteristics, corrosive elements (especially salt), and rainfall.

(b) Operationally: the reasonably expected range of limiting conditions for the system. These may include such parameters as temperature, humidity, winds, low clouds, fog, rain or snow, snow cover, sea states, and ocean acoustics.

(3) The expected capability to operate in the threat environment will be identified (e.g., mission completion, recovery without loss, continued mission operations).

b. Identification of Critical System Characteristics. Operational constraints will be considered in the evaluation of alternative concepts during Phase 0, Concept Exploration and Definition. For those constraints relevant to the preferred concept(s), an initial list of critical system characteristics with proposed thresholds and objectives will be identified in the Operational Requirements Document (see Section 4-B). Selected parameters will be included in the Concept Baseline (see Section 11-A) and the Test and Evaluation Master Plan (see Part 8).

(1) Survivability characteristics will be identified for all threats applicable to the proposed concept or system (see Section 6-F).

(a) Survivability characteristics, including the survivability characteristics of the system's support infrastructure, should be determined by the criticality of the mission. The survivability characteristics of other systems with which this system must interface should be considered but should not be the key factor in determining required survivability characteristics. The key factor should be the system's contribution to the larger wartime function.

(b) Such functions may require a combination of different individual and classes of major systems (e.g., conventional and nuclear-capable) and other elements to operate together to guarantee function or mission completion.

(2) Transportability characteristics will be identified for all possible modes of transportation to be employed considering standard unitizing methods (pallets, containers), dimensional standardization for military cargo, and International Standards Organization dimensional, strength and lift specifications as prescribed by DoD Directive 4500.37, "Management of DoD Intermodal Container System" (reference (b)).

(3) Electronic counter-countermeasures will be identified to ensure the effective use of electromagnetic, optical, and acoustic spectra despite an adversary's use of electronic warfare.

(4) Energy needs will be identified to ensure compatibility with available energy sources (e.g., fuels, electrical power) and to minimize the number and quantity of fuels required.

(a) Energy compatibility characteristics will be consistent with international standardization agreements on fuels types and fuels service hardware.

(b) Ability to operate effectively on a range of fuels should be considered to avoid supply limitations during combat.

(5) Standardization and interface compatibility characteristics will be identified to support rationalization, standardization, and interoperability when NATO application is expected and to ensure interoperability with other U.S. forces and weapon and support

systems, including energy sources. Unique requirements should be carefully scrutinized for the possibility of use in joint or combined operations.

(6) Manning characteristics, including training features, will be identified to account for the numbers and skills of available people considering operational safety, security, and manpower restrictions.

(7) Other characteristics will be identified to ensure compatibility and interoperability with command, control, communications, and intelligence systems and other elements of infrastructure support (see Section 7-C).

(8) These characteristics should be relatively insensitive to minor changes in system operation and specific threats and amenable to validation by test and evaluation procedures.

c. Evaluation and Review of Alternatives. The cost and risk of providing the proposed critical system characteristics will be assessed during Phase I, Demonstration and Validation.

(1) Alternative approaches for providing these capabilities will be identified and addressed in the cost and operational effectiveness analysis (see Section 4-E).

(2) The user or user's representative will participate in the selection and evaluation of these alternatives.

(3) Cost-schedule-performance trade-offs will be considered in preparing the proposed final list of critical system characteristics.

(4) The validation authority will review the proposed final list of critical system characteristics prior to Milestone II, Development Approval. For acquisition category I D programs, the list will be reviewed by the Joint Requirements Oversight Council.

d. Approval of Critical System Characteristics. The results of the cost-schedule-performance trade-offs and risk analyses, along with the recommendations of the user or user's representative and the validation authority, will be presented to the milestone decision authority at Milestone II.

(1) Proposed thresholds and objectives for the final list of critical system characteristics will be identified in the Operational Requirements Document at Milestone II and selected parameters included in the Development Baseline (see Section 11-A).

(2) The milestone decision authority will approve the final list of critical system characteristics as part of the Milestone II decision.

(3) After Milestone II, these characteristics will be readdressed only if operational capability needs, constraints, or the threat environment change.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	DDR&E DUSD(A) DUSD(A) ASD(C3I)	ATSD(AE) Dir, S&SS Dir, TS Dir, S&TC3
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	AF/XO	AF/XOR
CJCS (Joint Staff)	VCJCS	J8/SPED

PART 4

SECTION D

AFFORDABILITY

References: (a) DoD Directive 5134.1, "Under Secretary of Defense for Acquisition (USD(A))," September 30, 1992
(b) Deputy Secretary of Defense Memorandum, "Fiscal Discipline in Programs Reviewed by the Defense Acquisition Board," July 2, 1991

1. PURPOSE

These policies and procedures establish the basis for fostering greater program stability through the assessment of program affordability and determination of affordability constraints.

2. POLICIES

a. Individual program plans for new acquisition programs must be consistent with overall DoD planning and funding priorities.

b. Affordability constraints shall be established for each acquisition program at Milestone I, Concept Demonstration Approval.

c. Affordability shall be assessed at each milestone decision point beginning with Milestone I. No program shall be approved to proceed beyond Milestone I unless sufficient resources, including manpower, are programmed in the most recently approved Future Years Defense Program, or will be programmed in the next Planning, Programming and Budgeting submission.

d. A program shall not be approved to enter the next acquisition phase unless sufficient resources, including manpower, are or will be programmed to support projected development, testing, production, fielding, and support requirements.

3. PROCEDURES

a. Program Plans and Affordability Constraints. Broad long-range investment plans will be developed based on best estimates of projected topline fiscal resources.

(1) The Deputy Secretary of Defense will approve the general nature of these plans.

(2) Affordability constraints for each acquisition program will be established at Milestone I, Concept Demonstration Approval, and updated at subsequent milestone decision points. Affordability constraints will be documented in the Acquisition Decision Memorandum.

(3) These affordability constraints will be derived from the long-

range investment plans of the Military Departments and the Department of Defense, the affordability planning objectives in the Defense Planning Guidance, and the long-range acquisition investment area analyses prepared by the Under Secretary of Defense for Acquisition.

b. Affordability Assessments. Affordability assessments will be prepared and considered at each milestone decision point beginning with Milestone I, Concept Demonstration Approval.

(1) Affordability assessments are to be expressed in terms of the life-cycle resource requirements for the program allocated on an annual basis.

(2) They must compare program resource requirements against affordability constraints and other resource demands in the mission or investment area over the planned life cycle.

c. Interface with Planning, Programming, and Budgeting System. Affordability assessments will be used to coordinate decision making between the acquisition management system and the planning, programming, and budgeting system.

(1) Affordability constraints and assessments provide a basis for program planning and for developing the acquisition program baseline (see Section 11-A).

(2) The resources required to support approved programs, as baselined, will be included in DoD Component program and budget submissions.

(3) Proposed changes developed within the planning, programming, and budgeting system process that would result in a breach of a program baseline must be accompanied by an assessment of the cost, schedule, and performance impact of the proposed change.

(4) The milestone decision authority will review the impact assessment and provide a recommendation to the resource decision authority.

d. Design to Cost. Affordability constraints and assessments may also be used to establish design to cost objectives (see Section 6-K).

e. Acquisition Category I Programs

(1) All proposed acquisition category I new starts will be reviewed during an annual Milestone I review window to consider the results of the affordability assessments, to determine which programs to approve for initiation, and to establish program-specific affordability constraints for the approved programs.

(2) The Deputy Secretary of Defense will approve the initiation of all acquisition category I programs and establish

affordability planning constraints for all programs approved.

(3) For those programs approved for initiation, the affordability constraints and resources will be documented in the Acquisition Decision Memorandum at Milestone I. Resources will be allocated as necessary by the Deputy Secretary of Defense until the required resources can be programmed in the DoD Component's budget submission.

(4) Cost Analysis Improvement Group reviews (see Section 13-C) will be used to ensure cost data of sufficient accuracy is available to support reasonable judgments on affordability.

(5) DoD Component Heads will consult with the Under Secretary of Defense for Acquisition on program objectives memoranda and budget estimate submissions that reflect a significant change to any program subject to review by the Defense Acquisition Board; prior to submission of the program objectives memorandum or budget estimate submission to the Secretary of Defense, as specified in the Under Secretary of Defense Charter (DoD Directive 5134.1, "Under Secretary of Defense for Acquisition" (reference (a)).

(6) DoD Components will establish a similar process for assessing the affordability of acquisition category II, III, and IV programs.

f. Full Funding of Acquisition programs Reviewed by the Defense Acquisition Board

(1) When the Defense Acquisition Board reviews a program, the DoD Component Head responsible for the program will submit to the Under Secretary of Defense for Acquisition the funding for that program contained in the Future Years Defense Program most recently approved by the Secretary of Defense. The DoD Component Head will also provide a description of the best possible acquisition strategy that could be implemented with the currently approved program funding along with the preferred DoD component approach if they are different.

(2) If, after the Defense Acquisition Board has reviewed the program, the Under Secretary of Defense for Acquisition concludes that the Future Years Defense Program funding for the program will not support the program as presented to the Defense Acquisition Board, the DoD Component Head will submit for the Under Secretary's information the funding reduction to other programs in that Component that the Component Head plans to pursue in the Planning, Programming, and Budgeting System to make available funds for the program the Defense Acquisition Board has reviewed.

(3) DoD Component Head will incorporate in their recommendations in the Planning, Programming, and Budgeting System the submissions made to the Under Secretary of Defense for Acquisition under sub-paragraph D.3.f.(2), above, unless extraordinary circumstances require otherwise, and the Component Head informs the Under Secretary of Defense for Acquisition in writing of the change and the reason for the change.

(4) These procedures are identified in the Deputy Secretary of Defense memorandum, "Fiscal Discipline in Programs Reviewed by the Defense Acquisition Board" (reference (b)).

(5) DoD Components will establish a similar procedure for ensuring the full funding of Acquisition Category I C, II, III, and IV programs.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(PA&E) Dir, AP&PI	DASD(GPP) DASD(SP) DepDir, AR
Dept of Army	ASA(RDA)	SARD-RI
Dept of Navy	ASN(FM)	Dir, RE
Dept of Air Force	AF/XO	AF/XOX
CJCS (Joint Staff)	VCJCS	J8/PBAD

PART 4

SECTION E

COST AND OPERATIONAL EFFECTIVENESS ANALYSIS

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

These policies and procedures establish the basis for developing cost and operational effectiveness analyses to support milestone decision reviews.

2. POLICIES

a. Cost and operational effectiveness analyses shall be prepared and considered at milestone decision reviews of acquisition category I programs, beginning with Milestone I, Concept Demonstration Approval. These analyses are intended to:

(1) Aid Decisionmaking by illuminating the relative advantages and disadvantages of the alternatives being considered and showing the sensitivity of each alternative to possible changes in key assumptions (e.g., the threat) or variables (e.g., selected performance capabilities). Accordingly, the analysis takes the form of a problem of choice. The cost and operational effectiveness analysis should aid decisionmakers in judging whether or not any of the proposed alternatives to the current program (i.e., the status quo) offer sufficient military benefit to be worth the cost.

(2) Facilitate Communications by early identification and discussion of reasonable alternatives among decision makers and staffs at all levels. Although the analysis is intended to be quantitatively based, disagreements on key assumptions and variables often emerge. They must be identified explicitly and not be submerged into the presentation of a compromise position.

(3) Document Acquisition Decisions by providing the analytical underpinning or rationale for decisions on a program. Accordingly, the analysis shall provide a historical record of the alternatives considered at each milestone decision point.

b. The underlying principles and analytical concepts of this section shall be tailored and implemented in support of acquisition category II, III and IV programs as deemed appropriate by the DoD Component Acquisition Executives.

3. PROCEDURES

a. Supporting Analyses. A cost and operational effectiveness analysis will typically draw on several sub-analyses. These include analyses of mission needs, the threat and U.S. capabilities, the interrelationship of systems, the contribution of multi-role systems, measures of effectiveness, costs, and cost-effectiveness comparisons. The following general guidelines apply to the development of cost and operational effectiveness analyses.

(1) Mission Need Analysis. A mission need analysis assesses alternatives in an operational context, identifying what force capabilities would be gained (or foregone) by pursuing any of a designated set of alternatives. A mission need analysis assesses the strengths and weaknesses of a military force when confronting a postulated threat in a specified scenario or set of circumstances (such as force structures, geographic location, and environmental conditions).

(a) The scenarios should include a set based on situations that conform to the scenarios in the Defense Planning Guidance, that is, the underlying assumptions concerning the threat, as well as those concerning U.S. and allied involvement, should not conflict with the assumptions in the Defense Planning Guidance scenarios. All relevant situations in the Defense Planning Guidance scenarios should be addressed in the analysis. U.S. force availability should be consistent with any deployment or reinforcement objectives included in the scenarios or established elsewhere in the Defense Planning Guidance.

(b) Alternative cases may be considered when they would contribute to the analysis. In these instances, the variance(s) from the Defense Planning Guidance scenario(s) must be clearly identified and addressed.

(c) Whatever scenario is selected, the mission need analysis must show how the alternatives under consideration would contribute to accomplishment of a national military mission established by the Defense Planning Guidance.

(d) The cost and operational effectiveness analysis must describe, quantitatively and qualitatively, the operational impact (or range of impacts) of responding to an identified deficiency or opportunity in the manner suggested by each alternative under consideration.

(2) Threat and U.S. Capabilities. The cost and operational effectiveness analysis must include projections of the enemy threat. It should describe the strengths and weaknesses of the forces and capabilities that potential adversaries could employ in the designated mission area and show how these forces and capabilities are projected to change over time.

(a) Changes in the threat typically should be examined at least 10 years into the future. U.S. capabilities should be typically projected at least through the end of the 6-Year Defense Program funded delivery period, and further if circumstances warrant.

(b) The evaluation should consider how U.S. needs would change as a result of changes in the threat. Additionally, it should also address the possible effects of countermeasures (reactive or technologically feasible) that adversaries might employ against the capabilities offered by each of the alternatives being evaluated.

(3) System Interrelationships. Individual systems generally cannot be evaluated in isolation. Few deficiencies can be resolved by just one system, and some systems can complicate the use of other friendly systems. Therefore, the analysis must consider all relevant systems and the synergisms, such as interoperability, and potential difficulties they collectively represent on the battlefield.

(4) Multi-Role Systems. A number of systems can accomplish significantly different functions at different times. For example, an aircraft carrier battle group can support sea lane defense operations against submarines one day and conduct long range power projection missions ashore the next. Accordingly, as appropriate, a cost and operational effectiveness analysis should account for flexibility of this nature by investigating campaign-level operations over an extended period of time, rather than considering only the outcomes of representative tactical engagements. It must also account for occasional nonavailability for one task because of application or dedication to another.

(5) Measures of Effectiveness. To judge whether an alternative is worthwhile, one must first determine what it takes to make a difference. Measures of effectiveness should be defined to measure operational capabilities in terms of engagement or battle outcomes. Measures of performance, such as weight and speed, should relate to the measures of effectiveness such that the effect of a change in the measure of performance can be related to a change in the measure of effectiveness.

(a) Comparable measures for each alternative are evaluated against a baseline, generally the outcome that would exist with currently programmed capabilities.

(b) The complexity, scope, and output measures of mathematical models selected for the analysis should be appropriate to the system being evaluated. For example, a battalion size model need not be run to evaluate a new truck, and an antisubmarine warfare campaign model is not necessary for assessing the performance of new carrier onboard delivery systems.

(c) Measures of effectiveness should be developed to a level of specificity such that the system's effectiveness during developmental and operational testing can be assessed with the same effectiveness criteria as used in the cost and operational effectiveness analysis. This will permit further refinement of the analysis to reassess cost effectiveness compared to alternatives in the event that performance, as determined during testing, indicates a significant drop in effectiveness (i.e., to or below a threshold) compared to the levels assumed in the initial analysis.

(6) Costs. Whereas measures of effectiveness gauge the military utility of specified outputs, cost analysis assesses the resource implications of associated inputs. In this regard, the concept of life-cycle cost is important. Life-cycle cost reflects the cumulative costs of developing, procuring, operating, and supporting a system. They often are estimated separately by budget account (i.e., research, development, test, and evaluation (RDT&E), procurement, and operations and maintenance (O&M)). It is imperative to identify life-cycle costs, nonmonetary as well as monetary, associated with each alternative being considered in a cost and operational effectiveness analysis. To affect the analysis, separate estimates of operations and maintenance costs must be made, particularly manpower, personnel and training costs. This includes the base case alternative, which often provides for continuation of the status quo.

(7) Cost-Effectiveness Comparisons. Once measures of effectiveness and cost have been determined, the results are to be arrayed for each alternative to show the marginal changes in these measures. The following cautions apply:

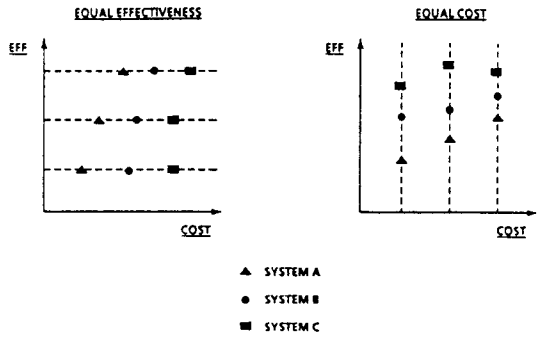
(a) Ratios can be misleading, particularly if there are bands of uncertainty around capabilities and costs. Therefore, it is generally preferable to show effectiveness and costs separately, not simply as ratios.

(b) System assessments can involve considerable uncertainty. If only one acquisition alternative is found to have merit, the analysis should demonstrate it to be robust, preferable by a wide margin over the status quo.

(c) Uncertainties are often greater for new systems and should be clearly identified in the analysis.

(d) Where appropriate, comparisons should be made on an equal cost or equal effectiveness basis, as suggested in the schematic on the following page.

EXAMPLE OF EQUAL EFFECTIVENESS AND EQUAL COST COMPARISONS



(8) Sensitivity Analyses. Sensitivity analyses should also be conducted as appropriate to highlight the magnitude of effects resulting from realistic possible changes or uncertainties regarding items such as:

(a) The threat,

(b) Key performance criteria, or

(c) Other baseline parameters that may change during the acquisition process or the fielding of the resulting system.

b. Preparation Responsibilities. A cost and operational effectiveness analysis is normally prepared by the DoD Component responsible for the mission area in which a deficiency or opportunity has been identified.

(1) The DoD Component Head, or as delegated, not the Program Manager, is responsible for determining the independent analysis activity for preparing the cost and operational effectiveness analysis for all acquisition programs.

(2) The lead DoD Component for a joint program is responsible for ensuring that a comprehensive analysis is prepared for a joint program. If the main document is to be supplemented by individual DoD Component developed analyses, the lead DoD Component should ensure that the assumptions and methodologies used are consistent across the analyses.

c. Role of the Joint Staff. Coordination with the Joint Staff should take place early in the development of the cost and operational effectiveness analysis. The Joint Staff can make valuable contributions by ensuring that:

(1) The full range of alternatives is considered,

(2) Organizational and operational plans are developed with input from the Commanders in Chief of the Unified and Specified Commands and are consistent with U.S. military strategy, and

(3) Joint-Service issues, such as interoperability and common use, are addressed.

d. Role of the Office of the Secretary of Defense. The Assistant Secretary of Defense for Program Analysis and Evaluation has primary responsibility for assessing the adequacy of the cost and operational effectiveness analysis of acquisition category I D programs submitted in support of Defense Acquisition Board reviews.

(1) The Assistant Secretary of Defense for Program Analysis and Evaluation will provide, as necessary, guidance tailored to the program under review to be included in the memoranda described in the Defense Acquisition Board review procedures (see Section 13-A) from the Under Secretary of Defense for Acquisition or the appropriate Defense Acquisition Board Committee Chair.

(2) Accordingly, it is desirable to include a representative from both the Office of the Assistant Secretary of Defense for Program Analysis and Evaluation and the appropriate Defense Acquisition Board Committee in the early stages of development of all such analyses and throughout their subsequent updates.

e. Milestone Decision Reviews. Different types or forms of analyses may be used at different milestone decision points or for different types of acquisition programs.

(1) At Milestone I, Concept Demonstration Approval, the analysis should focus on the broad trade-offs available between the different concepts to meet the basic mission need. The analysis should be structured to support a "Go/No Go" recommendation. It should:

(a) Demonstrate why acquiring a new system is preferable to modifying an existing one, and

(b) Define the major performance and critical system characteristics (see Sections 4-B/C) needed in the new system so that program design and cost objectives can be established for Phase I, Demonstration and Validation.

(2) At Milestone II, Development Approval, the hardware alternatives available typically represent a narrower range of choices. Therefore, the analysis will be more detailed in some respects. It typically should:

(a) Establish performance floor and cost ceiling objectives, or acceptable bands for possible combinations of cost and performance,

(b) Show the trade-offs used to arrive at the objectives for Phase II, Engineering and Manufacturing Development, and

(c) Examine the impact of program termination.

(3) At Milestone III, Production Approval, the analysis may be only an update of the Milestone II analysis. However, if there have been major performance or cost changes during Phase II, Engineering and Manufacturing Development, a new analysis may be required. The elements of the analysis to be updated for a Milestone III review will be specified by the milestone decision authority as part of the pre-milestone planning process (see Sections 11-C and 13-A).

(4) At Milestone IV, Major Modification Approval, the milestone decision authority may elect to require a cost and operational effectiveness analysis. The essential elements of this analysis will be specified by the milestone decision authority as part of the pre-milestone planning process (see Sections 11-C and 13-A).

f. Specific Considerations and Procedures. Specific considerations and procedures to be followed in developing a cost and operational effectiveness analysis are provided in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(PA&E)	DASD(GPP) DASD(SP)
Dept of Army	ASA(RDA)	SARD-DO
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	AF/XO	AF/XOX
CJCS (Joint Staff)	DJ8	J8/SPED

PART 5

ACQUISITION PLANNING AND RISK MANAGEMENT

Acquisition strategies and program plans must be complete, well thought out, and tailored to accomplish stated objectives while controlling risk.

The policies and procedures presented in this Part establish a common frame of reference for developing tailored acquisition strategies and detailed program plans. These policies and procedures must be judiciously applied. They are not a substitute for good judgment and common sense, nor are they intended to stifle innovation. They are organized and presented as follows:

	SECTION	SUBJECT	
	A	Acquisition Strategy	
	B	Risk Management	
*	C	Science and Technology Development and Transition	*
*	D	Reserved for Future Use	*
	E	Industrial Base	
	F	Program Protection and Technology Control	

PART 5

SECTION A

ACQUISITION STRATEGY

References:
(a) DoD Directive 4245.9, "Competitive Acquisitions," August 17, 1984 (canceled)
(b) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(c) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(d) Defense Federal Acquisition Regulation Supplement, Appendix D, "Component Breakout," current edition *
(e) Title 41, United States Code, Section 418, "Advocates for competition"
(f) Title 10, United States Code, Section 2318, "Advocates for competition"
(g) Joint Logistics Commanders Guidance, "Evolutionary Acquisition, An Alternative Strategy for Acquiring Command and Control (C^2) Systems," March 1987

1. PURPOSE

a. This section replaces DoD Directive 4245.9, "Competitive Acquisitions" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for developing and tailoring an acquisition strategy, the master plan for program execution from program initiation through post-production support.

2. POLICIES

a. A primary goal in developing an acquisition strategy shall be to minimize the time and cost of satisfying an identified, validated need consistent with common sense, sound business practices, and the basic policies established by DoD Directive 5000.1, "Defense Acquisition" (reference (b)).

b. The acquisition strategy shall evolve through an iterative process and become increasingly more definitive in describing the relationship of the essential elements of a program. Essential elements in this context refer to the management, technical, resource, procurement and contracting, testing, training, deployment. support, and other aspects critical to the success of the program.

c. The acquisition strategy shall be tailored to meet the specific needs of individual programs consistent with the policies established in DoD Directive 5000.1 (reference (b)) and Part 2 of this instruction.

3. PROCEDURES

a. Initial and Subsequent Acquisition Strategies. An initial acquisition strategy for the proposed concept(s) will be developed and approved or modified as a result of a Milestone I decision to proceed.

(1) The strategy should be developed in sufficient detail to establish the managerial approach that will be used to direct and control all elements of the acquisition to achieve program objectives. It should include a clear description of performance, cost, and schedule risk elements and the corresponding strategies to abate those risks.

(2) The strategy will be kept current and formally updated at each milestone decision point as the system approach and program elements are better defined.

b. Event Driven Acquisition Strategy and Event Based Contracting

(1) The objectives of event driven acquisition strategy and event based contracting are to:

(a) Highlight key developmental events,

(b) Avoid premature commitment to programs,

(c) Avoid forcing program decisions solely because of potential loss of priced production options that may expire on a certain date, and

(d) Identify contractor responsibility for the cost of program delays caused by events within the contractor's control.

(2) Event driven acquisition strategy explicitly links program decisions to demonstrated accomplishments in development, testing, and initial production.

(3) Event based contracting supports an event driven acquisition strategy by imposing the linkages between demonstrated performance and corresponding program phase and production decisions. The events set forth in contracts must support the appropriate exit criteria for the phase or intermediate development events established for the acquisition strategy.

c. Competitive Environment. The acquisition strategy for a program will describe plans to develop a competitive environment.

(1) Competition at the prime and subcontractor level must be considered during each acquisition phase (see Part 2 for a discussion of the phases). The strategies for acquisition category I programs must be developed considering the provisions of current statutes as highlighted in Part 3 of this Instruction. Plans for competitive prototyping and competitive

alternative sources, including the appropriate analyses, will be included in Annex C, Acquisition Strategy Report, of the Integrated Program Summary, DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (c)).

(2) The Acquisition Strategy Report will discuss component breakout plans and will include rationale justifying the component breakout strategy (see Defense Federal Acquisition Regulation Supplement, Appendix D, "Component Breakout" (reference (d)) for analysis requirements).

(a) Component breakout must be considered on every program and should be done when there are significant cost savings, the technical or schedule risk of furnishing government items to the prime contractor is manageable and there are no other overriding Governmental interests (e.g., industrial base considerations.

(b) In the Acquisition Strategy Report, list components considered for breakout and provide a brief rationale for those where a decision was made not to break out. A decision not to break out any components must be justified in the Acquisition Strategy Report to include the rationale for not pursuing component breakout.

(3) The Head of each DoD Component with acquisition responsibilities will designate a competition advocate for the Component (at the general officer, flag, or senior executive service level) and in each procurement activity as a resource to help the Component Head to achieve a competitive environment (see Title 41, United States Code, Section 418, "Advocates for competition" (reference (e)) and Title 10, United States Code, Section 2318, "Advocates for competition" (reference (f))). The competition advocate will be responsible for:

(a) Planning for competition in each acquisition phase to minimize inhibiting factors and to enable consideration by the milestone decision authority of reasonable competitive alternatives to proposed noncompetitive actions;

(b) Challenging barriers to and promoting full and open competition in the DoD Component or procurement activity, including unnecessarily detailed specifications and unnecessarily restrictive statements of need;

(c) Developing competition goals which challenge the DoD Component to achieve greater outreach for effective competition for each fiscal year.

(d) Creating a file record by March 31 of each year covering the prior fiscal year, containing information regarding:

1 The level of competition achieved against the assigned goal and, as appropriate, reasons for not attaining the goal;

2 Items considered significant by the DoD Component concerned such as competitive awards and actions taken to enhance competition in the previous fiscal year;

3 Mitigating actions affecting goal achievement, such as the number of sources sought synopses issued to solicit competitive sources to which there was no response, and other actions that indicated competition would not be practicable;

4 A plan for improved competition in the forthcoming fiscal year; and

5 Any other activities and accomplishments of the Component's competition advocate.

* (e) This information will be retained and made available for *
* review by USD(A) or designee upon request. *

NOTE: the annual Secretary of Defense competition report to Congress is only required for 1986, 1987, 1988, 1989, and 1990. See Title 41, United States Code, Section 419, "Advocates for competition" (reference (e)).

d. Tailoring and Concurrency. The acquisition strategy will be tailored to match the character of the program and allow the most efficient satisfaction of individual program requirements, consistent with the degree of risk involved.

(1) Commensurate with risk and affordability considerations, such approaches as maintaining multiple alternatives in high risk areas; competitive prototyping of critical systems, subsystems, and components; combining developmental and operational test and evaluation; dual sourcing; and using multi-year procurement should be considered.

(2) The benefits and risk associated with reducing lead time through concurrency will be specifically addressed in tailoring the acquisition strategy.

(a) Typically, there will be overlapping of activities associated with the phases of an acquisition program. Such overlapping of phases is known as concurrency.

(b) The most common form of concurrency is the production of a system while developmental activities are still ongoing. The risk in such concurrency is that of producing a large

number of units which might later prove to be unsuitable and must then be discarded, modified to be useful, or upgraded to production configuration. The use of low-rate initial production is one approach to mitigate this risk.

(c) The Program Manager must balance the risks of concurrency with the costs of alternative approaches. The risks inherent in the degree of concurrency chosen for the program will be addressed at the Milestone I and II decision reviews.

e. Evolutionary Acquisition and Preplanned Product Improvement
Alternative acquisition strategies should be considered for systems where requirements refinements are anticipated or where a technology risk or opportunity discourages immediate implementation of a required capability. Alternative acquisition strategies include evolutionary acquisition and preplanned product improvement.

(1) Evolutionary acquisition is an approach in which a core capability is fielded, and the system design has a modular structure and provisions for future upgrades and changes as requirements are refined. An evolutionary acquisition strategy is well suited to high technology and software intensive programs where requirements beyond a core capability can generally, but not specifically, be defined. This approach is described in Joint Logistics Commanders Guidance, "Evolutionary Acquisition, An Alternative Strategy for Acquiring Command and Control (C^2) Systems" (reference (g)).

(2) Preplanned product improvement is a phased approach that incrementally satisfies operational requirements in order to address the cost, risk, or relative time urgency of different elements of the system being developed. With this approach, selected capabilities are deferred so that the system can be fielded while the deferred element is developed in a parallel or subsequent effort.

(a) This approach keeps a significant risk or delay associated with one element of a system from delaying the fielding of the entire system.

(b) Preplanned product improvement dictates a system design with provisions, interfaces, and accessibility integrated into the design so that the deferred element can be incorporated in a cost-effective manner when it becomes available.

f. Contractor Management Requirements. In tailoring an acquisition strategy, the Program Manager must also address the management requirements imposed on the contractor(s).

(1) Acquisition process related requirements that are not mandated by statute will be critically examined during the formulation of an acquisition strategy.

(2) This effort should not only address the careful selection of specifications to be put on contract but also identify and seek relief from similar management requirements imposed by higher authority.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

PART 5

SECTION B

RISK MANAGEMENT

References:
(a) Office of Management and Budget Circular A-109, "Major System Acquisitions," April 5, 1976
(b) DoD 4245.7-M, "Transition from Development to Production," September 1985, authorized by this Instruction
(c) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988
* (d) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction *

1. PURPOSE

a. These policies and procedures establish the basis for managing risk, consistent with the guidelines contained in Office of Management and Budget Circular A-109, "Major System Acquisitions" (reference (a)).

b. This section authorizes the Assistant Secretary of Defense (Production and Logistics) to publish DoD 4245.7-M, "Transition from Development to Production" (reference (b)) in accordance with DoD 5025.1-M, "Department of Defense Directives System Procedures" (reference (c)).

2. POLICIES

a. A risk management program shall be established for each acquisition program to identify and control performance, cost, and schedule risks, using the areas of risk identified in DoD 4245.7-M, "Transition from Development to Production" (reference (b)), throughout the acquisition cycle. The risk management program must include provisions for eliminating these risks or reducing them to acceptable levels.

b. Industry participation in risk management is essential to ensure a clear understanding of program objectives, produce schedule realism, and identify appropriate incentives for contractual agreements.

3. PROCEDURES

a. Essential Program Characteristics. The risk management program will consist of planning, identification, assessment, analysis, and reduction techniques to support sound program management decisions. It will:

(1) Include a structured and documented risk assessment and analysis process, with user participation, to identify risks early in the

program and to provide proactive, look ahead risk assessment and review.

(2) Include clearly defined criteria for elements leading to the risk assessment events. The satisfaction of these criteria must be documented to support the rigor necessary in the risk assessment process.

(a) These criteria are described in DoD 4245.7-M, "Transition from Development to Production" (reference (b)).

(b) For design reviews (see Section 6-A), which are necessary to assess the risk of design, the steps that comprise the criteria leading to the Preliminary Design Review and the Critical Design Review are depicted in the following chart:

DESIGN EVENTS

DESIGN POLICY
DESIGN REQUIREMENTS
SYSTEM/SUBSYSTEM ARCHITECTURE
PRELIMINARY SCHEMATICS/LAYOUT
SOFTWARE PRELIMINARY DESIGN
PRELIMINARY PHYSICAL DESIGN
SOFTWARE DETAILED DESIGN
***PRELIMINARY DESIGN REVIEW (PDR)**
DESIGN RULES AND GUIDELINES
SOFTWARE CODE INSPECTIONS
PHYSICAL DESIGN VS REQUIREMENTS
ANALYSES (FUNCTIONAL, THERMAL, ELECTRICAL, POWER, RELIABILITY)
PRODUCT DRAWINGS & ASSOCIATED LISTS
TESTING (SOFTWARE MODULE, INTEGRATION, SYSTEM)
INSTALLATION & FIELD MANUALS
***CRITICAL DESIGN REVIEW (CDR)**

(3) Include assessment of the contractor's managerial, development, and manufacturing capabilities and processes.

(4) Identify and track risk drivers, define risk abatement plans, and provide for continuous risk assessment throughout each acquisition phase to determine how risks have changed. Include risk reduction measures in cost-performance tradeoffs, where applicable. Plan for back-ups in high risk areas. Identify design requirements where performance increase is small relative to cost, schedule, and performance risk.

(5) Have clearly defined evaluation criteria for assigning risk ratings of high, moderate, or low to elements of risk associated with each major subsystem and the overall system (see Section 4-E of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (d))).

b. Milestone Decision Point Reviews. As an integral part of this effort, risks, risk reduction measures, rationale and assumptions

made in assigning risk ratings, and alternative acquisition strategies will be explicitly assessed at each milestone decision point. The acquisition strategy will be reviewed at each milestone to ensure it adequately accounts for the degree of risk associated with the maturity of the technology involved in the system and with the concurrency in the program.

c. Guidelines. Additional risk management procedures are contained in DoD 4245.7-M, "Transition from Development to Production" (reference (b)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
* OSD	DUSD(A) ASD(C3I) ASD(P&L)	Dir, S&SS * Dir, TS * DASD(C3) DASD(PR)/IEQ
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF/A	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

PART 5

SECTION C

SCIENCE AND TECHNOLOGY DEVELOPMENT AND TRANSITION

Reference: (a) Title 10, United States Code, Section 2438, "Major programs: competitive prototyping"

1. PURPOSE

These policies and procedures establish the basis for exploitation and integration of science and technology in defense acquisition programs. The DoD Science and Technology program consists of the programs in basic research, exploratory development, and advanced technology development.

2. POLICIES

a. The Under Secretary of Defense for Acquisition, through the Director of Defense Research and Engineering and together with the DoD Components, shall:

(1) Provide a coordinated, overall DoD science and technology program that supports national security and military strategy.

(2) Establish technology goals to meet stated defense planning and operational capability objectives and dedicate the resources necessary to support those goals. These goals shall strive to maintain the nation's technological superiority.

(3) Coordinate technical milestones, resource information, and program content by technology area and share this data across all DoD Components to reduce unnecessary duplication of effort, facilitate technology transition, and exchange technical information.

b. The DoD Components shall establish technology development projects, including manufacturing research programs, separate and independent from specific defense acquisition programs.

c. Advanced technology demonstrations shall be conducted to assess the military utility or cost reduction potential of innovative Government or commercially developed technologies. These advanced technology demonstrations shall be focused on validating the viability, utility, and producibility of a technology as opposed to the demonstration of a system.

d. The acquisition strategy for each defense acquisition program shall identify plans, activities, and criteria for assessing and transitioning critical technologies from science and technology development and demonstration programs.

e. Prototyping of critical manufacturing processes and hardware and software systems and subsystems shall be conducted during Phase I, Demonstration and Validation, to reduce risk and to provide an

opportunity for early operational assessment.

3. PROCEDURES

a. Technology Base Projects. Technology Base projects will include:

(1) Basic research that advances the state of knowledge. This will include long term, high payoff research, including critical enabling technologies that provide the basis for technological progress and the qualitative superiority of U.S. weapon systems.

(2) Exploratory development that translates promising basic research into potential applications for broadly defined military problems. This type of effort may vary from applied research to sophisticated breadboard subsystems that establish the initial feasibility and practicality of proposed solutions or technologies.

b. Advanced Technology Demonstrations. Advanced technology demonstrations will be managed within the science and technology management structure developed by the Director of Defense Research and Engineering and will include:

(1) Projects that show the military utility or cost reduction potential of technology when applied to different types of military equipment or techniques. For example, advanced materials, structures, and aerothermodynamics may be applied to demonstrate improved jet engine performance.

(2) Evaluations of applied technologies in as realistic an operational environment as possible to assess the performance payoff or cost reduction potential of advanced technology before program specific prototyping begins, including assessment of testability.

c. Technology Transition. Four underlying principles will govern the transition of technology into weapons systems:

(1) Technology development managers will maintain close interaction with the requirements generation and acquisition management systems to ensure their technology investments are focusing on critical military needs and to facilitate technology transition.

(2) Acquisition program offices must work closely with key technology efforts to establish a technology transition approach. The approach will define technology transition tasks to be accomplished and identify the resources required.

(3) Transition criteria and implementation methodology (what, when, to whom, by whom) must be defined before demonstrating the technology in an advanced technology demonstration.

(4) Periodic reviews should be conducted with program offices, laboratories, users, and maintainers to assess the technical

status, emerging performance, affordability, and remaining technology shortfalls.

d. System Acquisition Programs. Technological advances will more often be incorporated into existing systems through modifications or upgrades rather than through the initiation of new systems. Modifications, upgrades, or new programs will only be started when the following criteria are met:

(1) The technologies have been demonstrated, thoroughly tested, and shown to be producible.

(2) There is a clear and verified military need for the new system or system upgrade.

(3) The new system or system upgrade is cost effective.

e. Phase 0, Concept Exploration and Definition. A major element of Phase 0, Concept Exploration and Definition, is the assessment of the opportunities made available by technology development. System concepts will consider both existing and emerging technologies for potential application to validated mission needs.

(1) Available technologies that would enhance the cost-effectiveness and capabilities of the concept should be included.

(2) Emerging technologies that may be available in time to be integrated into the final system design should be considered for use in the concept.

(3) Emerging technologies may also be considered for parallel development as part of a preplanned product improvement or evolutionary acquisition (see Section 5-A). This is appropriate if they offer a solution to the validated mission need (or part of it), but are not yet mature enough to plan for their incorporation into the system development at a reasonable level of risk.

f. Phase I, Demonstration and Validation, and Phase II, Engineering and Manufacturing Development. During Phase I, Demonstration and Validation, and Phase II, Engineering and Manufacturing Development, assessment of technology opportunities should continue.

(1) Prototyping will be a major element of Phase I, Demonstration and Validation.

(2) The focus of prototyping will be on assessing and reducing the risks associated with integrating available and emerging technologies into a system design approach to satisfy a validated mission need.

(a) Technologies will include hardware, software, and manufacturing processes.

(b) Test and evaluation of prototypes will confirm the feasibility of a specific design approach relative to its ability to satisfy the mission need and to achieve minimum acceptable operational performance requirements (see Section 4-B) within affordability constraints (see Section 4-D).

(c) Prototyping will be used to assess cost and performance trade-offs and to define program objectives for the Development Baseline and the contract specifications for Phase II, Engineering and Manufacturing Development (see Section 11-A).

(d) Competitive prototyping in accordance with Title 10, United States Code, Section 2438, "Major programs: competitive prototyping" (reference (a)) is required for acquisition category I programs (or a subsystem) unless the program is excepted from the requirement in accordance with section 2438 (see Part 2 and Section 11-C). Competitive prototyping for programs in other acquisition categories will be used to the maximum extent practicable.

(3) Requirements for prototyping will be established at Milestone I, Concept Demonstration Approval.

(a) These requirements will be based on an assessment of the technical, manufacturing, and cost risks associated with the proposed concept and the results of technology demonstrations.

(b) Special attention must be given to the risks associated with the integration of technologies and to the applicability of technology demonstrations to the specific mission need and operational requirements being addressed by the proposed concept.

(4) Selected prototyping may continue in Phase II, Engineering and Manufacturing Development, as required to identify and resolve specific design and manufacturing risks early in the phase or in support of preplanned product improvement or evolutionary acquisition (see Section 5-A).

(5) Prototyping will include the opportunity for early assessment of operational effectiveness and suitability by the operational test activity, with support from user and maintainer personnel, to the maximum extent practicable. Prototyping will also provide the opportunity for early assessment of system testability to identify the need for new or modified test capabilities.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	DDR&E	DDDR&E(R&AT)
Dept of Army	ASA(RDA)	SARD-ZT
Dept of Navy	ASN(RDA)	CNO(091) MCRDAC/AWT
Dept of Air Force	ASAF(A)	SAF/AQT
CJCS (Joint Staff)	DJ8	J8/DTO
Other DoD Components	DARPA	Dir, DARPA

PART 5

SECTION D

* Reserved for Future Use *

PART 5

SECTION E

INDUSTRIAL BASE

References: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(b) DoD Instruction 4200.15, "Manufacturing Technology Program, "May 24, 1985
(c) Title 10, United States Code, Section 2439, "Major programs: competitive alternative sources"
(d) Title 10, United States Code, Section 2440, "Technology and Industrial Base Plans"

1. PURPOSE

These policies and procedures establish the basis for effective integration of defense industrial base consideration into the defense acquisition planning process.

2. POLICY

a. The industrial base implications of proposed defense acquisition program peacetime, contingency support and reconstitution objectives, to include conflicts with other DoD or commercial programs, shall be addressed at each milestone decision point and throughout the acquisition process.

b. Plans and actions must ensure that adequate industrial capability exists to produce, in an efficient and cost-effective manner, the goods and services required to meet DoD missions whenever that capability is needed. Resources available will be leveraged toward investments focused on critical technologies and industrial capabilities; increased reliance on commercial sources; and minimized investment in non-essential and/or non-unique capabilities.

3. PROCEDURES

a. Contingency Support and Reconstitution Objectives. If applicable, contingency support and reconstitution objectives for a system will be identified in the Operational Requirements Document (see Section 4-B). The Operational Requirements Document will also describe the projected contingency support and reconstitution environments.

b. Industrial Base Parameters. Industrial base parameters will be included in Annex C, Acquisition Strategy Report, of the Integrated Program Summary (see Section 11-C and DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)). Leadtime to produce and production rate objectives will be identified for peacetime and for contingency support and reconstitution, if applicable.

c. Industrial Base Analysis. The Acquisition Strategy Report will address industrial base issues. The acquisition strategy will include an analysis of the industrial base's ability to cost effectively design, develop, produce, maintain, support, and restart the program and, if applicable, the strategy to make production rate and quantity changes in the program in response to contingency support and reconstitution objectives. The acquisition strategy will also address actions to increase use of commercial processes, products, and sources (see Section 6-L).

(1) Considerations must include the investments and other special actions necessary for critical technologies and industrial capabilities to provide and sustain production and the necessary support resources, and the design and availability of tooling and facilities for expansion.

(2) Ongoing or potential manufacturing technology (see DoD Directive 4200.15, "Manufacturing Technology Program (reference (b))) and Defense Production Act Title III projects in support of program objectives should be identified.

d. Acquisition Programs. For acquisition programs, the acquisition strategy must do the following:

(1) Provide for competitive alternative sources in accordance with Part 3 of this Instruction and Title 10, United States Code, Section 2439, "Major programs: competitive alternative sources" (reference (c))

(2) Include analysis of the capability of the defense industrial base to cost effectively design, develop, produce, maintain, support, and restart the program in accordance with Title 10, United States Code, Section 2440, "Technology and Industrial Base Plans" (reference (d)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/IEQ
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	CNO (N4) HQMC/I&L
Dept of Air Force	ASAF/A	SAF/AQX
CJCS (Joint Staff)	DJ4	J4/LPD

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/M&IP
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	DCNO (OP-04) HQMC/I&L
Dept of Air Force	ASAF/A	SAF/AQX
CJCS (Joint Staff)	DJ4	J4/LPD

PART 5

SECTION F

PROGRAM PROTECTION AND TECHNOLOGY CONTROL

References:

(a) DoD Directive 5200.28, "Security Requirements for Automated Information Systems (AISs)," March 21, 1988
(b) DoD Directive C-5200.5, "Communications Security (U)," October 6, 1981
(c) DoD Directive C-5200.19, "Control of Compromising Emanations (U)," February 10, 1968
(d) DoD Directive 5240.2, "DoD Counterintelligence," June 6, 1983
(e) DoD 5220.22-M, "DoD Industrial Security Manual for Safeguarding Classified Information," September 1987, authorized by DoD Directive 5220.22, "DoD Industrial Security Program," December 8, 1980
(f) DoD 5200.1-R, "Information Security Program Regulation," June 1986, authorized by DoD Directive 5200.1, "DoD Information Security Program," June 7, 1982
(g) DoD Directive 5230.24, "Distribution Statements on Technical Documents," March 18, 1987
(h) DoD Directive 5230.25, "Withholding of Unclassified Technical Data from Public Disclosure," November 6, 1984
(i) DoD Directive 5205.2, "DoD Operations Security Program," July 7, 1983
(j) DoD 5200.2-R, "DoD Personnel Security Program," January 1987, authorized by DoD Directive 5200.2, "DoD Personnel Security Program," December 20, 1979
(k) DoD Directive 5210.41, "Security Policy for Protecting Nuclear Weapons," September 23, 1988
(l) DoD 5100.76-M, "Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives," February 1983, authorized by DoD Directive 5100.76, "Physical Security Review Board," February 10, 1981
(m) DoD Directive 3224.3, "Physical Security Equipment (PSE): Assignment of Responsibility for Research, Development, Testing, Evaluation, Production, Procurement, Deployment, and Support," February 17, 1987
(n) Deputy Secretary of Defense Memorandum, "Technology Assessment/Control Plan," May 23, 1990
(o) DoD Directive 5530.3, "International Agreements," June 11, 1987
(p) DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," December 31, 1984

1. PURPOSE

a. These policies and procedures establish the basis for protecting defense systems and technical data from hostile intelligence collection efforts and unauthorized disclosure during the acquisition process to ensure uncompromised combat effectiveness. They are designed to protect the system, the acquisition program, and the underlying technology.

2. POLICIES

a. A comprehensive protection and technology control program shall be established for each defense acquisition program to identify and protect classified and other sensitive information.

b. Protection planning for each acquisition program shall address:

(1) The use of counterintelligence and operations security surveys to monitor information loss during system development,

(2) The definition of threat options (reactive threat) and the potential for exercising those options which could counter the acquired system's capabilities,

(3) The potential vulnerabilities of the acquired system caused by evolving threat capabilities, and

(4) For international programs, technology assessment and control.

3. PROCEDURES

a. Security Disciplines. An overall protection program from the hostile intelligence collection threat for acquisition activities will be established and maintained by integrating the following security disciplines into a coherent program:

(1) Automated information security, using DoD Directive 5200.28, "Security Requirements for Automated Information Systems" (reference (a));
(2) Communications security, using DoD Directive C-5200.5, "Communications Security (U)" (reference (b));
(3) Compromising emanations, using DoD Directive C-5200.19, "Control of Compromising Emanations (U)" (reference (c));
(4) Counterintelligence, using DoD Directive 5240.2, "DoD Counterintelligence" (reference (d));
(5) Industrial security, using DoD 5220.22-M, "DoD Industrial Security Manual" (reference (e));
(6) Information security, using DoD 5200.1-R, "Information Security Program Regulation" (reference (f)), DoD Directive 5230.24, "Distribution Statements on Technical Documents" (reference (g)), and DoD Directive 5230.25, "Withholding of Unclassified Technical Data from Public Disclosure" (reference (h));
(7) Operations security, using DoD Directive 5205.2, "DoD Operations Security Program" (reference (i));

(8) Personnel security, using DoD 5200.2-R, "DoD Personnel Security Program" (reference (j)); and

(9) Physical security, using DoD Directive 5210.41, "Security Policy for Protecting Nuclear Weapons" (reference (k)), DoD 5100.76-M, "Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives" (reference (l)), and DoD Directive 3224.3, "Physical Security Equipment" (reference (m)).

b. Program Protection Plan. Program protection will be addressed at Milestone I and subsequent milestones and will be applied during all phases of the acquisition process from program initiation to deployment.

(1) The protection program will encompass program related activities at test centers, ranges, laboratories, contractor facilities, and deployment locations as required to provide protective measures for all aspects of the acquisition program.

(2) A program protection plan will be developed prior to Milestone I and updated for subsequent milestones. The plan should address the considerations identified in attachment 1.

c. Security Classification Guide. A security classification guide will be prepared for each system as required by DoD 5200.1-R, "Information Security Program Regulation" (reference (f)). Classification guidance should be time phased and include appropriate controls for sensitive unclassified information.

d. System Security Engineering. A system security engineering program will be established (see Section 6-J).

e. International Security Considerations. The potential for international cooperative research and development, coproduction, and sale of military equipment will be addressed at each milestone review.

(1) When such international cooperation and/or sales are anticipated, a Technology Assessment/Control Plan and Delegation of Disclosure Authority Letter will be prepared as directed by reference (n), using the format in DoD Directive 5530.3, "International Agreements" (reference (o)), as a guide. The Plan and Letter will be approved by the milestone decision authority in coordination with the Component principal disclosure authority. The Technology Assessment/Control Plan must be completed prior to the release of solicitations or commitments for foreign participation or foreign sales.

(2) Final decisions on the releasability of classified information are the responsibility of the DoD Component Head having original classification authority over the information, in compliance with DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations" (reference (p)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD Technology Control Program Protection	USD(P) DDR&E	DUSD(SP) DDDR&E(P&R)
Dept of Army	DCSI	DAMI-CI
Dept of Navy	ASN(RDA)	DASN(C3I/EW/SPACE)
Dept of Air Force	SAF/AQX	SAF/IGS
Other DoD Components	DIA	DIA/DT-AS

Attachment - 1

1. Program Protection Considerations

PROGRAM PROTECTION CONSIDERATIONS

This attachment identifies the considerations to be addressed in the program protection plan and discussed at milestone decision points.

1. System Description and Protected Elements. Summarize sensitive technologies and unique system features as Essential Elements of Friendly Information (EEFI) that must be protected.

2. Protection Threats and Vulnerabilities. Define protection threats and program vulnerabilities. There should be a direct correlation between the threat for which the system is being acquired to counter or operate in, as defined in the system threat assessment (see Section 4-A), and the foreign intelligence collection threat against the system acquisition program. Accordingly, counterintelligence and operations security surveys should be used to identify the Essential Elements of Friendly Information, in the environments that they are to be used, which are most at risk and of value to the adversary. Environments include contractor facilities, test sites, program offices, depot and deployment locations.

3. Countermeasures. Describe a multidisciplinary security concept that contains tailored countermeasures based on threat, system vulnerabilities, environments, and sensitivity of technology during the acquisition life cycle. Include time phased plans to transition the security concept and countermeasures as the system moves through the acquisition process. Provide rationale for the selected concept and countermeasures.

4. Protection Costs. Define the resources (personnel, equipment, and funding) required in each acquisition phase to provide the level of protection proposed in the security concept. Identify primary sources of counterintelligence and security support to be used in each phase.

5. Other Considerations. Discuss and attach as applicable:

   a. Security Classification Guide

   b. Technology Assessment/Control Plan and Delegation of Disclosure Authority Letter. Exposure and vulnerabilities increase when a program is identified for international cooperation and/or foreign sale. For such programs security and foreign disclosure planning and control requirements must be addressed through the preparation of a Technology Assessment/Control Plan and Delegation of Disclosure Authority Letter. Consideration should be given to use of an export version of the system. The Plan and Letter will be reviewed, modified, and amended as necessary at each milestone.

PART 6

ENGINEERING AND MANUFACTURING

Acquisition strategies and program plans must be complete, well thought out, and tailored to accomplish stated objectives while controlling risk.

The policies and procedures presented in this part establish a common frame of reference for developing program plans in the areas of engineering and manufacturing. These policies and procedures must be judiciously applied. They are not a substitute for good judgment and common sense, nor are they intended to stifle innovation.

The policies and procedures are organized and presented as follows:

SECTION	SUBJECT
A	Systems Engineering
B	Work Breakdown Structure
C	Reliability and Maintainability
D	Computer Resources
E	Transportability
F	Survivability
G	Electromagnetic Compatibility and Radio Frequency Management
H	Human Factors
I	System Safety, Health Hazards, and Environmental Impact
J	System Security
K	Design to Cost
L	Nondevelopmental Items
M	Use of the Metric System
N	Computer Aided Acquisition and Logistics Support
O	Design for Manufacturing and Production
P	Quality
Q	DoD Standardization Program
R	DoD Parts Control Program

PART 6

SECTION A

SYSTEMS ENGINEERING

References:
(a) MIL-STD-499, "Engineering Management"
(b) MIL-STD-1388, "Logistics Support Analysis"
(c) MIL-STD-1528, "Manufacturing Management Program"
(d) DoD-STD-2167, "Defense System Software Development"
(e) MIL-H-46855, "Human Engineering Requirements for Military Systems, Equipment, and Facilities"
(f) MIL-STD-1521, "Technical Reviews and Audits for Systems, Equipments, and Computer Programs"

1. PURPOSE

These policies and procedures establish the basis for integrating the technical efforts of the entire design team to meet program cost, schedule, and performance objectives with an optimal design solution that encompasses the system and its associated manufacturing, test, and support processes.

2. POLICIES

a. Systems engineering shall be applied throughout the system life cycle as a comprehensive, iterative technical management process to:

(1) Translate an operational need into a configured system meeting that need through a systematic, concurrent approach to integrated design of the system and its related manufacturing, test, and support processes;

(2) Integrate the technical inputs of the entire development community and all technical disciplines (including the concurrent engineering of manufacturing, logistics, and test) into a coordinated effort that meets established program cost, schedule, and performance objectives;

(3) Ensure the compatibility of all functional and physical interfaces (internal and external) and ensure that system definition and design reflect the requirements for all system elements: hardware, software, facilities, people, and data; and

(4) Characterize technical risks, develop risk abatement approaches, and reduce technical risk through early test and demonstration of system elements.

b. The primary roles of the Government and contractor program offices in the systems engineering process shall be management and execution, respectively.

c. The systems engineering process shall place equal emphasis on system capability, manufacturing processes, test processes, and support processes.

3. PROCEDURES

a. Systems Engineering Management. An effective systems engineering management program will be implemented for each acquisition program. Recommended procedures are contained in MIL-STD-499 (reference (a)).

(1) The technical processes identified in MIL-STD-1388, MIL-STD-1528, DoD-STD-2167, and MIL-H-46855 (references (b) through (e)) are major elements of the technical development process and will be integrated into a comprehensive system development effort.

(2) Design reviews will be conducted periodically to assess the progress of the effort and the risk in the design (see Section 5-B). Recommended review procedures are contained in MIL-STD-1521 (reference (f)).

b. Systems Engineering Tasks. The key systems engineering tasks that will be performed are:

(1) Translating operational requirements into design requirements

(a) In the broadest sense, the systems engineering process begins when either the need for a capability is recognized or the opportunity to exploit a technology presents itself and is converted into defined operational requirements. These requirements are further translated into detailed design specifications.

(b) The program office will work with the user or user's representative to establish feasible operational requirements (see Section 4-B) and identify the critical operational characteristics and constraints (see Section 4-C).

1 A disciplined requirements collection and translation methodology will be used to convert these requirements into detailed design specifications.

2 Each program office will establish a process by which to balance design specifications, conduct trade-offs, and optimize the system design. This process will provide for free and open exchange of information among members of the design team to ensure that all necessary engineering design elements, manufacturing, and

supportability present their design issues in a timely manner.

(2) Transitioning technology from the technology base to program specific efforts

(a) The program office will work closely with its key technology efforts to establish a technology transition approach. The approach will define tasks and resources required.

(b) Transition criteria and implementation methodology (what, when, to whom, by whom) will be defined prior to transition into engineering development (see Sections 5-C/D).

(3) Establishing a technical risk management program

(a) This program is part of the overall program risk management effort (see Section 5-B). Technical risks will be identified and assessed throughout the acquisition cycle.

(b) The acquisition strategy must include provisions for eliminating these risks or reducing them to acceptable levels.

(c) Effects of technical risk on program cost and schedule, risk reduction measures, rationale and assumptions made in assigning risk ratings, and alternative acquisition strategies will be explicitly assessed at each milestone decision point.

(4) Verifying that the system design meets the operational need

(a) A comprehensive verification process will be established to integrate design analysis, design simulation, and demonstration and test.

(b) All critical characteristics will be identified and required performance will be verified by demonstration and test. Tests include operational effectiveness and suitability evaluations (see Part 8) and manufacturing process proofing tests (see Section 6-O).

(c) Design analysis and simulation complement, not replace, demonstration and test. Where total verification by test is not feasible, testing is to be used to verify key characteristics and assumptions used in the design analysis or simulation.

c. Technical Discipline Integration. The development of defense systems requires the integration of a variety of technical disciplines. Requirements for various technical specialties will vary depending upon the nature of the program. Each Program Manager is responsible

for determining what technical support is required to achieve the technical objectives of the program.

(1) The table on the facing page highlights the more common technical specialties and DoD source documents containing recommended procedures. Those procedures should be employed through the tailored application of the relevant standards and guides, adapted to specific program characteristics.

(2) The systems engineering process will allocate system requirements to establish clear technical requirements for each technical specialty in a concurrent manner to support the integrated system design. The systems engineering process will collectively analyze the design specifications, conduct trade-offs, balance total system requirements, and establish the final configuration.

d. Planning and Control. The program office will establish a comprehensive planning and control system for systems engineering management. This system will include engineering planning, technical performance measures, configuration management, and technical data management.

(1) Engineering Planning. Planning for major systems engineering events will be included in the program acquisition strategy (see Section 5-A).

(a) Additionally, the program office will require a Systems Engineering Management Plan (SEMP) from the contractor.

(b) If the program office retains system integration responsibility, it will prepare the plan using contractor inputs as required.

(c) The Systems Engineering Management Plan will document:

1 Management of the systems engineering process,

2 Integration of the required technical specialties,

3 Performance measures development and reporting, including intermediate performance criteria, and

4 Key engineering milestones and schedules.

(2) Technical Performance Measures. Performance measures must be developed and maintained throughout the process. These measures will be used to assess how well the evolving design meets the system requirements.

(a) Particular attention will be paid to those measures that are critical to risk management.

TECHNICAL DISCIPLINE	REFERENCE	
Climatic information	MIL-STD-210	
Computer aided acquisition and logistics support	MIL-HDBK-59	
Corrosion prevention and control	MIL-STD-1250	MIL-STD-1568
Environmental analysis	MIL-STD-810	
Electromagnetic compatibility	MIL-STD-1541 MIL-E-6051	MIL-STD-461 MIL-HDBK-237
Electrostatic discharge	MIL-STD-1686	
Human factors	MIL-STD-1472 MIL-STD-1800 MIL-H-46855	MIL-STD-1794 MIL-HDBK-763
Maintainability	MIL-STD-470 MIL-STD-2184	MIL-STD-1843 MIL-HDBK-791
Manufacturing	MIL-STD-1528	
Nondestructive inspection	MIL-HDBK-728 MIL-I-6070	MIL-HDBK-731
Parts control	MIL-STD-965	
Producibility	MIL-HDBK-727	
Quality	MIL-Q-9858	MIL-I-45208
Reliability/durability	MIL-STD-785 MIL-STD-1543 MIL-STD-1796 MIL-STD-2164	MIL-STD-1530 MIL-STD-1783 MIL-STD-1798
System safety engineering	MIL-STD-882	
Software	DoD-STD-2167 MIL-STD-1815 MIL-HDBK-287	MIL-STD-1803
Software quality assurance	DoD-STD-2168	DoD-HDBK-286
Supportability	MIL-STD-1388	
Survivability	MIL-STD-1799 DoD-STD-2169	MIL-STD-2069 MIL-HDBK-336
System security	MIL-STD-1785	
Telecommunications	MIL-STD-188-xxx	
Testability	MIL-STD-2165	
Thermal design/analysis	MIL-HDBK-251	
Transportability	MIL-STD-1367	MIL-HDBK-157
Value engineering	MIL-STD-1771	

(b) The data for each measure will be based on engineering judgment, design analysis, test data (including early test results), and operational data, depending on the status of the design.

(3) Configuration Management. Configuration management will be used to control system design throughout the system life cycle (see Section 9-A).

(a) Configuration management will provide a complete audit trail on decisions and design modifications.

(b) The design status of each test article and production system will be tracked to ensure valid test results.

(4) Technical Data. Usable technical data is the formal product of the systems engineering process. (See Section 9-B.)

(a) Throughout the process, the appropriate level of design detail must be formally documented. These data start as validated operational requirements, are translated into system performance objectives and thresholds, become detailed design requirements, and finish as specifications, drawings, process specifications, acceptance test procedures, and technical manuals. (See Section 4-B.)

(b) In addition, various other documents, such as test reports and design analysis reports, may be required.

e. Work Breakdown Structure. The results of the systems engineering analysis of the system requirements will be translated into a structure of the products and services which comprise the entire work effort. That structure will be captured in a work breakdown structure (WBS) that provides the framework relating statements of work, contract line items, configuration items, technical and management reports, and the hardware, software, and data elements of the system. (See Section 6-B.)

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	DUSD(A) ASD(C3I)	Dir, S&SS Dir, TS DASD(C3)
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

PART 6

SECTION B

WORK BREAKDOWN STRUCTURE

References: (a) DoD Directive 5010.20, "Work Breakdown Structures for Defense Materiel Items," July 31, 1968 (canceled)
(b) MIL-STD-881, "Work Breakdown Structures for Defense Materiel Items"

1. PURPOSE

a. This section replaces DoD Directive 5010.20, "Work Breakdown Structures for Defense Materiel Items" (reference (a)), which has been canceled.

b. These polices and procedures establish the essential framework for program and technical planning, cost estimating, resource allocations, performance measurement, and status reporting.

2. POLICIES

a. The work breakdown structure (WBS) shall:

(1) Define the total system to be developed or produced;

(2) Display it as a product oriented family tree composed of hardware, software, services, and data; and

(3) Relate the elements of work to each other and to the end product.

b. Work breakdown structures shall be developed for each program and for each individual contract within the program.

3. PROCEDURES

a. Program Work Breakdown Structure

(1) A program work breakdown structure will be developed to define initially the top three levels of a work breakdown structure for the entire acquisition cycle of the system being acquired.

(a) MIL-STD-881 (reference (b)) defines the top three levels of work breakdown structure for seven categories of defense systems: aircraft, electronics, missiles, ordnance, ships, space systems, and surface vehicles.

(b) Extensions of the work breakdown structure will be consistent with MIL-STD-881 (reference (b)) but tailored to the specific program.

(2) A final program work breakdown structure will be prepared by compiling the elements of the contract work breakdown structure(s) with the initial program work breakdown structure.

b. Contract Work Breakdown Structure. From the initial program work breakdown structure, preliminary contract work breakdown structures for individual contracts will be developed to be negotiated with the contractors involved. The contract work breakdown structure will be extended to lower levels by the contractor in accordance with MIL-STD-881 (reference (b)).

(1) Information on contract work breakdown structure content below the first three levels will be available to the Program Manager. Changes to elements below the first three levels will be identified to the Program Manager prior to implementation.

(2) Contracts will specify the levels of contract work breakdown structure at which costs will be accumulated for reporting to the Government. Traceability of cost accumulations will be required to only those lower contract work breakdown structure levels used by the contractor for internal cost control.

c. Specifications. The family of specifications and drawings resulting from the progressive steps of systems engineering will conform to the work breakdown structure.

(1) Integrated logistics support will be accommodated in the appropriate levels of the work breakdown structure in accordance with MIL-STD-881 (reference (b)).

(2) Software will be accommodated in the appropriate levels of the work breakdown structure in accordance with MIL-STD-881 (reference (b)).

(a) Software will be identified with the hardware it supports. Aggregations of work breakdown structure elements for software management and reporting will be accomplished by summation of relatable elements of the program work breakdown structure.

(b) Overall system software to facilitate the operation and maintenance of the computer systems and associated programs (e.g., operating systems, compilers, and utilities) and applications software that interfaces with more than one equipment item will be called out at the appropriate work breakdown structure level.

(3) Functional cost elements (e.g., engineering, tooling, quality control, and manufacturing) are not work breakdown structure

elements and will not be represented as such in work breakdown structures.

(4) Work breakdown structure elements may contain both nonrecurring and recurring effort.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(PA&E)	Chair, CAIG
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

PART 6

SECTION C

RELIABILITY AND MAINTAINABILITY

References:
(a) DoD Directive 5000.40, "Reliability and Maintainability," July 8, 1980 (canceled)
(b) DoD Instruction 3235.1, "Test and Evaluation of System Reliability, Availability, and Maintainability," February 1, 1982 (canceled)
(c) DoD 3235.1-H, "Test and Evaluation of System Reliability, Availability, and Maintainability - A Primer," March 1982, authorized by this Instruction
(d) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988
(e) MIL-STD-470, "Maintainability Program for Systems and Equipment"
(f) MIL-STD-785, "Reliability Program for Systems and Equipment"

1. PURPOSE

a. This section replaces DoD Directive 5000.40, "Reliability and Maintainability" and DoD Instruction 3235.1, "Test and Evaluation of System Reliability, Availability, and Maintainability" (references (a) and (b)), which have been canceled.

b. These policies and procedures establish the basis for a comprehensive effort designed to increase combat capability and reduce life-cycle ownership costs.

c. This section authorizes the Director of Defense Research and Engineering to publish DoD 3235.1-H, "Test and Evaluation of System Reliability, Availability, and Maintainability - A Primer" (reference (c)) in accordance with DoD 5025.1-M, "Department of Defense Directives System Procedures" (reference (d)).

2. POLICIES

a. Reliable and maintainable systems are achieved through a disciplined engineering approach employing the best design and manufacturing practices. Emphasis shall be on:

(1) Understanding the user's system readiness and mission performance requirements, physical environments (during use, maintenance, storage, etc) and the resources (people, dollars, etc) available to support the mission;

(2) Managing the contributions to system reliability and maintainability that are made by hardware, software, and human elements of the system;

(3) Preventing design deficiencies (including single point failures), precluding the selection of unsuitable parts and materials, and minimizing the effects of variability in the manufacturing processes; and

(4) Developing robust systems, insensitive to the environments experienced throughout the system's life cycle and easily repaired under adverse conditions.

b. Failure detection and correction techniques such as reliability growth testing are to be used to mature good designs. They should not be relied upon to fix poor designs.

3. PROCEDURES

a. Reliability and Maintainability Objectives. Program objectives for reliability and maintainability will be defined early in the program and used to evaluate the design in development and production.

(1) Reliability and maintainability objectives will be based on operational requirements, be stated in quantifiable, operational terms, and be defined for all elements of the system, including support and training equipment.

(2) Reliability and maintainability objectives will be derived from and directly support the system readiness objective (see Section 7-A).

(3) Reliability objectives will address both mission reliability (e.g., break rate, weapon system reliability) and logistic reliability (e.g., demand for maintenance, demand for supply support).

(4) Maintainability objectives will address servicing, preventive (scheduled) maintenance, corrective (unscheduled) maintenance, and battle damage repair in terms of allowable downtime or turnaround time, required manpower, skill levels, special tools and test equipment, and diagnostic capabilities.

b. Design Development. Allocations, predictions, and design analyses should be part of an iterative process of continually assessing and improving the design.

(1) A design reference mission profile will be developed that includes functional and environmental profiles that:

(a) Define the boundaries of the performance envelope,

(b) Provide the timelines (environmental conditions and applied or induced stresses over time) typical of operations within the envelope, and

(c) Identify all constraints (including conditions of storage, maintenance, transportation, and operational use), where appropriate.

(2) Reliability and maintainability objectives will be translated into quantifiable contractual terms and allocated through the system design hierarchy.

(a) Contractual requirements will be traceable to operational requirements.

(b) Predicted and demonstrated failure rates and repair times will be used to evaluate the design. Predictions should be based on the design reference mission profile and prior reliability data.

(c) Predictions will not be used as evidence that the contractual reliability requirements have been met.

(3) Single point failures must be avoided.

(a) If a mission or safety critical single point failure mode cannot be eliminated through design, the design must be made robust (insensitive to the causes of failure) or redundant.

(b) Fault tree analysis and failure modes, effects, and criticality analysis (FMECA) will be conducted before detailed design for systems where degradation or failure will compromise the mission or the safety of the operator or maintainer.

(4) Thermal, shock, vibration (including resonant frequency), corrosion, durability, and life analyses or tests should be done for electronic and mechanical equipment.

(a) Sneak circuit analysis should be applied to mission or safety critical circuitry and software.

(b) These analyses and tests should be performed as an integral part of design evolution and validation and not as "after-the-fact" inspections.

(5) Dormant reliability analyses will be done and an aging and surveillance program will be established for pyrotechnics, explosives, rocket motors, and other items that have shelf-life (dormant reliability) requirements.

(6) The first iteration of the maintainability analyses should be completed before detailed design and then continued as an

iterative process during the detailed design phase. (See Section 7-A.)

(a) Systems requiring fault detection and isolation capability should complete a failure modes and effects analysis.

(b) Maintainability analysis will be conducted under the logistics support analysis (LSA) process.

(c) The results from the analyses and lessons learned will be used to develop specific maintainability design criteria.

(7) Prevention and elimination of unverified indications of failure (false alarms, "could not duplicates," etc) will be part of the system design process.

c. Special Reliability Design Considerations

(1) Parts selection and component derating guidelines will be established. These guidelines must consider past component history, environmental stresses, and component criticality.

(a) Stress analysis and testing will be performed to verify compliance with approved derating criteria.

(b) The system should be designed such that it maintains minimum acceptable performance despite variations due to the manufacturing process, life-cycle environment, and component degradation or drift.

(c) Design complexity and parts counts should be minimized.

(2) Government or contractor furnished or off-the-shelf items will be shown to be operationally suitable for their intended use and capable of meeting their allocated reliability requirement.

(3) The reliability effort must be closely coordinated with the other specialty engineering efforts, especially maintainability, diagnostics, supportability, electromagnetic compatibility, safety, quality, producibility, test, and manufacturing.

d. Special Maintainability Design Considerations

(1) Battle damage repair techniques must be identified and, if any are required, be developed concurrently with the weapon system design. They should be demonstrated before Milestone III, Production Approval.

(2) For electronic circuitry, electrostatic discharge control procedures will be included in the design, manufacturing, packaging, handling, and repair processes.

(3) Where cost-effective, nondestructive inspection techniques will be developed for analyzing the condition of a system without removing, disassembling, or destroying the inspection item.

(4) Design criteria will specify that maintenance tasks will be performed with a minimum number of common and peculiar tools.

(5) The most effective combination of automated, semiautomated, and manual diagnostics will be used to detect, identify, and unambiguously isolate all failures at the designated level of repair within user specified time constraints.

e. Software Maintainability

(1) Processors should be selected that will not constrain software maintenance by having insufficient memory and timing reserves.

(2) Software support capability must be acquired.

(a) This should include additional computers for developing changes; code generation tools such as compilers, linkers, and debuggers; requirements and design tools such as computer aided software engineering; and documentation and training.

(b) It is normally desirable to use the same tools for maintenance that were used for development.

(3) Software documentation must be understandable, complete, and in a format that is compatible with the software tools being used.

(4) Software maintainability is enhanced by applying modern software engineering practices, including modularization and other techniques facilitated by the Ada programming language, and associated support tools and environments.

f. Preserving Reliability During Manufacturing

(1) An aggressive environmental stress screening (ESS) program will be developed for electronic equipment and applied to engineering development and production assets.

(a) Screens should be developed that efficiently precipitate out latent defects. They should not be based on actual operating conditions or environmental stresses. They should be based on the stresses needed to stimulate latent defects to failure.

(b) Screening may be reduced to sampling when the manufacturing processes are proven capable of producing defect free assemblies as measured by no latent defects being revealed by the screening and the achievement of effective process yield rates.

(c) Environmental stress screening should be formulated so as to preclude the requirement for burn-in.

(2) Manufacturing processes and operations will be designed to reduce component defects and tolerance buildup. The contractor should be required to employ design for manufacturing and variability reduction techniques and identify and control the critical processes.

(3) Contractors should be required to ensure the reliability and quality of basic system piece parts entering the manufacturing process. Methods to achieve this include validating vendor assessments of part reliability and quality and conducting a parts rescreening program. The intent is to start the manufacturing process with reliable piece parts.

g. Reliability Testing and Growth. Reliability testing should be tailored for efficiency in terms of reliability growth data and management information.

(1) Tests that determine contractual compliance will be conducted independent of the contractor or under program office or plant representative supervision.

(a) All unscheduled maintenance events (including false alarms), software induced failures, and failure related mission deviations will be scored as relevant, chargeable failures.

(b) The failure of built-in test (BIT) to correctly detect a failure will be subject to corrective action as an additional failure.

(c) Criteria will be established before testing to classify the severity of all failures (i.e., catastrophic, mission critical, or noncritical).

(2) A reliability growth program should be developed to satisfy the reliability levels required at Milestone III. Planned growth should be stated as a series of intermediate milestones with objectives for each. Combined environmental testing should be conducted where appropriate. This should yield mature reliability early in the production program.

(3) Reliability tests and demonstrations will be based on actual or simulated operational conditions. The exception is accelerated life testing where the emphasis is on collecting failure data.

(4) All test and failure data should be used to grow the reliability, but formal reliability growth should be conducted according to a test-analyze-and-fix (TAAF) program.

(5) Qualification testing should cover all reasonable environmental conditions including mechanical shock and vibration, temperature

extremes and shock, moisture, dust, salt and other corrosive agents, electromagnetic compatibility, power surges and fluctuations, etc.

(6) A failure reporting, analysis, and corrective action system and a failure review board will be established before any testing.

h. Maintainability Demonstration. Maintainability will be verified with a maintainability demonstration before Milestone III, Production Approval. A maintainability growth program should be established to correct any breached maintainability requirements.

(1) The demonstration should be based on operational conditions using production configuration weapon systems (or as near as possible); actual technical orders, spare parts, tools, and support equipment; and personnel with representative skill levels.

(2) A maintainability data collection, analysis, and corrective action system will be in place before actual operational testing which includes maintainability demonstrations.

i. Additional Guidance. Additional guidance is contained in MIL-STD-470 and MIL-STD-785 (references (e) and (f)). A representative list of reliability and maintainability considerations to be addressed at each milestone decision point is at attachment 1.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/WSIG
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

Attachment - 1

1. Reliability and Maintainability Considerations at Milestone Decision Points

RELIABILITY AND MAINTAINABILITY CONSIDERATIONS AT MILESTONE DECISION POINTS

This attachment contains a representative listing of typical issues to be considered and addressed at milestone decision points and during the acquisition phases leading up to these points.

1. Milestone 0, Concept Studies Approval

   a. Projected major deficiencies in operational readiness, mission success, and constraints on maintenance manning and logistics support should be included in the Mission Need Statement as appropriate.

   b. Establishment of quantitative reliability and maintainability objectives should be deferred to Phase 0, Concept Exploration and Definition.

2. Milestone I, Concept Demonstration Approval

   a. The results of Phase 0, Concept Exploration and Definition, efforts are to be assessed at Milestone I.

      (1) Efforts in Phase 0 should focus on developing measurable values for baseline parameters for each system reliability and maintainability objective that applies to each alternative system concept.

      (2) The analysis should use operational and support experience with similar systems.

      (3) A system life profile should be defined to include mission profiles.

      (4) Tentative operational objectives should be responsive to documented needs of the mission area but also be realistically achievable in comparison to baseline values.

   b. Program objectives for reliability and maintainability will be initially established at Milestone I.

3. Milestone II, Development Approval

   a. The results of Phase I, Demonstration and Validation, efforts are to be addressed at Milestone II.

(1) During Phase I, contractor furnished items should be designed to prevent operational reliability and maintainability deficiencies typical of current items.

(2) Government-furnished and off-the-shelf commercial items will have met, or be required to meet, their allocated reliability and maintainability goals for the new system under environmental stresses defined for the new system.

(3) Operating and support concepts should be tailored to prevent operational reliability and maintainability deficiencies.

b. A firm objective will be established at Milestone II for each applicable system reliability and maintainability parameter.

(1) Objectives will be realistically achievable in service; thresholds will be acceptable in service.

(2) They will be translated into specified values in contracts for both contractor and Government-furnished equipment.

(3) Reliability and maintainability levels required at Milestone III will be developed from these objectives and thresholds.

4. Milestone III, Production Approval

a. Reliability and maintainability growth will be assessed and enforced during Phase II, Engineering and Manufacturing Development to ensure reliability and maintainability objectives are met well before the production decision.

b. The Milestone III decision review will consider:

(1) Previous use, operational test results, and verified design corrections. Design corrections should have been verified under natural and induced environmental conditions no less severe than design requirements.

(a) Proposed design corrections do not count, unless concurrency has been approved and specific provisions have been made to verify their effectiveness.

(b) The recurrence of failures due to weak parts and workmanship defects should be precluded by specific quality control provisions in the production contracts.

(2) Reliability and maintainability growth will be assessed and enforced to ensure that reliability and maintainability objectives are met (or met again) during initial deployment.

5. In-Service Evaluation

a. The acquiring agency will continue to correct operational reliability and maintainability deficiencies due to materiel design and quality,

to ensure that reliability and maintainability objectives reaffirmed at the production decision are achieved in service.

b. Responsibility for the correction of operational reliability and maintainability deficiencies caused by operating or support concepts will be clearly defined.

PART 6

SECTION D

COMPUTER RESOURCES

References:
(a) DOD Directive 5000.29, "Management of Computer Resources in Major Defense Systems," April 26, 1976 (canceled)
(b) DoD Directive 3405.2, "Use of Ada in Weapon Systems," March 30, 1987 (canceled)
(c) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(d) DoD Directive 7920.1, "Life Cycle Management of Automated Information Systems," June 20, 1988
(e) Section 111 of the Federal Property and Administrative Services Act of 1949, as amended (Title 40, United States Code, Section 759), "Automatic Data Processing Equipment" (Brooks Act))
(f) Title 10, United States Code, Section 2315, "Law Inapplicable to the Procurement of Automatic Data Processing Equipment and Services for Certain Defense Purposes" (Warner Amendment)
(g) DoD-STD-2167, "Defense System Software Development"
(h) DoD-STD-2168, "Defense System Software Quality Program"
* (i) Defense Federal Acquisition Regulation Supplement, Part *
* 239, "Acquisition of Information Resources" *
(j) Federal Information Resources Regulation (FIRMR), *
41 Code of Federal Regulations 201 *
(k) DoD Directive 3405.1, "Computer Programming Language Policy," April 2, 1987
(l) MIL-STD-1815, "Ada Programming Language"
(m) DoD-STD-1467, "Software Support Environment"
(n) MIL-STD-1801, "User-Computer Interface"
(o) MIL-STD-882, "System Safety Program Requirements"
* (p) Public Law 102-396, "Department of Defense *
* Appropriations Act for Fiscal Year 1993," Section 9070 *
* (q) Assistant Secretary of Defense for Command, Control, *
* Communications, and Intelligence Memorandum, *
* "Delegations of Authority and Clarifying Guidance on *
* Waivers from the Use of Ada Programming Language," *
* April 17, 1992 *

1. PURPOSE

a. This section replaces DoD Directive 5000.29, "Management of Computer Resources in Major Defense Systems" and DoD Directive 3405.2, "Use of Ada in Weapon Systems" (references (a) and (b)), which have been canceled.

b. These policies and procedures apply only to those computer resources, hardware and software that are:

(1) Physically part of, dedicated to, or essential in real time to the mission performance of weapon systems;

(2) Used for weapon system specialized training, simulation, diagnostic test and maintenance, or calibration; or

(3) Used for research and development of weapon systems.

2. POLICIES

a. The computer resources described in paragraph 1.b., above, shall be acquired and managed using the policies and procedures established in DoD Directive 5000.1, "Defense Acquisition" (reference (c)) and this Instruction.

(1) Computer resources include hardware, firmware, software, documentation, services, support services, supplies, and spare parts.

(2) Computer resources may be special purpose equipment or nondevelopmental items built to meet DoD-unique specifications and commercial off-the-shelf, general purpose, automated data processing equipment or services.

b. Other computer resources shall be acquired in accordance with DoD Directive 7920.1, "Life Cycle Management of Automated Information Systems (AISs)" (reference (d)).

NOTE: The applicability of DoD Directive 5000.1 or DoD Directive 7920.1 is not determined by the applicability of the Brooks Act or Warner Amendment (references (e) and (f)). Some of the computer resources described in paragraph 1.b. may be subject to the Brooks Act (see paragraph 3-g.). The program office must comply with Brooks Act requirements while acquiring those computer resources, as part of the total system, in accordance with DoD Directive 5000.1 and this Instruction.

3. PROCEDURES

a. Computer Resources Life-Cycle Management Plan

(1) The management approach, decisions, and plans associated with computer resources will be documented in a Computer Resources Life-Cycle Management Plan. This plan will:

(a) Identify and address critical issues, objectives, risks, costs, methodologies, and evaluation criteria;

(b) Identify all major computer resource risk areas, to include resources (people, facilities, training, funding, etc), support risks, and software safety criticality and the methods for their control; and

(c) Structure development, test, quality assurance, and support processes to provide data that permit quantitative assessment of the impact of computer resources on weapon system cost, schedule, and performance.

(2) The Computer Resources Life-Cycle Management Plan will address the development and acquisition process planned for each category of software for particular application areas, specifically addressing the areas outlined in this section.

(a) The application of alternative acquisition strategies such as evolutionary acquisition (see Section 5-A) will be fully described.

(b) The approaches employed in the application of the guidelines at attachment 1 will be fully described.

(3) The Computer Resources Life-Cycle Management Plan will be developed in conjunction with the Integrated Logistics Support Plan to ensure software supportability is properly addressed during development. The plans will cross-reference each other.

b. Integrated System Development. Computer resource development will be managed as an integral part of the overall system development. The program office will:

(1) Develop system acquisition strategies and schedules which integrate software development with the development of other system components;

(2) Not finalize computer hardware resource decisions until the software design is mature enough to minimize the risk of inadequate processor throughput and memory capacity;

(3) Address the requirements for software development tools, the software development environment, and the software integration environment;

(4) Address performance, schedule, cost, and post-deployment support;

(5) Use a disciplined software-development process based on effective engineering approaches;

(a) Recommended processes are described in attachment 1.

(b) DoD-STD-2167 and DoD-STD-2168 (references (g) and (h)) will be applied to the development of all deliverable software. These standards should be tailored to the application.

(6) Establish a software support concept and acquire post deployment software support resources needed to achieve that support posture; and

(7) Acquire the software support documents required to satisfy the software support concept.

c. Software Metrics. Software management indicators and metrics will be used in the management of the software effort and will relate to continuous improvement action using analysis of lessons learned, post-development problems, and quality performance rate and records against pre-established criteria. These indicators and metrics will be described in the Computer Resources Life-Cycle Management Plan.

d. Software Test Management. A comprehensive program will be established and maintained for testing and evaluating the computer hardware and software in a weapon system throughout its total life cycle. This program will be described in the Computer Resources Life-Cycle Management Plan. Computer resources will be addressed in the Test and Evaluation Master Plan (see Part 8) to coordinate testing across the system so as to minimize the time, cost, and duplication of testing.

e. Programming Languages. Ada is the only programming language to be used in new defense systems and major software modifications of existing systems regardless of size, cost or functional application (see Section 9070 of Public Law 102-396, "Department of Defense Appropriations Act for Fiscal Year 1993" (reference (p)) and Assistant Secretary of Defense for Command, Control, Communications, and Intelligence memorandum, "Delegation of Authority and Clarifying Guidance on Waivers from the Use of the Ada Programming Language" (reference (q))).

(1) Programming languages other than Ada that were authorized and being used in engineering and manufacturing development may continue to be used through deployment and for software maintenance, but not for major software upgrades.

(2) ATLAS is authorized for use in automatic test equipment.

(3) Ada is preferred, but not required, for commercially available, off-the-shelf software that will not be modified by, or for, the Department of Defense.

(4) Only validated Ada compilers will be used. Ada validation policy, procedures, and facilities will be directed by the Ada Joint Program Office.

(5) Authority to waive the use of Ada for all acquisition category I D programs and for all programs managed by DoD Components other than the Military Departments is delegated to the Director of Defense Research and Engineering (see Assistant Secretary of Defense for Command, Control, Communication, and Intelligence memorandum, "Delegation of Authority and Clarifying Guidance on Waivers from the Use of the Ada Programming Language" (reference (q)). Authority to waive the use of Ada for the Military Departments is delegated to the Secretary of that department (see Assistant Secretary of Defense for Command, Control, Communication, and Intelligence memorandum, "Delegation of Authority and Clarifying Guidance on Waivers from the use of the Ada programming Language" (reference (q). Such waivers will be issued on a case-by-case basis. Blanket waivers are

prohibited without the prior approval of the Under Secretary of Defense for Acquisition.

(6) A separate economic analysis is not required to support the selection of Ada. Use of Ada is presumed cost effective for all new development or modification of more than one-third of a functional component of DoD software for an application. In such cases, Ada must be used unless a waiver is granted. (See reference (q)).

(7) Waivers from the use of Ada are required for the development or modification of any non-Ada code not specifically excluded in paragraph F.2 of DoD Directive 3405.1. The decision to use "other technologies" as specified in the Definition of Advanced Software Technology (AST) must be supported by documentation showing that the benefits specified in the AST definition are met. Provide this documentation to the designated waiver authority. (See reference (q)).

f. Software Executive Official. The DoD Component Acquisition Executive will designate a senior level Software Executive Official who will monitor, support, and be focal point for Ada usage and sound software engineering, development, and life-cycle support policy and practice.

g. Delegation of Procurement Authority

(1) The Brooks Act, Title 40, United States Code, Section 759, "Automatic Data Processing Equipment" (reference (e)) vests procurement authority for automated data processing equipment with the General Services Administration. For any Government agency to procure automated data processing equipment, it must obtain a Delegation of Procurement Authority.

(2) The Warner Amendment, Title 10, United States Code, Section 2315, "Law Inapplicable to the Procurement of Automatic Data Processing Equipment and Services for Certain Defense Purposes" (reference (f)) exempts some DoD computer resources from the requirements of the Brooks Act.

(3) The applicability of the Warner Amendment to each DoD acquisition of computer resources will be determined under procedures set by the DoD Component Acquisition Executive in accordance with Defense Federal Acquisition Regulation Supplement, Part 239 "Acquisition of Information Resources" (reference (i)).

(4) Where the Warner Amendment does not exempt an acquisition from the coverage of the Brooks Act, 41 CFR 201, "Federal Information Resources Management Regulation (FIRMR)", of the Federal Acquisition Regulation (reference (j)) applies to that acquisition.

(5) Where the Warner Amendment does exempt an acquisition from the coverage of the Brooks Act, all Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement provisions other than Part 39 apply.

h. Additional Guidance. Additional guidance is contained in DoD Directive 3405.1, "Computer Programming Language Policy," MIL-STD-1815, DoD-STD-1467, MIL-STD-1801, and MIL-STD-882 (references (k) through (o)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	DDR&E	DDDR&E(R&AT)
Dept of Army	ASA(RDA)	SARD-ZBS DISC4 SAIS-AE
* Dept of Navy	ASN(RDA)	CNO (N6) MCRDAC/MAGTFC2 *
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ6	J6I

Attachment - 1

1. Software Engineering Practices

SOFTWARE ENGINEERING PRACTICES

This attachment contains guidelines for developing quality software that meets operational needs and is supportable. Software engineering practices are very volatile technologically. Consequently, these guidelines must be applied thoughtfully. They are not intended to stifle innovation or interfere with the exploitation of new technology or new techniques.

1. Use Capable Software Processes

   a. These processes, including corporate policies, practices, and standards, must be defined in the software development plan required by DoD-STD-2167 (reference (g)). They must be applied throughout the software development process. The program office must ensure the developer understands the scope of the software development effort and is capable of meeting user's needs.

   b. Specific practices that should be used are:

      (1) Establishment of a software process maturity model and process improvement plan;

      (2) Rigorous configuration control and quality assurance as required by DoD-STD-2168 (reference (h));

      (3) Walk-throughs, inspections, or reviews of requirements documents, design, and code;

      (4) Modular partitioning of the design into modules that are logical entities;

      (5) Structured programming, top-down design, or object oriented design;

      (6) Thorough and accurate documentation tailored to be consistent with the support concept;

      (7) Judicious application of established software standards and procedures;

      (8) Use of automated tools, such as computer aided software engineering (CASE) tools or formal manual techniques such as program design language and structured flowcharts;

      (9) Design for reuse and portability. To the fullest extent possible, design software to be independent of the hardware architecture;

(10) Formal definition and deployment of quality control procedures and milestone quality criteria;

(11) Software security and virus protection;

(12) Design for maintainability;

(13) Verification and validation; and

(14) Rigorous testing of modules and interfaces at all levels of aggregation.

2. Follow a Disciplined Process

a. Employ concepts similar to proven hardware practices such as sneak circuit analysis and failure modes, effects, and criticality analysis (FMECA) to abate risk.

b. Software system safety techniques, analyses, and approaches described in MIL-STD-882 (reference (o)) should be used to ensure the system safety process supports the DoD-STD-2167 (reference (g)) software development process (see Section 6-I).

c. Software design schedules must be closely linked with hardware design schedules. Criteria should be defined to establish when requirements are satisfied and designs are complete. Ensure that the next step does not begin until the criteria from the previous step are satisfied.

3. During Phase 0, Concept Exploration and Definition, and Phase I, Demonstration and Validation:

a. Explore Alternative Concepts. High risk items and requirements that are not well understood should be modeled or prototyped. Refinements of these prototypes and models are made until risk is reduced and requirements are fully understood.

b. Analyze Requirements, Including Constraints. Factors that drive requirements for software should be identified. These may include system interfaces, interoperability, communication functions, human interface, the anticipated level and urgency of change, and requirements for safety, security, and reliability.

4. Analyze Software Errors. Ensure the contractor establishes a uniform software error data collection and analysis capability to provide insights into reliability, quality, safety, cost, and schedule problems. The contractor should use management information to foster continuous improvements in the software development process, to increase first time yields, to reduce test problems, and to reduce occurrences of software problem reports.

PART 6

SECTION E

TRANSPORTABILITY

References: (a) DoD Directive 3224.1, "DoD Engineering for Transportability," November 29, 1977 (canceled)
(b) DoD Directive 4500.37, "Management of DoD Intermodal Container System," April 2, 1987 (to be canceled and combined with DoD Directive 4500.9)
(c) DoD Directive 4540.5, "Movement of Nuclear Weapons by Noncombat Delivery Vehicles," June 14, 1978

1. PURPOSE

a. This section replaces DoD Directive 3224.1, "DoD Engineering for Transportability" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for designing materiel and transportation systems in a manner that will allow efficient and economical movement of defense systems and equipment.

2. POLICIES

a. Transportability engineering efforts shall:

(1) Identify the limiting characteristics of transportation systems (including mobility containers, handling equipment, routing, and cargo carrying vehicles); and

(2) Integrate that data into the design of equipment, so as to allow the effective use of operational and planned transportation capability.

b. Transportability shall be a major consideration in:

(1) Formulating the priority of characteristics to be considered in the design of any new or modified equipment or the adoption of a commercial nondevelopmental item,

(2) Modifying existing cargo carrying vehicles and handling or transportation equipment, and

(3) Developing integrated logistics support for systems and equipment.

3. PROCEDURES

a. Design Efforts

(1) When designing new or modified equipment, transportability criteria for all possible modes of transportation will be considered and their limiting characteristics identified.

(a) Limiting characteristics will include those created by standard unitizing methods (pallets and containers).

(b) Transportability criteria will include maximum dimensions and total weight and will consider modularity to improve cube utilization and dimensional standardization for military cargo.

(c) Equipment will be designed so outside dimensions and gross weight (axle loads for vehicles) will permit handling, movement, and transfer among the various transportation systems that are expected to be available during its operating life.

(2) Only in exceptional cases may equipment be designed that will require special or unique arrangement of schedules, right-of-ways, clearances, or other operating conditions. Equipment may be designed to the capabilities of a specific mode of transportation only when such design is necessary to meet required capabilities and it has been determined that more restrictive modes will not be used.

(3) When designing new or modified equipment that is large, bulky, heavy, or sensitive to shock and vibration, consideration must be given to packaging, handling, tie down, sling points, capability for disassembly for transportation, and ease of on-site reassembly for use.

(a) Self-propulsion will be considered where applicable and necessary for ease of handling.

(b) Electrostatic discharge protective packaging will be developed for electronic devices that can be damaged by electrostatic discharge during transportation.

(4) The design of the equipment and the transportation system employed will provide for rapid transportability, environmental protection, and accountability for costly components disabled in combat, which must be evacuated to higher maintenance levels.

b. Minimizing Hazards. The disciplines of system safety, human factors engineering, and health hazard analysis are important aspects of transportability. (See Sections 6-H/I.)

(1) They will be used to avoid or minimize hazardous materials that require transportation by vehicle.

(2) They will address the ease of preparation for shipment, to include wing, fuselage, or rotor blade folding; hazardous materials removal; drive-on/drive-off; fuel draining; etc.

c. International Standardization. Transportability design will specifically consider the impact of international standards for intermodal containerization in standardizing and facilitating worldwide distribution.

(1) International container systems are designed to International Standards Organization dimensional, strength, and lift specifications as prescribed by DoD Directive 4500.37, "Management of DoD Intermodal Container System" (reference (b)).

(2) Cargo and equipment packaging considerations must include standardizing small containers, inserts, or other unit loads, which are modular to the interior dimensions of the containers to optimize cube utilization.

(3) Specific emphasis will be placed on the design or modification of shelters and special purpose vans to ensure that they conform to International Standards Organization (ISO) dimensional and strength specifications as prescribed by DoD Directive 4500.37 (reference (b)) as well as the packaging and design or redesign of equipment for use within such shelters and special purpose vans.

d. Additional Guidance. Additional guidance is contained in DoD Directive 4540.5, "Movement of Nuclear Weapons by Noncombat Delivery Vehicles" (reference (c)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(L)/TP
Dept of Army	DCSLOG	DALO-TSM
Dept of Navy	ASN(RDA)	CNO (N4) HQMC/I&L
Dept of Air Force	SAF/AQK	AF/LEY

PART 6

SECTION F

SURVIVABILITY

References:
(a) DoD Directive 4245.4, "Acquisition of Nuclear Survivable Systems," July 25, 1988 (canceled)
(b) DoD Instruction 4245.13, "Design and Acquisition of Nuclear, Biological, and Chemical (NBC) Contamination-Survivable Systems," June 15, 1987 (canceled)
(c) DoD Directive 4600.3, "Electronic Counter-Countermeasures (ECCM) Policy," March 12, 1990 (canceled)
(d) QSTAG-244, "Nuclear Survivability Criteria for Military Equipment (U)"
(e) QSTAG-620, "Consistent Set of Nuclear Survivability Criteria for Communications-Electronics Equipment (U)"
(f) STANAG-4145, "Nuclear Survivability Criteria for Armed Forces Materials and Installations (AEP-4)," March 1984
(g) Title 10, United States Code, Section 2366, "Major Systems and Munitions Programs: Survivability Testing and Lethality Testing Required Before Full-Scale Production"
(h) DoD Directive 3150.3, "Survivability of Non-Strategic Nuclear Forces (NSNF)," February 27, 1986
(i) DoD Directive 5160.5, "Responsibilities for Research, Development, and Acquisition of Chemical Weapons and Chemical and Biological Defense," May 1, 1985
(j) MIL-STD-1799, "Survivability, Aeronautical Systems (for Combat Effectiveness)"
(k) MIL-STD-2069, "Requirements for Aircraft Non-Nuclear Survivability"
(l) DoD-STD-2169, "Military Standard High-Altitude Electromagnetic Pulse (HEMP) Environment"
(m) MIL-HDBK-336, "Survivability, Aircraft, Non-Nuclear"

1. PURPOSE

a. This section replaces DoD Directive 4245.4, "Acquisition of Nuclear Survivable Systems"; DoD Instruction 4245.13, "Design and Acquisition of Nuclear, Biological, and Chemical (NBC) Contamination-Survivable Systems"; and DoD Directive 4600.3, "Electronic Counter-Countermeasures (ECCM) Policy" (references (a), (b), and (c)), which have been canceled.

b. These policies and procedures establish the basis for sustaining operational effectiveness and warfighting capability in peacetime and at all levels of conflict (from low-intensity to strategic nuclear) through acquisition of survivable systems, equipment, and support.

2. POLICIES

a. The survivability of all systems that must perform critical functions in a man-made hostile environment shall be an essential consideration during the acquisition life cycle of all programs, to include developmental and nondevelopmental programs.

b. Survivability from all threats found in the various levels of conflict shall be considered. This includes conventional; electronic; initial nuclear weapon effects; nuclear, biological, and chemical contamination (NBCC); advanced threats such as high power microwave, kinetic energy weapons, and directed energy weapons; and terrorism or sabotage.

3. PROCEDURES

a. Critical Survivability Characteristics. The Operational Requirements Document (see Section 4-B) will identify objectives for survivability characteristics critical to the mission (see Section 4-C).

(1) These objectives will be:

(a) Expressed in terms of measurable, quantitative parameters,

(b) Relatively insensitive to minor changes in system operations and specific threats,

(c) Evaluated in terms of their significance to overall system or force survivability, and

(d) Amenable to validation by test and evaluation.

(2) The assumptions made on system performance, operations, and architecture will form an explicit part of the survivability characteristics.

(3) Survivability criteria will be balanced among the different weapon effects, mission critical elements, and personnel capabilities and limitations.

(4) Critical survivability characteristics will be used to evolve survivability design criteria which will be included in appropriate configuration baselines (see Section 9-A).

b. Survivability Methods. Survivability will be achieved through a mix of threat effect tolerance, hardness, active defense, avoidance, proliferation, reconstitution, deception, and redundancy. All methods will be considered and fully assessed to determine the most cost-effective means prior to Milestone II, Development Approval.

(1) Hardware design for nuclear, biological, and chemical contamination will include hardness, decontaminability, and compatibility characteristics. Hardness designs will permit effective use by people in full protective ensemble.

(2) Systems developed jointly with the NATO or Quadripartite nations will use QSTAG-244, "Nuclear Survivability Criteria for Military Equipment"; QSTAG-620, "Consistent Set of Nuclear Survivability Criteria for Communications-Electronics Equipment"; and STANAG-4145, "Nuclear Survivability Criteria for Armed Forces and Installations (AEP-4)" (references (d), (e), and (f)) to establish nuclear survivability criteria.

(3) Mission-critical electronic equipment in a nuclear threat environment will, as a minimum, be survivable to high altitude electromagnetic pulse.

(4) Mission-critical electronic equipment in a conventional threat environment will, as a minimum, be survivable in an electronic countermeasures environment.

c. Test and Evaluation. As early as practicable, developers and test agencies will assess survivability and validate critical survivability characteristics at as high a system level as possible. During test and evaluation, the assumptions on system performance used to derive the survivability characteristics will also be validated. The Test and Evaluation Master Plan (TEMP) will identify the means by which the survivability objectives are validated (see Part 8).

(1) Conventional weapons effects survivability and electronic counter-countermeasures will be validated and verified by analysis and test. All survivability design criteria affecting operational effectiveness in a conventional threat environment will be included.

NOTE: For covered major systems (see Part 8), realistic survivability testing must be completed and reported to Congress before proceeding beyond low-rate initial production. (10 U.S.C. 2366 (reference (g)))

(2) Initial nuclear weapons effects and advanced technology survivability will be validated in realistic system configurations with a cost-effective combination of underground nuclear testing and above ground simulation supported by analysis.

(3) Nuclear, biological, and chemical contamination survivability will be validated through a combination of realistic testing, modeling, simulation, and analysis.

d. Life-Cycle Survivability. Using, maintaining, and testing agencies will periodically reassess system survivability characteristics.

(1) These reassessments should occur at selected points in the system life cycle, particularly:

(a) After changes in operational use or procedures;

(b) After retrofits, modifications, or system architecture changes; and

(c) In the event of changes in the mission or threats.

(2) If hardening is a survivability characteristic, the hardening design will consider the need to maintain the integrity of the design throughout the operational life of the system.

e. Hardened Systems. For systems hardened in order to meet a survivability requirement, hardness assurance, maintenance, and surveillance (HAMS) programs will be developed to identify and correct changes in manufacture, repair, or spare parts procurement, and maintenance or repair activities that may degrade system hardness during the system's life.

(1) Hardness assurance, maintenance, and surveillance programs will include:

(a) Hardness assurance plans for maintaining the integrity of the hardened design during production,

(b) Hardness maintenance plans for maintaining the hardened system, and

(c) Hardness surveillance plans for detecting degradations due to use, environmental exposure, or aging and for monitoring the effectiveness of maintenance.

(2) Nuclear, biological, and chemical contamination survivable systems must include maintenance and surveillance plans for compatibility and decontaminability as well as hardness.

f. Logistics Support. The Integrated Logistics Support Plan (ILSP) for systems with critical survivability characteristics will define a program to ensure those characteristics are not compromised during the system life cycle through loss of configuration control; use of improper spare or repair parts; performance of inappropriate maintenance or repair; or hardness degradations due to normal operations, maintenance, and environments.

(1) The program will identify and document activities (including training), inspections, parts procedures, and configurations that are critical to maintaining survivability and hardening throughout the system's life.

(2) For nuclear, biological, and chemical contamination, the additional characteristics of decontaminability and compatibility must also be defined.

(3) When these provisions have been addressed in specific hardness maintenance or hardness surveillance plans, the Integrated Logistics Support Plan will reference these plans.

(4) Survivability characteristics requiring unique facility support (e.g., electromagnetic pulse test facilities, electronic warfare environment, climate controlled hangers) will also be addressed.

(5) The Integrated Logistics Support Plan will address the acquisition of battle damage repair procedures, supplies, tools, manuals, and training to ensure rapid return to battle of damaged systems. Battle damage repair plans will address hardness maintenance and surveillance.

g. Additional Guidance

(1) Survivability of the system and the plans for the following phase will be addressed at each milestone decision point. A representative list of considerations to be addressed is at attachment 1.

(2) Additional guidance is contained in DoD Directive 3150.3, "Survivability of Non-Strategic Nuclear Forces (NSNF)"; DoD Directive 5160.5, "Responsibilities for Research, Development, and Acquisition of Chemical Weapons and Chemical and Biological Defense;" MIL-STD-1799; MIL-STD-2069; DoD-STD-2169; and MIL-HDBK-336 (references (h) through (m)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	DDR&E DUSD(A) DUSD(A) ASD(C3I)	ATSD(AE) Dir, S&SS Dir, TS DIR, S&TC3
Dept of Army	ASA(RDA)	SARD-DO
Dept of Navy	ASN(RDA)	CNO (N8) HQMC/PP&O
Dept of Air Force	AF/XO	SAF/XOX
Other DoD Components	DNA	DFPR

Attachment - 1

1. Survivability Considerations at Milestone Decision Points

SURVIVABILITY CONSIDERATIONS AT MILESTONE DECISION POINTS

This attachment contains a representative listing of typical issues to be considered and addressed at milestone decision points and during the acquisition phases leading up to these points.

1. Milestone 0, Concept Studies Approval

   The expected operational environment for each threat (i.e., conventional; electronic; initial nuclear weapons effects; advanced technology; nuclear, biological, and chemical contamination; and terrorism, or sabotage) should be highlighted and discussed in the Mission Need Statement.

2. Milestone I, Concept Demonstration Approval

   a. The system threat assessment should specifically address the threat categories, making specific statements for or against their expected likelihood.

   b. Initial survivability objectives should have been defined and validation criteria established. These objectives should be identified in the Operational Requirements Document. Key objectives should be included in the Concept Baseline.

   c. Critical survivability characteristics and issues that require test and evaluation should have been identified and included in the Test and Evaluation Master Plan.

   d. Critical survivability technology shortfalls should be identified and research requirements established.

   e. Preliminary facilities characteristics required to support unique survivability characteristics should have been identified, to be tracked through the Integrated Logistics Support Plan (ILSP).

3. Milestone II, Development Approval

   a. Critical survivability characteristics and issues that require test and evaluation should have been identified and included in the Test and Evaluation Master Plan.

   b. Key survivability objectives are included in the Development Baseline.

c. The system specification and integrated logistics support plan should incorporate the survivability objectives.

d. If hardening is used as a method for achieving survivability, development of hardness assurance, maintenance, and surveillance programs should be included in the Integrated Logistics Support Plan. The nuclear, biological, and chemical contamination assurance and maintenance plans should include information regarding decontaminability and compatibility.

e. Survivability issues are addressed in the Integrated Program Summary.

4. Milestone III, Production Approval

a. An assessment of how well the survivability objectives have been met has been completed and the results are included in the beyond low-rate initial production report.

b. All survivability issues should have been resolved.

c. Key survivability objectives are included in the Production Baseline.

d. If hardening is used as a method of achieving survivability, the hardness assurance program should have been developed and be ready for implementation. For nuclear, biological, and chemical contamination the assurance program also includes decontaminability and compatibility. Hardness maintenance and surveillance plans should have been completed with the exception of data from the hardness assurance program.

5. Milestone IV, Major Modification Approval

a. Survivability considerations have been included in major modification or upgrade packages. They should address the possibility of retro-fitting survivability into the system.

b. If hardening is used to achieve survivability, the hardness assurance, maintenance, and surveillance programs have been developed or modified and are ready for implementation.

PART 6

SECTION G

ELECTROMAGNETIC COMPATIBILITY AND RADIO FREQUENCY MANAGEMENT

References:
(a) MIL-STD-461, "Electromagnetic Emissions and Susceptibility Requirements for the Control of Electromagnetic Interference"
(b) MIL-E-6051, "Electromagnetic Compatibility Requirements, Systems"
(c) MIL-HDBK-237, "Electromagnetic Compatibility Management Guide for Platforms, Systems, and Equipments"
(d) DoD Directive 4650.1, "Management and Use of the Radio Frequency Spectrum," June 24, 1987
(e) DoD Directive 5100.35, "Military Communications-Electronics Board," May 6, 1985
(f) U.S. Department of Commerce, National Telecommunications and Information Administration, "Manual of Regulations and Procedures for Federal Radio Frequency Management," (Title 47, Code of Federal Regulations, Part 300)
(g) DoD Directive 3222.3, "Department of Defense Electromagnetic Compatibility Program (EMCP)," August 20, 1990

1. PURPOSE

These policies and procedures establish the basis to ensure that defense electric or electronic equipment is capable of operating in its intended environments without causing or suffering from undue interference with other electric or electronic equipment in those environments.

2. POLICIES

a. All electric or electronic systems shall be designed so that they can operate in all of their intended environments without creating or suffering from undue electromagnetic interference.

b. Systems that are intentional radiators of radio frequency energy shall comply with DoD, national, and applicable international policies for radio frequency spectrum management.

3. PROCEDURES

a. Compatibility. All electric or electronic systems will be designed to be mutually compatible with other electric or electronic equipment within their expected operational environments. As a minimum, each system will:

(1) Satisfy the appropriate requirements of MIL-STD-461 (reference (a)). Acquisition programs may vary the requirements upon demonstrated evidence that changing these requirements will not cause their system or other systems to fail due to electromagnetic interference in any of its anticipated operating environment.

(2) Establish a comprehensive design, analysis, and verification process to develop a system which can successfully operate within its expected environments. MIL-E-6051 and MIL-HDBK-237 (references (b) and (c)) establish recommended procedures.

b. Test and Validation

(1) Field engineering test facilities and testing in the intended operational environments are required to:

(a) Verify predicted performance,

(b) Establish confidence in electromagnetic compatibility design based on standards and specifications, and

(c) Validate electromagnetic compatibility analysis methodology.

(2) Testing will provide:

(a) Problem parameter measurements, and

(b) Evaluation of electromagnetic compatibility analysis and predictions in appropriate (real or emulated) environments.

c. Frequency Management. All systems that intentionally radiate radio frequency energy must comply with national and international procedures for frequency management. Acquisition programs developing or procuring such systems must:

(1) Comply with the policies and procedures for frequency management contained in DoD Directive 4650.1, "Management and Use of the Radio Frequency Spectrum" (reference (d)) or established by the Military Communications-Electronics Board, chartered by DoD Directive 5100.35, "Military Communications-Electronics Board" (reference (e)).

(2) Initiate Phase II, Engineering and Manufacturing Development, or Phase III, Production and Deployment, only after certification by the National Telecommunications and Information Administration, Department of Commerce, that the radio frequency required for such systems is available. This certification is called frequency allocation.

(a) Procedures are contained in National Telecommunications and Information Administration, "Manual of Regulations and

Procedures for Federal Radio Frequency Management" (reference (f))).

(b) Systems intended for use overseas will not begin Phase II, Engineering and Manufacturing Development, until allocation approvals are received from the foreign host nation (see DoD Directive 5100.35 (reference (e)). All such certification and other guidance for system development is received through the Military Communications-Electronics Board.

(3) Design the system so that its radio frequency spectrum complies with U.S. national regulations and standards as well as those of any foreign nation where the system is intended to be used.

(4) Obtain permission to use the system at a specific location on a specific frequency (or range of frequencies) prior to operating the system during test or operational use. This permission is called frequency assignment.

(a) Unless otherwise noted, such assignments are location-specific, and new assignments are needed for new locations. Frequency assignments within the United States and its possessions are made by the National Telecommunications and Information Administration, Department of Commerce.

(b) Each nation reserves similar national authority to control the operational use of the spectrum within its borders. Accordingly, frequency assignments must be obtained from each host government before any operation can take place in that nation.

(5) Validate that the system can successfully operate in its intended worst case environment without suffering degradation from or causing unacceptable degradation to other systems. Such programs will contact the Electromagnetic Compatibility Analysis Center, chartered by DoD Directive 3222.3, "DoD Electromagnetic Compatibility Program (EMCP)" (reference (g)) for further guidance and assistance.

d. Electromagnetic Compatibility/Frequency Management Data Base. A DoD-wide electromagnetic compatibility/frequency management data base will be established at the Electromagnetic Compatibility Analysis Center.

(1) All DoD Components are responsible for providing electromagnetic compatibility/frequency management data on all systems developed or operated within the Component.

(2) Electromagnetic Compatibility Analysis Center capabilities should be used instead of duplicating capabilities within the DoD Components.

(3) Newly developed analysis techniques and models for electromagnetic compatibility should be made available to the Electromagnetic Compatibility Analysis Center and shared with the other DoD Components.

4. RESPONSIBILITIES AND POINTS OF CONTACT

a. DoD Components will establish internal operating procedures and organizational structures to support effective, timely frequency management within their organizations.

b. The Department of the Air Force is designated as the administrative agent for the Electromagnetic Compatibility Analysis Center. The Air Force will program, budget, and finance the joint program to:

(1) Develop and maintain the electromagnetic compatibility/frequency management data base

(2) Maintain and distribute electromagnetic compatibility analysis models,

(3) Provide operational electromagnetic compatibility analysis support to the Joint Staff, and

(4) Provide support to the Military Communications-Electronics Board.

c. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(C3I)	Dir S&TC3 Dir T&TC3
Dept of Army	ASA(RDA)	SARD-DO
* Dept of Navy	ASN(RDA)	CNO (N6) MCRDAC/MAGTFC2 *
Dept of Air Force	SAF/AQK	AF/SC
CJCS (Joint Staff)	DJ6	J6P

PART 6

SECTION H

HUMAN FACTORS

References: (a) MIL-H-46855, "Human Engineering Requirements for Military Systems, Equipment, and Facilities"
(b) MIL-STD-1800, "Human Factors Engineering Performance Requirements for Systems"
(c) MIL-STD-1472, "Human Engineering Design Criteria for Military Systems, Equipment, and Facilities"
(d) DoD-HDBK-763, "Human Engineering Procedures Guide"
(e) MIL-STD-1801, "User-Computer Interface"

1. PURPOSE

These policies and procedures establish the basis for ensuring that the required technology development, engineering, and management tasks are accomplished during system design to provide for effective and efficient operator and maintainer performance.

2. POLICIES

a. Human factors engineering shall be an integral part of planning and conceptual efforts, development projects, and acquisition programs to include modifications. Management responsibility for human factors engineering will transfer along with the system in inter-command transition agreements.

b. Human factors design requirements shall be established to develop effective man-machine interfaces and preclude system characteristics that:

(1) Require extensive cognitive, physical, or sensory skills;

(2) Require complex manpower or training intensive tasks; or

(3) Result in frequent or critical errors.

3. PROCEDURES

a. Human Factors Program. A human factors engineering program will be established for each system acquisition through the tailored application of MIL-H-46855 or MIL-STD-1800 (references (a) and (b)), adapted to specific program characteristics. MIL-STD-1472 and DoD-HDBK-763 (references (c) and (d)) should be used as the basis for human factors design. Additional guidance is found in MIL-STD-1801 (reference (e)).

(1) The capabilities and limitations of the operator, maintainer, trainer, and other support personnel should be identified early enough in the design effort to impact the design.

(2) Manpower, personnel, training, health hazard, and safety concerns will be translated into man-machine interface design issues to be addressed during systems engineering. This includes efforts to:

(a) Review human-system interface characteristics which require extensive cognitive, physical, or sensory skills; require complex manpower and training intensive tasks; or adversely affect human performance, identifying those elements that will be targeted for human factors engineering changes.

(b) Review system safety and health hazard issues and lessons learned. Identify factors which result in frequent or critical human performance errors.

(c) Identify how such human-system interface characteristics and factors can be avoided or corrected through system design and human factors engineering efforts.

(3) MIL-STD-1472 (reference (c)) will be part of the selection criteria for determining the suitability of nondevelopmental items.

b. Test and Evaluation

(1) The Test and Evaluation Master Plan (TEMP) will:

(a) Address critical human issues to provide data to validate the results of human factors engineering analyses; and

(b) Require identification of mission critical operation and maintenance tasks.

(2) In keeping with total system acquisition (see Part 2), test and evaluation will:

(a) Assess the integration of human factors elements into the design of hardware, software, and procedures;

(b) Include performance of operational tasks by typical users;

(c) Provide human performance and error rate data; and

(d) Verify human factors design requirements have been satisfied.

c. Integrated Program Summary. Based on an assessment of predecessor or comparable systems and new technologies, the Integrated Program Summary will identify high risk areas in human systems integration that have been targeted for mitigation and how such mitigation will:

(1) Improve system performance;

(2) Reduce manpower, personnel, and training requirements and ownership costs; and

(3) Reduce or eliminate critical human performance errors.

4. RESPONSIBILITIES AND POINTS OF CONTACT

a. In support of the human factors engineering effort, DoD Component Heads will:

(1) Maintain historical human factors engineering data for use by all DoD Components and contractors and

(2) Maintain records of human factors engineering lessons learned for use by all DoD Components and contractors.

b. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(FM&P)	DASD(R&R)/TFR *
Dept of Army	DCSPER	DAPE-MR
Dept of Navy	ASN(RDA)	ASN(MRA)
Dept of Air Force	AF/PR	AF/PRQ

PART 6

SECTION I

SYSTEM SAFETY, HEALTH HAZARDS, AND ENVIRONMENTAL IMPACT

References:
(a) DoD Instruction 5000.36, "System Safety Engineering and Management," April 14, 1986 (canceled)
(b) Title 40, Code of Federal Regulations, Parts 1500-1508, "National Environmental Policy Act Regulations"
(c) Executive Order 12114, "Environmental Effects Abroad of Major Federal Actions," January 4, 1979
(d) MIL-STD-882, "System Safety Program Requirements"
(e) DoD Directive 4210.15, "Hazardous Material Pollution Prevention," July 27, 1989
(f) DoD Instruction 6050.5, "Hazard Communication Program," October 29, 1990
(g) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(h) DoD Directive 3150.2, "Safety Studies and Reviews of Nuclear Weapon Systems," February 8, 1984
(i) DoD Directive 6050.9, "Chlorofluorocarbons (CFCs) and Halons," February 13, 1989
(j) DoD Directive 6055.9, "The DoD Explosives Safety Board," November 25, 1983

1. PURPOSE

a. This section replaces DoD Instruction 5000.36, "System Safety Engineering and Management" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for effectively integrating system safety, health hazard, and environmental considerations into the systems engineering process.

2. POLICIES

a. Scientific and engineering principles shall be applied during design and development to identify and reduce hazards associated with system operation and support with the objective of designing the safest possible systems consistent with mission requirements and cost-effectiveness.

(1) Appropriate system safety and health hazard objectives shall be established early in the program and used to guide system safety and health hazard activities and the decision process.

(2) With regard to hazardous materials, emphasis shall be on reduced use of hazardous materials in processes and products rather than simply managing the hazardous waste created.

b. Proposed systems shall be analyzed for their potential environmental impacts in accordance with Title 40, Code of Federal Regulations, Parts 1500-1508, "National Environmental Policy Act Regulations" (reference (b)) and Executive Order 12114, "Environmental Effects Abroad of Major Federal Actions" (reference (c)).

c. System safety engineering programs shall be designed to work in harmony with the other comprehensive DoD product improvement programs (e.g., manpower, personnel, and training programs; logistics support analysis (LSA) programs; reliability and maintainability (R&M) programs; software quality assurance programs).

d. Each management decision to accept the risks associated with an identified hazard shall be formally documented using MIL-STD-882 (reference (d)) as a guide to establish criteria for defining and categorizing "high" and "serious" risks.

(1) The DoD Component Acquisition Executive (or designee at the Deputy Assistant Secretary or three star level) shall be the final approval authority for acceptance of high risk hazards.

(2) All participants in joint-Service programs must approve acceptance of high risk hazards.

(3) Serious risks may be approved for acceptance at the Program Executive Officer or equivalent level.

3. PROCEDURES

a. System Safety. A system safety program that identifies, evaluates, and eliminates or controls system hazards will be established through the tailored application of MIL-STD-882 (reference (d)), adapted to specific program characteristics.

(1) The total system, including hardware, software, testing, manufacture, and support, will be evaluated for known or potential hazards for the entire life cycle. Actual and potential significant hazards and associated risks, including those related to nuclear weapons, conventional explosives, and other hazardous materials, should be identified prior to Milestone II, Development Approval.

(2) Health hazard and safety lessons learned from predecessor and similar systems should be addressed during Phase I, Demonstration and Validation. Lessons learned during development and testing are to be forwarded to the appropriate DoD Component data base (see paragraph 4.a.(3), below).

(3) The design will reduce the probability and severity of all hazards to a level specified by the program office. Hazards in systems will be eliminated or controlled before Milestone III, Production Approval.

(a) The predominant means of controlling risk will be hazard elimination.

(b) Where hazards cannot be eliminated, they will be effectively controlled.

(c) Warning devices and procedures will not be the sole means of controlling catastrophic and critical hazards.

NOTE: Acceptably safe systems are achieved through a three step process.

- Prevent the initial creation of unnecessary hazards. This is done by communicating to the developer that safety is an important system attribute that must be designed in, not added on. The design engineers must be sensitized to this.
- Establish a system safety program as described in this section. This becomes a more costly effort if the first step is omitted.
- Manage residual hazards. This is done by understanding their nature and impact and ensuring their proper disposition.

(4) System safety programs will be applied to in-house research, development, production, modification, and test programs. For nondevelopmental items, a thorough safety assessment for the intended use will be performed and documented before purchase.

(5) DoD Components may form safety advisory boards to assist program offices by evaluating specific parts of the system safety program (e.g., nuclear safety, explosive safety, and hazardous materials handling). Such boards, if formed, will operate in a manner consistent with the provisions of this Instruction (see Part 2).

b. Test and Evaluation. The Test and Evaluation Master Plan (TEMP) will address health hazard and safety critical issues to provide data to validate the results of system safety analyses. When normal testing cannot demonstrate safe system operation, special safety tests and evaluations will be prepared and monitored.

c. Hazardous Materials. The environmental, safety, and occupational health impacts associated with the selection and use of hazardous materials will be carefully evaluated during the acquisition of systems. This includes the impacts associated with manufacturing, operation, maintenance, and disposal of the system.

(1) The selection, use, and disposal of hazardous materials in the systems acquisition process will be managed over the system life cycle so that the Department of Defense incurs the lowest cost required to protect human health and the environment. Guidance

is contained in DoD Directive 4210.15, "Hazardous Material Pollution Prevention" (reference (e)).

(a) The preferred method of doing this is to avoid or reduce the use of hazardous materials.

(b) This also includes designing explosives systems with attributes that will assist Explosive Ordnance Disposal personnel in rendering them safe.

(2) Life-cycle cost estimates must include the cost of acquiring, handling, using, and disposing of any hazardous or potentially hazardous materials.

(3) Where the use of hazardous materials cannot be reasonably avoided, procedures for identifying, tracking, storing, handling, and disposing of such materials and equipment will be developed and implemented as outlined in DoD Directive 4210.15 and DoD Instruction 6050.5, "Hazard Communication Program" (references (e) and (f)).

d. Environmental Protection. Defense systems will be designed, developed, tested, fielded, and disposed of in compliance with applicable environmental protection laws and regulations, treaties, and agreements. The Department of Defense complies with regulations, treaties, and Federal and applicable State and local environmental laws in the U.S. and its territories.

(1) Initial Environmental Analysis and Planning. Environmental analysis and planning will begin at the earliest possible time.

(a) The initial environmental analysis will look at the entire life cycle of the program. Environmental effects will be identified in detail adequate to be integrated with economic and technical analyses.

(b) During Phase 0, Concept Exploration and Definition, the potential environmental effects of each alternative will be assessed. Substantial potential effects noted in this initial analysis will be integrated into the assessment of each alternative.

(2) Programmatic Environmental Analysis. The programmatic environmental analysis will begin immediately after Milestone I, Concept Demonstration Approval, in accordance with Title 40, Code of Federal Regulations (reference (b)) and Executive Order 12114 (reference (c)).

(a) This analysis will contain a description of:

1 The program being pursued,

2 The alternatives to be studied within the approved program,

3 The potential environmental impacts of each alternative throughout the system life cycle,

4 Potential mitigation of adverse impacts, and

5 How the impacts and proposed mitigation would affect schedule, siting alternatives, and program cost.

(b) The programmatic analysis will occur regardless of the classification of the program. The environmental analysis will carry the same classification as the program, or aspect of the program, carries.

(c) The programmatic analysis will be conducted simultaneously and thoroughly coordinated and integrated with other plans and analyses for the program.

(d) After each succeeding milestone decision point, the programmatic analysis will be updated as necessary. The documentation of each of these updates is called a tier to the programmatic analysis document. Tiering focuses on the issues that are at a decision stage.

(e) Each tier will be completed prior to the next milestone decision point. The Integrated Program Summary (IPS) will contain a summary of the results of the analysis (see DoD 5000.2-M,, "Defense Acquisition Documentation and Reports" reference (g))).

(f) If a "Finding of No Significant Impact" (see Title 40, Code of Federal Regulations (reference (b))) is proposed after completing a programmatic analysis or tier, the Program Manager will coordinate that document with the DoD Component official responsible for environmental programs. After coordination, the "Finding" will be available to the public unless it is classified.

(g) When a programmatic analysis or a tier is completed in the form of an environmental impact statement, a Record of Decision will be prepared by the DoD Component for signature by the decisionmaker (e.g., the Record of Decision regarding the environmental impact of a particular base location will be signed by the person making the basing decision).

1 Procedures are contained in Title 40, Code of Federal Regulations (reference (b)).

2 Records of Decision are public documents unless classified.

e. Integrated Program Summary. As part of risk assessment and environmental analysis, the Integrated Program Summary will assess system safety, health hazard, and environmental risks that can not be

corrected or mitigated through system design changes or new technology and identify what residual hazards and impacts must be accepted by formal decision.

f. Additional Guidance. Additional guidance is contained in DoD Directive 3150.2, "Safety Studies and Reviews of Nuclear Weapon Systems"; DoD Directive 6050.9, "Chlorofluorocarbons (CFCs) and Halons"; and DoD Directive 6055.9, "The DoD Explosive Safety Board" (references (h) through (j)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

a. In support of the system safety management effort, DoD Component Heads will:

(1) Maintain historical system safety engineering, health hazard, and environmental effects data for use by all DoD Components and contractors;

(2) Conduct comprehensive system safety analyses of mishap causal factors and review system safety programs for potential lessons learned; and

(3) Maintain records of system safety and health hazard lessons learned for use by all DoD Components and contractors.

b. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(E)/S&OHP
Dept of Army	ASA(IL&E)	SAILE-ESO
Dept of Navy	ASN(I&E)	ASN(I&E)
Dept of Air Force	ASAF(MRAI&E)	SAF/MIQ

PART 6

SECTION J

SYSTEM SECURITY

References: (a) MIL-STD-1785, "System Security Program Management Requirements"
(b) DoD Directive C-5200.19, "Control of Compromising Emanations (U)," February 23, 1990
(c) DoD Directive C-5200.5, "Communications Security (U)," October 6, 1981

1. PURPOSE

These policies and procedures establish the basis for effectively integrating system security considerations into the systems engineering process, consistent with mission requirements and cost-effectiveness. The broader issues relating to program protection and security considerations in the acquisition process are discussed in Section 5-F of this Instruction.

2. POLICIES

a. A system security engineering management program that identifies, evaluates, and eliminates or contains system vulnerabilities to known or postulated security threats shall be established for each defense acquisition program.

b. Scientific and engineering principles shall be applied during design and development to identify and reduce system susceptibility to damage, compromise, or destruction.

3. PROCEDURES

a. System Security Program. A system security engineering management program will be established through the tailored application of MIL-STD-1785 (reference (a)), adapted to specific program characteristics. The system security engineering application will be based on the system's politico-military value, limited number, or cost.

(1) The total system, including hardware, software, testing, manufacture, and support, will be evaluated for known or potential system vulnerabilities for the entire life cycle. Significant vulnerabilities and associated risks should be identified prior to Milestone II, Development Approval.

(2) The design will reduce the probability and severity of all vulnerabilities to a level specified by the program office.

Vulnerabilities in systems will be eliminated or controlled before Milestone III, Production Approval.

(3) System security programs will be applied to off-the-shelf procurements and to in-house research, development, production, modification, and test programs.

b. Control of Compromising Emanations. In accordance with national policy, as implemented by DoD Directive C-5200.19, "Control of Compromising Emanations" (reference (b)), TEMPEST will be explicitly addressed early in the acquisition cycle for all systems that have a potential to emanate sensitive information.

c. Communications Security (COMSEC). Communications security protection to deny unauthorized persons information derived from telecommunications sources will be applied as outlined in DoD Directive C-5200.5, "Communications Security" (reference (c)). Required operational support will be identified early in the acquisition process.

d. Security Engineering Assessments. Follow-on system security engineering efforts will be assessed to ensure system security during system modification and while undergoing depot maintenance.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix below identifies the offices to be contacted for additional information onthis section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(C3I) DDR&E	DASD(I) DDDR&E(P&R)
Dept of Army	ASA(RDA)	SARD-DO
Dept of Navy	ASN(RDA)	DASN(C3I/EW/SPACE)
Dept of Air Force	SAF/AQX	SAF/IGS

PART 6

SECTION K

DESIGN TO COST

References: (a) DoD Directive 4245.3, "Design to Cost," April 6, 1983 (canceled)
(b) DoD Directive 5000.4, "OSD Cost Analysis Improvement Group," October 30, 1980
(c) MIL-STD-337, "Design to Cost"

1. PURPOSE

a. This section replaces DoD Directive 4245.3, "Design to Cost" (reference (a)), which has been canceled.

b. These policies and procedures establish cost as a design constraint early in the acquisition life cycle.

2. POLICIES

a. A design to average unit procurement cost objective shall be established for acquisition category I programs, beginning at Milestone I, Concept Demonstration Approval. Design to cost objectives may also be established for acquisition category II, III, and IV programs as determined by the milestone decision authority. This objective is initially very broad and shall subsequently be refined and addressed at successive milestone decision reviews.

b. Design to cost activity shall seek to strike a proper balance among development, production, and operating and support costs.

c. Initial design to cost activity shall focus on identifying cost drivers, potential risk areas that may be cost drivers, and cost-schedule-performance trade-offs early in the development process.

d. As development continues, efforts shall focus on identifying areas requiring corrective action because of excessive costs. Cost reduction techniques shall be applied to such areas to keep costs within acceptable tolerances.

3. PROCEDURES

a. Average Unit Procurement Cost Objectives. Design to average unit procurement cost objectives, expressed in constant dollars, will be established as an integral part of Milestone I, Concept Demonstration Approval.

(1) Average unit procurement cost is defined as the recurring flyaway, rollaway, sailaway cost (including nonrecurring

production costs) adjusted for data, training, support equipment, and initial spares costs. See DoD Directive 5000.4, "OSD Cost Analysis Improvement Group" (reference (b)) for complete definition of average unit procurement cost.

(2) The approved objective will be included in the Concept Baseline established at Milestone I, Concept Demonstration Approval. The objective established will be based on early measurable planned quantities, such as the first three years of production, and on realistic total planned quantities and annual production rates.

(3) The objectives established at Milestone I will be reviewed, refined, and approved at Milestone II, Development Approval, and Milestone III, Production Approval. They will be included in the Development and Production Baselines (see Section 11-A).

FACTORS INCLUDED IN EACH CATEGORY OF PROGRAM COST

Management Hardware Software Nonrecurring Production Change Allowance	=	FLYAWAY, ROLLAWAY, SAILAWAY
PLUS Technical Data Publications Contractor Services Support Equipment Training Equipment Factory Training	=	WEAPON SYSTEM COST
PLUS Initial Spares	=	PROCUREMENT COST
PLUS RDT&E Facility Construction	=	PROGRAM ACQUISITION COST

b. Operating and Support Cost Objectives. Design-to objectives for operating and support cost may be established at the discretion of the milestone decision authority.

(1) When established, they should be expressed in constant year dollars or by other measurable factors such as unit operating crew and maintenance manpower objectives or operational and logistics reliability and maintainability objectives.

(2) In this regard, design-controllable factors that significantly affect operating and support costs and that can be measured during test and evaluation should be selected.

c. Contract Application. Established design-to objectives will be included in contracts. Consideration should be given to including design to cost incentives in contracts.

d. Exemptions. The following two general types of programs are recognized as possible candidates for exemption from the requirement to establish design to average unit procurement cost objectives. Such exemptions must be approved by the milestone decision authority.

(1) Those programs that, for national security reasons, have performance or schedule requirements that must take precedence over cost considerations.

(2) Those programs where it may be appropriate to propose design-to objectives based on other than average unit procurement cost (e.g., programs where hardware or software development is a predominant fraction of the acquisition cost and production volume is extremely low or where variable subsystems make up a system).

e. Additional Guidance. Additional guidance is contained in MIL-STD-337 (reference (c)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L) ASD(PA&E)	DASD(PR)/WSIG Chair, CAIG
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

PART 6

SECTION L

NONDEVELOPMENTAL ITEMS

References: (a) DoD Directive 5000.37, "Acquisition and Distribution of Commercial Products (ADCP)," September 29, 1978 (canceled)
(b) Title 10, United States Code, Section 2325, "Preference for Nondevelopmental Items"
(c) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988

1. PURPOSE

a. This section replaces DoD Directive 5000.37, "Acquisition and Distribution of Commercial Products (ADCP)" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for cost-effective use of commercial products and other nondevelopmental items in defense systems and equipment.

c. This section implements Title 10, United States Code, Section 2325, "Preference for Nondevelopmental Items" (reference (b)).

d. This section authorizes the Assistant Secretary of Defense (Production and Logistics) to publish DoD 5000.37-M, "Commercial and Nondevelopmental Item (NDI) Handbook" in accordance with DoD 5025.1-M, "Department of Defense Directives System Procedures" (reference (c)).

2. DEFINITIONS

* a. Nondevelopmental Item. Nondevelopmental means "not requiring *
* development." Nondevelopmental items include: *

(1) Any item available in the commercial marketplace;

(2) Any previously developed item in use by a Federal, State, or local agency of the U.S. or a foreign government with which the U.S. has a mutual defense cooperation agreement;

(3) Any item described in subparagraph 2.a.(1) or (2), above, that requires only minor modification to meet the requirements of the procuring agency; or

(4) Any item currently being produced that does not meet the requirements of subparagraph 2.a.(1), (2), or (3), above, solely because the item is not yet in use or is not yet available in the commercial marketplace.

b. Commercial Product. A commercial product is a nondevelopmental item

that has been produced for sale in the commercial marketplace.

c. Established Market Acceptability. To have established market acceptability means that a product has been successfully marketed in substantial quantities to either the private sector or the Government.

(1) Prototypes, models, or experimental production runs generally do not qualify.

(2) It may be appropriate for some items to make provision for products currently in production, without sales history, that are slightly modified or improved versions of items previously sold.

3. POLICIES

a. Materiel and software requirements shall be satisfied to the maximum practicable extent through the use of nondevelopmental items when such products will meet the user's needs and are cost-effective over the entire life cycle.

b. When nondevelopmental items are not available to meet properly drafted specification requirements, DoD Components shall not encourage contractors to make substantial investments in development, testing, tooling, or facilitization as part of the proposal process to prove the feasibility of a nondevelopmental item acquisition.

c. The Heads of the DoD Components shall ensure that the advocates for competition in the Department of Defense (see Section 5-A) shall, in addition to the authorities and duties otherwise assigned to them have the following authorities and duties:

(1) Be responsible for challenging barriers to and promoting use of commercial and other nondevelopmental items to meet procurement needs:

(2) Review procurement activities for matters relating to policies on use of commercial and other nondevelopmental items to meet procurement needs;

(3) Identify and report to the appropriate component acquisition executive (see Part 15) opportunities and actions taken to achieve use of commercial and other nondevelopmental items to meet procurement needs;

(4) Recommend on a fiscal year basis to the appropriate Component Acquisition Executive goals and plans for increasing the use of competition; and

(5) Recommend to the appropriate component acquisition executive such other policies and actions as may be appropriate to achieve use of commercial and other nondevelopmental items to meet procurement needs.

d. If the Heads of the DoD Components determine that the authorities and duties required to be assigned to the advocate for competition of the Component by paragraph 3.c., above, can be performed more effectively

by another employee within that Component, the Component Head may submit for Under Secretary of Defense approval a request to assign those authorities and duties to that employee in lieu of the advocate for competition.

4. PROCEDURES

a. Requirements. Materiel requirements will be stated to the extent practicable in terms of required function, performance, or physical characteristics.

(1) Non-Government standards and commercial item descriptions will be used in preference to Federal and military specifications and standards whenever practicable except when Federal Standards are required by law or pursuant to law.

(2) The use of nondevelopmental items should be incorporated in the design and development process consistent with operational requirements.

(3) Market research and analysis should be conducted to determine the suitability and availability of any item prior to the commencement of a developmental effort.

b. Suitability. Nondevelopmental items will be evaluated for operational use by considering all aspects of the items' suitability for the intended purpose.

(1) Suitability criteria should include technical performance, safety, reliability, maintainability, interoperability, logistics support, expected operational environment, survivability, and intended life cycle.

(2) The suitability analysis should consider that unmodified nondevelopmental items are preferred. However, items requiring minor modifications may be used when cost, performance, and support benefits warrant.

(3) Prudent risks should be taken to evaluate and field nondevelopmental items.

(4) Test and evaluation of nondevelopmental items will be conducted to, at a minimum, verify integration and interoperability with other system elements. All nondevelopmental item modifications necessary to adapt them to the weapon system environment will also be subject to test and evaluation. As appropriate, test and evaluation should be conducted for other aspects of nondevelopmental items to evaluate and control risk.

c. Logistics Support. Significant consideration must be given to logistics support when acquiring nondevelopmental items (see Section 7-A).

(1) Programs using commercial systems or equipment should make maximum use of existing commercial logistics support and data. Development of new organic logistics elements will be based on critical mission need or substantial cost savings.

(2) It may be necessary to modify existing logistics support procedures, varying from established practices, to allow for maximum use of nondevelopmental items. This may involve innovative logistics concepts to support accelerated logistics support schedules and require acquisition techniques such as buyouts, warranties, and data rights escrow. The use of these techniques and concepts is preferred to developmental effort.

(3) Manufacturer or supply source distribution channels should be used in supplying commercial products and other nondevelopmental items to operational users when:

(a) It is economically advantageous; and

(b) The impact on military readiness and wartime sustainability is acceptable.

d. Acquisition Strategy. The acquisition strategy (see Section 5-A) should be tailored to the extent feasible to employ commercial practices when purchasing commercial products or other nondevelopmental items. Such practices include, but are not limited to:

(1) Seeking the greatest benefit to the Government in terms of overall cost, product quality, timeliness of delivery, and supportability (past performance should be a significant factor in making such determinations);

(2) Accepting commercial operational, maintenance, and safety data and commercial logistics support, consistent with the user's operational needs;

(3) Using commercial marking, preservation, and packaging to the maximum extent consistent with user needs; and

(4) Requiring that a product solicited using a commercial item description have established market acceptability.

5. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/MM
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
Other DoD Components	DLA	DLA-SE

PART 6

SECTION M

USE OF THE METRIC SYSTEM

References:
(a) DoD Directive 4120.18, "DoD Metrication Program," September 16, 1987 (canceled)
(b) Title 15, United States Code, Sections 205a-205k, "Metric Conversion"
(c) Federal Register, "The Metric System of Measurement," February 26, 1982
(d) STANAG-4183, "NATO Metrication Policy"
(e) MIL-STD-961, "Preparation of Military Specifications and Associated Documents"
(f) MIL-STD-962, "Preparation of Military Standards and Handbooks"

1. PURPOSE

a. This section replaces DoD Directive 4120.18, "DoD Metrication Program" (reference (a)), which has been canceled.

b. These policies and procedures support the U.S. national effort to convert to the metric system.

c. This section implements Title 15, United States Code, Sections 205a-205k, "Metric Conversion" (reference (b)).

2. POLICIES

The metric system of measurement, as interpreted for use in the United States by "The Metric System of Measurement" issued by the Secretary of Commerce in the February 26, 1982 Federal Register (reference (c)) shall be used by all DoD activities, including all those elements of defense systems requiring new design, as required by Title 15, United States Code, Sections 205a-205k, "Metric Conversion" (reference (b)).

3. PROCEDURES

a. Waivers and Exceptions

(1) Milestone decision authorities may grant waivers on a case-by-case basis if the use of the metric system is not in the best interest of the Department of Defense.

(2) The measurement units in which a system was originally designed will be retained for the life of the system, unless the procuring activity determines it is more advantageous to convert to the metric system.

b. Compatibility. Physical and operational interfaces between metric and inch-pound items will be designed to ensure compatibility.

c. Hybrid Designs. During the metric transition phase, use of hybrid metric and inch pound designs may be necessary and are acceptable.

(1) Items of commercial design will be specified in metric units when economically available and technically adequate, or when otherwise determined by the procuring activity to be in the best interest of the Department of Defense.

(2) Bulk materials will be specified and accepted in metric units, unless being acquired for use in materiel designed in inch-pound units.

d. New Equipment Purchases. When purchasing new shop, laboratory, and general purpose test equipment, the equipment must be capable of direct measurement in metric or both metric and inch-pound units.

e. Additional Guidance. Additional guidance is contained in NATO STANAG-4183, MIL-STD-961, and MIL-STD-962 (references (d), (e), and (f)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix below identifies offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/MM
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
Other DoD Components	DLA	DLA-SE

PART 6

SECTION N

COMPUTER AIDED ACQUISITION AND LOGISTICS SUPPORT

References: (a) Deputy Secretary of Defense Memorandum, "Computer-Aided Acquisition and Logistics Support," August 5, 1988 (canceled)
(b) MIL-STD-1840, "Automated Interchange of Technical Information"
(c) MIL-STD-1556, "Government-Industry Data Exchange Program"
(d) MIL-HDBK-59, "Computer-Aided Acquisition and Logistics Support Program Implementation Guide"

1. PURPOSE

a. This section supercedes Deputy Secretary of Defense Memorandum, "Computer-Aided Acquisition and Logistics Support" (reference (a)).

b. These policies and procedures establish the basis for making greater use of computer aided information technologies that enable process improvements in design, manufacturing, and life-cycle support of defense systems and equipment.

2. POLICIES

In general, preference shall be given to contractor information services and online access instead of data deliverables. Where data delivery is required, preference shall be given to delivery in machine-readable digital form rather than paper wherever feasible.

3. PROCEDURES

a. Proposals. Acquisition plans and solicitations will require specific proposals, including costs and schedule, for:

(1) Integration of contractor technical information systems and processes for engineering, manufacturing, and logistic support;

(2) Authorized Government access to contractor data bases; and

(3) Delivery of technical information in digital form using computer aided acquisition and logistics support standards contained in MIL-STD-1840 (reference (b)).

b. Shared Models and Data Bases

(1) Contractors should be required to develop integrated, shared data base environments consisting of analysis tools, consistent

integrated data bases, and engineering design, manufacturing, and logistics processes designed to utilize digital information.

(2) Contractors should use computer aided design, engineering, and manufacturing (CAD/CAE/CAM) methods to support design integration through shared product and process models and data bases.

c. Management Structure. A comprehensive technical information management architecture to include supporting data dictionary and directory services should be developed to:

(1) Manage configuration of the entire technical information and planning data bases;

(2) Integrate planning information into its respective technical information source data base;

(3) Provide traceability and auditability of technical information relating to the weapon system, its components, and any changes affecting them; and

(4) Trace configuration changes from design to logistics products and vice versa.

(5) Exploit opportunities to obtain cost savings by retrofitting digital information technology into deployed weapon systems.

d. Information Services. Contractor integrated technical information services should be developed to include procedures, processes, specifications, and software applications for the generation, protection, integration, storage, exchange, and online access of digital data by the Government and associated contractors.

e. Government-Industry Data Exchange Program (GIDEP). The Government-Industry Data Exchange Program is the DoD program that provides, without charge, an unclasssified data base of parts problems, reliability, diminishing manufacturing resources, and metrology information.

(1) The Government-Industry Data Exchange Program is described in MIL-STD-1556 (reference (c)).

(2) The Government-Industry Data Exchange Program should be used by both program offcies and contractors.

f. Access and Delivery Alternatives. MIL-HDBK-59 (reference (d)) provides technical guidance for selecting among information access and delivery alternatives. Final decisions on implementation of contractor proposals will be based on the productivity and quality improvements expected in contractor team operations (prime, subcontractors, suppliers) and Government operations.

(1) Technical data that are required as deliverables, including technical manuals, engineering data, and logistics support analysis data, should be required to be prepared and delivered in digital form unless clear and convincing analysis shows this not to be cost-effective when assessed across the life cycle.

(2) The computer aided acquisition and logistics support standards in MIL-STD-1840 (reference (b)) will be applied for digital data deliverables.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
* OSD	ASD(P&L)	Dir, CALS *
Dept of Army	ASA(IL&E)	SAILE-LOG
Dept of Navy	ASN(RDA)	CNO (N4) HQMC/I&L *
Dept of Air Force	SAF/AQK	AF/LE-I

PART 6

SECTION O

DESIGN FOR MANUFACTURING AND PRODUCTION

References:
(a) DoD Directive 4245.6, "Defense Production Management," January 19, 1984 (canceled)
(b) DoD Directive 4245.7, "Transition from Development to Production," January 19, 1984 (canceled)
(c) DoD Directive 4245.8, "DoD Value Engineering Program," November 19, 1986 (canceled)
(d) DoD Instruction 5000.38, "Production Readiness Reviews," January 24, 1979 (canceled)
(e) DoD 4245.8-H, "Value Engineering," March 1986, authorized by this Instruction
(f) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988
(g) DoD 4245.7-M, "Transition from Development to Production," September 1985, with Change No 1, February 13, 1989; authorized by this Instruction
(h) MIL-STD-1528, "Manufacturing Management Program"
(i) MIL-HDBK-727, "Design Guidance for Producibility"
(j) MIL-STD-1521, "Technical Reviews and Audits for Systems, Equipments, and Computer Programs"
(k) Federal Acquisition Regulation (FAR), Part 48, "Value Engineering"
(l) Federal Acquisition Regulation (FAR), 52.248-1, "Value Engineering (Solicitation Provisions and Contract Clauses)"
(m) MIL-STD-1771, "Value Engineering Program Requirements"
(n) OMB Circular A-131, "Value Engineering," January 26, 1988
(o) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991

1. PURPOSE

a. This section replaces DoD Directive 4245.6, "Defense Production Management"; DoD Directive 4245.7, "Transition from Development to Production"; DoD Instruction 5000.38, "Production Readiness Reviews"; and DoD Directive 4245.8, "DoD Value Engineering Program" (references (a), (b), (c), and (d)), which have been canceled.

b. These policies and procedures establish the basis for:

(1) Effectively integrating the production engineering, producibility, and value engineering efforts so that the system and its associated manufacturing processes can be designed and developed concurrently.

(2) Manufacturing the system within design to cost, quality, and production rate (including any surge rates) requirements.

(3) Orderly transitioning from development to cost-effective full rate production or construction.

c. This section authorizes the Assistant Secretary of Defense for Production and Logistics to publish DoD 4245.8-H, "Value Engineering" (reference (e)) in accordance with DoD 5025.1-M , "Department of Defense Directives System Procedures" (reference (f)).

2. POLICIES

a. The producibility of the product design shall be a priority of the engineering and manufacturing development effort. Production engineering and producibility efforts shall start at Milestone I, Concept Demonstration Approval, and continue through production.

b. Production engineering and producibility efforts shall focus on simplifying the design and stabilizing the manufacturing process to reduce manufacturing cost, lead time, and cycle time and to minimize strategic or critical materials use. The selection of manufacturing methods and processes is considered a design function.

c. Rigorous assessment of product design and associated manufacturing process risks and continuous application of effective risk reduction measures shall be performed throughout all program phases beginning at Milestone I, Concept Demonstration Approval.

d. Full rate production of a system will not be approved until the product design has been stabilized, the manufacturing processes have been proven, and rate production facilities, equipment, capability, and capacity are in place (or being put in place) to support the approved schedule.

e. Value engineering concepts shall be used to identify requirements that add cost to the system, but add little or no operational value.

f. Contractor past performance in production engineering, producibility and quality history (to the extent that it has a bearing on the concept involved), demonstrated on relevant development efforts, shall be a consideration in solicitations and source selection (see Section 9-B).

3. PROCEDURES

a. Manufacturing Processes. As an integral part of the system development, the manufacturing processes necessary to produce a defense system must be put in place. DoD 4245.7-M, "Transition from Development to Production" (reference (g)) outlines an approach to accomplish this. This approach:

(1) Establishes quantifiable and obtainable manufacturing design requirements based on state of the art capabilities.

(a) As a minimum, these will include requirements for design to cost (see Section 6-K), quality (see Section 6-P), production rate (see Section 6-O), and industrial base considerations (see Section 5-E).

(b) MIL-STD-1528 (reference (h)) establishes recommended procedures for conducting manufacturing engineering and producibility efforts.

(c) MIL-HDBK-727 (reference (i)) provides guidelines on design features conducive to producibility.

(2) Identifies and evaluates the manufacturing risks in the program so that risk abatement for each can be planned and executed.

(a) The effects of new product or material technology on manufacturing are to be addressed as part of the technology development effort (see Section 5-C).

(b) Phase 0, Concept Exploration and Definition, and Phase I, Demonstration and Validation, will address the manufacturing and producibility issues associated with the design concept and manufacturing processes.

(c) Prior to Phase II, Engineering and Manufacturing Development, voids in manufacturing technology, methods, and processes peculiar to the design of any part of the system will be identified. A viable approach will be demonstrated, and manufacturing technology effort will be established. This effort may use program funds or be accepted as a prioritized laboratory project, such as Manufacturing Technology (ManTech) (see Section 5-E).

(d) The templates in DoD 4245.7-M (reference (g)) identify some of the major risk areas common to defense programs.

(3) Develops effective manufacturing processes and product design features which enhance producibility. Efforts should target design simplification, design for assembly and inspectability, design for piece part producibility, and design for system integration and test.

(4) Reviews the design's use of strategic or critical materials and hazardous materials and investigates use of alternative materials (see Sections 5-E and 6-I).

(5) Identifies and optimizes critical product producibility features and associated manufacturing processes, such as design manufacturing tolerances and process control limits.

(6) Develops developmental test strategies and plans which provide for proofing or validating manufacturing processes.

b. Production Engineering and Planning. Production planning will be specifically addressed at milestone decision points.

(1) At Milestone I, Concept Demonstration Approval, manufacturing feasibility and industrial base capability assessments will be presented. Areas of production risk and manufacturing technology or industrial modernization efforts to reduce that risk will be identified. Design to unit procurement cost objectives should be established (see Section 6-K). Trade-offs should be used to minimize strategic or critical materials use.

(2) A producibility program will be established during Phase I, Demonstration and Validation. This program will be an integral part of the systems engineering effort (see Section 6-A).

(3) At Milestone II, Development Approval, the producibility of the emerging product design, risk reduction efforts undertaken, and plans for proofing new or critical manufacturing processes will be specifically assessed. Updated manufacturing feasibility and defense industrial base capability assessments must also be presented.

(4) At Milestone III, Production Approval, the production decision will be supported by a production readiness review.

c. Organization

(1) The production engineering and producibility efforts will be organizationally structured to ensure close working relationships between engineering design, quality, and manufacturing functions.

(2) These efforts will use any available inputs from the industrial base assessment (see Section 5E) and will be a major contributor to the production planning and readiness assessment (see Section 6-P).

(3) Tailored application of MIL-STD-1528 (reference (h)) should be used for assessing the manufacturing objectives and requirements to be met by the contractor's manufacturing management system.

d. Risk Assessment. A risk assessment will be made on the capability of the contractor and critical subcontractors to meet cost, performance, and schedule commitments. This assessment will include consideration of the past performance and quality history of the contractor and critical subcontractors.

(1) This assessment will be documented in the source selection process.

(2) A disciplined process for identifying and assessing the risk associated with the transition from development to production must be established. This will be done by tailored application of the guidelines in DoD 4245.7-M, "Transition from Development to Production" (reference (g)), adapted to specific program characteristics.

e. Contractor Performance

(1) During the Preliminary Design Review (PDR), Critical Design Review (CDR), and the Production Readiness Review (PRR), the contractor's production engineering performance will be validated through objective evidence, such as process proofing tests and producibility analyses. This will be accomplished through tailored application of MIL-STD-1521 (reference (j)), adapted to specific program characteristics.

(2) The Government will ensure that the planned manufacturing process is capable of achieving the producibility requirements. All new manufacturing processes will be demonstrated by process proofing prior to low-rate initial production.

(3) A production readiness review will be accomplished during Phase II, Engineering and Manufacturing Development, as a technical review of the completeness and producibility of the product design and the planning and preparation necessary for a viable production effort. Attachment 1 provides a representative listing of potential areas to be evaluated.

(4) Data and documentation demands on the contractor will be kept to a minimum required to support the production readiness review, and will consist mainly of information prepared by the contractor for internal management purposes and documentation otherwise required to be furnished to the Government. Proprietary and competition-sensitive contractor data will be properly safeguarded.

(5) The DoD Product Engineering Services Office (DPESO) will prepare independent production readiness assessments of acquisition category I D programs, and acquisition category I C programs on an exception basis, using information gathered during the production readiness review. These assessments will identify potential production problem areas. Each risk will be expressed in terms of its relative magnitude and potential consequences.

f. Value Engineering. Value engineering (VE) is a functional analysis methodology that identifies and selects the best value alternative for designs, materials, processes, systems, and program documentation. Value engineering applies to hardware and software; development, production, and manufacturing; specifications, standards, contract requirements, and other acquisition program documentation; facilities design and construction; and management or organizational systems and processes to improve the resulting product.

(1) A fully integrated value engineering program effort consists of two distinct parts that exploit all possible areas of expertise and knowledge available. These parts are:

(a) A contractor value engineering effort in accordance with the Federal Acquisition Regulation, Part 48, "Value Engineering" (reference (k)) and Federal Acquisition Regulation, 52.248-1, "Value Engineering (Solicitation Provisions and Contract Clauses)" (reference (l)). This effort is implemented through either the Federal Acquisition Regulation value engineering incentive clause (mandatory on all contracts over $100,000) or the Federal Acquisition Regulation value engineering program requirements clause using MIL-STD-1771 (reference (m)).

(b) A Government value engineering effort using in-house assets that must be identified as a program value engineering study prior to approval of any value engineering proposals and/or demonstrate the application of the elements of the value engineering analysis methodology.

(2) A statistical value engineering data system is necessary to allow the systemic improvement of the value engineering program in accordance with OMB Circular A-131, "Value Engineering" (reference (n)). The value engineering report requirement is contained in Section 11-D of this Instruction, and the value engineering format is specified in Part 13 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (o)).

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/IEQ
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
Other DoD Components	DLA	DLA-SE

Attachment - 1

1. Production Readiness Review Considerations

PRODUCTION READINESS REVIEW CONSIDERATIONS

This attachment contains a representative listing of typical issues to be considered. Their applicability to any specific program is dependent on the character of the program. Where appropriate, quantitative measures should be developed to substantiate that desired conditions exist. Results of other reviews should be used to the maximum extent possible.

1. Product Design

   a. The acceptability of the design from a producibility standpoint has been assessed.

   b. Design change activity has stabilized.

      (1) Validation of the design has been accomplished, including qualification of subsystems and components, as appropriate. Performance and reliability and maintainability characteristics have been satisfactorily demonstrated.

      (2) Incomplete portions of the design are identified, their potential risks to production assessed, and appropriate measures underway to mitigate the risks.

      (3) A system configuration audit has been accomplished and discrepancies resolved.

      (4) The design is in consonance with the operational, maintenance, and support concepts, including meeting inter-Service and foreign interoperability requirements, if appropriate.

   c. The technical data package is adequate to support the intended use of the data (i.e., production, domestic and foreign coproduction, logistics support, configuration management, provisioning, maintenance, installation, or mobilization).

   d. Standardization has been accomplished in the design to optimize economies derived from the use of standard components, parts, materials, and processes.

   e. Critical and scarce materials have been identified and are used only where dictated by required performance and such use is compatible with established DoD priorities and allocations. Critical materials that have insufficient domestic manufacturing capacity have been identified, and Defense Production Act, Title III projects have been proposed to establish the required capacity.

f. Potential foreign dependencies and diminishing manufacturing sources have been identified and avoided where possible.

g. Alternates for critical materials, processes, and foreign dependencies are identified in the design.

h. Production cost projections have been made.

i. Metric design has been used where it enhances cost-effectiveness, standardization, supportability, and interoperability.

2. Industrial Resources

a. Plant facilities, production equipment, test equipment, and tooling

(1) Plant capacity is adequate for the required production rate, taking into consideration other production efforts.

(2) If applicable, consideration has been given to meeting surge (peacetime) and mobilization (declared national emergency) production requirements while maintaining quality. Multi-sourcing of critical items and planned alternatives to peacetime foreign sources have been identified as appropriate.

(3) Contractor and Government-owned facilities, plant modernization efforts, production equipment, special tooling, and special test equipment have been identified in terms of specifications and quantity. Acquisition and installation plans meet established program requirements.

(4) Modern manufacturing management systems are in place and have been validated. These may include advantageous employment of computer aided design and manufacturing and other automated techniques. Associated computer software has been developed.

b. Personnel

(1) Skilled production people are projected to be available in sufficient numbers for the planned terms of production.

(2) Necessary training and certification are programmed.

3. Production Engineering and Planning

a. A comprehensive manufacturing plan has been developed that will result in efficient, cost-effective manufacture.

b. Production schedules are compatible with end item delivery requirements.

c. The nature and sequence of manufacturing methods and processes, together with associated facilities, equipment, tooling, and plant

layout, represent economical applications of proven technology consistent with:

(1) Product specifications and quality requirements,

(2) Quantity and rate requirements, and

(3) Occupational Safety and Health Administration, environmental impact, and energy conservation requirements.

d. Plans provide for continuous process and cost reduction improvements.

e. Alternative production approaches are available to meet contingency needs.

f. Drawings, standards, and shop instructions are sufficiently explicit for correct interpretation by manufacturing people.

g. Configuration management is adequate to ensure configuration identification, control, and status accounting during production.

h. Provisions have been made for determining producibility and cost impacts of engineering changes introduced during production.

i. A management information system exists that provides the status of production and sufficient visibility of problems to enable responsive managerial action.

j. Work measurement systems have been verified and the data is used for effective manufacturing management.

4. Materials and Purchased Parts

a. A projected or approved bill of materials is available.

b. Make-or-buy determinations have been made for all significant or critical elements of the system and are adequately supported.

c. Long lead time materials have been identified, and action initiated for advance procurement where appropriate.

d. Sole source items are identified, and continuity of supply has been considered.

e. Government furnished material or equipment is identified and fully integrated with program and manufacturing plans, including associated lead time and schedule requirements.

f. The contractor's material control and inventory systems are adequate.

g. The contractor's material procurement plan provides:

(1) Effective procedures to determine material needs, lead times, and delivery schedules,

PART 6

SECTION P

QUALITY

References: (a) DoD Directive 4155.1, "DoD Quality Program," August 10, 1978 (canceled)
(b) DoD 4245.7-M, "Transition from Development to Production," September 1985, authorized by this Instruction
(c) DoD-STD-2168, "Defense System Software Quality Program"
(d) Memorandum of Understanding Between the Department of Defense and the Department of Commerce (National Bureau of Standards), September 20, 1978
(e) MIL-Q-9858, "Quality Program Requirements"

1. PURPOSE

a. This section replaces DoD Directive 4155.1, "DoD Quality Program" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for quality management activities that result in the delivery of operational systems that satisfy the user's requirements under all anticipated deployment and operating conditions.

2. POLICIES

a. Quality shall be emphasized. It shall be integrated throughout all elements and activities of a program.

> **NOTE:** Quality as discussed in this section is far more than the determination that the as-built system conforms to its manufacturing specifications. As such, its breadth is greater than the historical application of the referenced documents.

b. Quality efforts must focus on three interconnected sub-efforts:

(1) Quality of Design. The effectiveness of the design process in capturing the operational requirements and translating them into detailed design requirements that can be manufactured (or coded) in a consistent manner.

(2) Quality of Conformance. The effectiveness of the design and manufacturing functions in executing the product manufacturing requirements and process specifications while meeting

tolerances, process control limits, and target yields for a given product group.

(3) Fitness for Use. The effectiveness of the design, manufacturing, and support processes in delivering a system that meets the operational requirements under all anticipated operational conditions.

c. Contractor past history of providing quality products and services shall be considered during the evaluation of proposals from potential contractual sources (see Section 10-B). Objective contractor quality data shall be collected and maintained for this purpose.

3. PROCEDURES

a. Systems Engineering. The quality effort will be integrated into the systems engineering effort.

(1) Design control processes will be established to ensure that the systems engineering process properly captures all of the operational requirements, and efficiently translates them into detailed design requirements.

(2) Technical analysis techniques such as Quality Function Deployment or Functional Analysis/Requirements Allocation Sheets are proven tools that can be used to optimize a design to meet user's needs.

b. Intended Environments. A comprehensive understanding of the intended environments the system will see is key to an effective system.

(1) Intended environments are described in the Operational Requirements Document (see Section 4-B).

(2) Mission and environmental profiles, as discussed in DoD 4245.7-M (reference (b)), should be developed for all programs as part of Phase I, Demonstration and Validation (see Section 6-C).

(3) Test schemes will be developed that validate design effectiveness.

c. Design Options. Critical design options should be identified by the end of Phase I, Demonstration and Validation. Quality engineering tools will be applied to these critical options to maximize the system design's capability of meeting design objectives.

d. Critical Functions. During development of the system, subsystem critical functions will be identified. Special quality emphasis will be applied to these items, especially to those functions crucial to personnel safety or flight safety, environmental protection, and prevention of system loss or damage.

e. Manufacturing Processes. During development of the system, manufacturing critical processes will be identified.

(1) The capability of the manufacturing process compared to the product design requirements will be evaluated and, if practical, measured.

(2) The emphasis will be on developing manufacturing processes whose variability around target product critical attributes is minimized, rather than on simply being within the product tolerance.

f. Preventing Deficiencies. The quality emphasis during Phase II, Engineering and Manufacturing Development, and Phase III, Production and Deployment, will be on preventing product deficiencies, rather than detecting and correcting defects. For products planned for rate production, an effective manufacturing in-process control system will be established and used.

g. Deficiency Reporting. All DoD Components will establish a product deficiency reporting and correction system to provide feedback to the system developer to track and record the status of the operational quality condition of the system.

h. Software. For software developments, a quality assurance effort as defined in DoD-STD-2168 (reference (c)) will be established.

i. Metrology and Calibration. As part of the quality effort, the requirements for metrology and calibration will be identified, and coordinated with Service metrology and calibrations channels.

(1) Requirements for services from the National Institute of Science and Technology (formerly the National Bureau of Standards) will be identified as soon as possible.

(2) The Joint Technology Coordination Group for Metrology and Calibration, under direction of the Joint Logistics Commanders, will provide inter-Service coordination and coordination between the Department of Defense and the National Institute of Science and Technology as described in the Memorandum of Understanding Between the Department of Defense and the Department of Commerce (National Institute of Science and Technology)(formerly the National Bureau of Standards) (reference (d)).

j. Additional Guidance. MIL-Q-9858 (reference (e)) provides further information on the elements of an effective quality program.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/IEQ
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

PART 6

SECTION Q

DoD STANDARDIZATION PROGRAM

References:
(a) DoD Directive 4120.3, "Defense Standardization and Specification Program," February 10, 1979 (canceled)
(b) DoD Directive 4120.20, "Development and Use of Non-Government Standards," March 28, 1988 (canceled)
(c) Title 10, United States Code, Chapter 145, Sections 2451-2457, "Defense Cataloging and Standardization"
(d) DoD 4120.3-M, "Defense Standardization and Specifications Program Policies, Procedures, and Instructions," August 1978, authorized by this Instruction
(e) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988
(f) MIL-STD-970, "Order of Preference for the Selection of Standards and Specifications"
(g) MIL-STD-961, "Military Specifications and Associated Documents, Preparation of"
(h) MIL-STD-962, "Military Standards, Handbooks, and Bulletins, Preparation of"
(i) MIL-STD-490, "Specification Practices"

1. PURPOSE

a. This section replaces DoD Directive 4120.3, "Defense Standardization and Specification Program" and DoD Directive 4120.20, "Development and Use of Non-Government Standards" (references (a) and (b)), which have been canceled.

b. These policies and procedures establish the basis for the efficient use of resources and the optimal reuse of the products of engineering efforts.

c. This section implements Title 10, United States Code, Chapter 145, "Defense Cataloging and Standardization" (reference (c)).

d. This section authorizes the Assistant Secretary of Defense (Production and Logistics) to publish DoD 4120.3-M, "Defense Standardization and Specifications Program Policies, Procedures, and Instructions" (reference (d)) in accordance with DoD 5025.1-M, "Department of Defense Directives System Procedures" (reference (e)).

2. POLICIES

a. Standardization documents shall be developed to provide a means for clear communication and to document accepted practices and proven materiel. These documents shall be used to seek an optimal degree of uniformity of materiel and processes.

> **NOTE:** The military standards and handbooks listed in this Instruction define a set of recommended processes and criteria for achieving program requirements. Each program manager is responsible for understanding the intent of these documents and tailoring their application as appropriate to meet program needs.

b. While the use of standard products and practices has important benefit, standards shall not be used as a substitute for solid engineering effort seeking the best design solution for the particular system.

(1) Standards shall not be applied in an acquisition program before the system concept has been fully explored.

(2) Standards should be considered, but shall not overly constrain the early analysis of system design options.

c. Materiel requirements shall be stated to the extent practicable in terms of required function, performance, or physical characteristics. Standards shall be applied where they satisfy program objectives and offer cost-effective design solutions. Their use shall be consistent with the principles of streamlining (see Section 10-C).

3. PROCEDURES

a. Standardization Documents

(1) Standardization decisions will be documented in approved or adopted specifications, standards, handbooks, commercial item descriptions, standardized military drawings, and associated documents, referred to collectively as standardization documents.

(a) These standardization documents are preferred for use over other product or purchase descriptions. When appropriate, the order of preference in MIL-STD-970 (reference (f)) will be used.

(b) Non-Government standards and commercial item descriptions will be used in preference to federal and military specifications and standards whenever practicable.

(2) Standardization documents will state only the essential needs of the Government and describe the supplies and services in a manner that encourages maximum competition.

(a) They will document materiel requirements and engineering practices that are or will be subject to recurring application consistent with MIL-STD-961 (reference (g)) and MIL-STD-962 (reference (h)).

(b) They will conform to international standardization treaty agreements. Where applicable, they will support NATO rationalization, standardization, and interoperability. Whenever feasible, they should be consistent with nontreaty international standards.

(c) They will incorporate metric units in accordance with DoD metrication policy (see Section 6-M).

(d) DoD Components will establish effective mechanisms to integrate the recommendations of users into document development.

b. Standardization Assessments. The degree and effectiveness of standardization within individual programs will be assessed throughout the acquisition process, to include inter- and intrasystem standardization.

(1) When new materiel or practices are developed, they should satisfy multi-system and multi-Service requirements.

(2) Specifications and product or purchase descriptions for items being designed for use in only one system may be prepared in program peculiar format consistent with MIL-STD-490 (reference (i)) even if the items will be purchased in several different fiscal years.

(3) When items which are developed for or have the potential for multiple applications, the initial documentation prepared during Phase II, Engineering and Manufacturing Development, will be in standardization document format.

(4) The use of standard material should be an evaluation factor for the award of Phase II, Engineering and Manufacturing Development, contracts. Offerors should be given incentive to incorporate in the system design standard components available in the supply system or commercially available, preferably from more than one source.

c. Participation in Standards Development Activities. DoD Components will participate in standards development activities of non-Government standards bodies, both domestic and international, coordinating on such activity with other Federal Agencies.

4. RESPONSIBILITIES AND POINTS OF CONTACT

a. The Defense Standardization Program will be implemented by the DoD Components in accordance with DoD 4120.3-M, "Defense Standardization and Specifications Program Policies, Procedures, and Instructions" (reference (d)).

b. The Secretary of the Navy will maintain and operate a DoD single, automated stock point, compliant with Computer Aided Acquisition and Logistics Support (see Section 6-N), for indexing, stocking, and distributing documents prepared or generated under the Defense Standardization Program.

c. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/MM
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
Other DoD Components	DLA	DLA-SE

PART 6

SECTION R

DoD PARTS CONTROL PROGRAM

References: (a) DoD Instruction 4120.19, "DoD Parts Control Program," July 6, 1989 (canceled)
(b) MIL-STD-965, "Parts Control Program"

1. PURPOSE

a. This section replaces DoD Instruction 4120.19, "DoD Parts Control Program" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for reducing the cost associated with the design, procurement, documentation, cataloging, maintenance, and reprocurement of nonstandard parts.

2. 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.

3. PROCEDURES

a. Military Parts Control Advisory Groups

(1) The Director, Defense Logistics Agency, will 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.

(2) Military Parts Control Advisory Groups will:

(a) Have a broad engineering data base for selected parts control commodities to assist design engineers in making parts control recommendations;

(b) 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;

(c) Support DoD Components' needs for program parts selection lists and development of parts documentation, and provide automation support for program parts selection lists; and

(d) Provide advisory engineering support services to Program Managers and milestone decision authorities.

(3) Program Managers will:

(a) Provide Military Parts Control Advisory Groups with form, fit, and function limitations necessary for parts selection evaluations;

(b) Consider the recommendations of Military Parts Control Advisory Groups with regard to parts selection; and

(c) Solicit and use, as appropriate, Military Parts Control Advisory Group evaluations of the suitability of parts control proposals submitted by contractors.

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

(1) Using parts described by existing DoD approved documentation as much as possible;

(2) Requiring contractors to use the Government furnished baseline and specifying this requirement in requests for proposal and subsequent contracts;

(3) 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;

(4) 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;

(5) Avoiding the use of parts previously identified as diminishing manufacturing source items when practical and feasible; and

(6) Ensuring hardness critical items are clearly identified.

c. 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.

d. 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 (reference (b)). However, procurement of commercial equipment may benefit from selective application of MIL-STD-965.

e. 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.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/MM
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

PART 7

LOGISTICS AND OTHER INFRASTRUCTURE

Acquisition strategies and program plans must focus on the total system. Acquisition programs shall be managed with the goal to optimize total system performance and reduce the cost of ownership.

The policies and procedures presented in this part establish a common frame of reference for the total system which includes, in addition to the prime mission equipment, the soldier, sailor, airman or marine who will operate or maintain the system; the logistics support structure for the system; and the other elements of the operational support infrastructure within which the system must operate. These policies and procedures must be judiciously applied. They are not a substitute for good judgment and common sense, nor are they intended to stifle innovation.

SECTION	SUBJECT
A	Integrated Logistics Support
B	Human Systems Integration
C	Infrastructure Support

PART 7

SECTION A

INTEGRATED LOGISTICS SUPPORT

References:
(a) DoD Directive 5000.39, "Acquisition and Management of Integrated Logistics Support for Systems and Equipment," November 17, 1983 (canceled)
(b) DoD Instruction 4000.26, "Post-Production Support," August 19, 1986 (canceled)
(c) DoD Instruction 4245.12, "Spares Acquisition Integrated with Production (SAIP)," June 8, 1987 (canceled)
(d) DoD Directive 4140.40, "Provisioning of End Items of Materiel," June 28, 1983 (canceled)
(e) DoD Directive 4140.1, "Inventory Management Policies," October 12, 1956
(f) DoD Directive 4151.1, "Use of Contractor and DoD Resources for Maintenance of Materiel," July 15, 1982
(g) AMCR 750-10, OPNAVINST 4790.14, MCOP 4790.10A, AFLCR 800-30, AFSCR 800-30, "Logistics Depot Maintenance Inter-Service," June 1, 1988
(h) MIL-STD-1388, "Logistics Support Analysis"

1. PURPOSE

a. This section replaces DoD Directive 5000.39, "Acquisition and Management of Integrated Logistics Support for Systems and Equipment"; DoD Instruction 4000.26, "Post-Production Support"; and DoD Instruction 4245.12, "Spares Acquisition Integrated with Production (SAIP)" (references (a), (b), and (c)), which have been canceled. DoD Directive 4140.40, "Provisioning of End Items of Materiel" (reference (d)) is also canceled, to be combined with DoD Directive 4140.1, "Inventory Management Policies" (reference (e)).

b. These policies and procedures establish the basis for ensuring:

(1) Support considerations are effectively integrated into the system design; and

(2) Required support structure elements are acquired concurrently with the system so that the system will be both supportable and supported when fielded.

2. POLICIES

a. An effective integrated logistics support effort shall be established within each program office. Integrated logistics support shall be managed as a disciplined, unified, iterative approach to the management and technical activities necessary to:

(1) Developing support requirements that are related consistently to readiness objectives, to design, and to each other,

(2) Effectively integrating support considerations into the system and equipment design,

(3) Identifying the most cost-effective approach to supporting the system when it is fielded, and

(4) Ensuring that the required support structure elements are developed and acquired.

b. Post-production support planning, a subset of the overall integrated logistics support effort, shall be accomplished to ensure continued attainment of readiness objectives with economical logistics support after cessation of production.

c. Integrated logistics support efforts shall encompass the ten elements identified in attachment 1.

3. PROCEDURES

a. Readiness Objectives. Preliminary peacetime and wartime readiness objectives and thresholds will be established by Milestone I, Concept Demonstration Approval, and final objectives and thresholds will be established by Milestone II, Development Approval. The acquisition strategy will identify resource requirements and include explicit planning for achieving these objectives. The acquisition strategy will emphasize:

(1) Early identification of support and supportability requirements including any planned use of warranties,

(2) Evaluation of alternative support concepts and techniques to minimize cost and support risks,

(3) Identification of test articles needed to conduct reliability, maintainability, and logistics supportability test and evaluation, and

(4) Contractor incentives for timely attainment of support related design objectives.

b. Integrated Logistics Support Plan. The management approach, decisions, and plans associated with logistics planning efforts will be documented in an Integrated Logistics Support Plan (ILSP). This plan will:

(1) Be the basis for coordinating logistics planning efforts and ensuring that each of the integrated logistics support elements is addressed and integrated with the other elements throughout the program; and

(2) Include planning for deployment and post-production support.

c. Computer Resources Support. The Integrated Logistics Support Plan will be prepared in close coordination with the Computer Resources Life-Cycle Management Plan (see Section 6-D) and will directly reference that plan. For computer resources or software that will be transferred to logistics organizations for maintenance or modification, areas to be addressed for software support will include special manpower skills, facilities, software tools, and special purpose computer requirements.

d. Planning Factors. Integrated logistics support planning must be focused at the level at which support resources must be integrated to affect maintenance (i.e., the level at which specific repair or maintenance will occur). This is usually at the subsystem or below. The Integrated Logistics Support Plan will reflect this focus.

e. Logistics Support Analysis. A tailored logistics support analysis (LSA), in accordance with MIL-STD-1388 (reference (h)), will be used iteratively throughout the acquisition program as an integral part of the systems engineering process.

(1) The logistics support analysis process will be used to:

(a) Develop and define supportability related design factors.

(b) Ensure the development of a fully integrated system support structure.

(2) This process will incorporate, but not duplicate, analysis and data required by other functional disciplines.

(3) The logistics support analysis record (LSAR) will be established for recording, processing, and reporting supportability and support data and will be used as the definitive source for this data.

f. Manpower, Personnel, Training, and Safety. Manpower, personnel, training, and safety are essential design, human systems integration, and support considerations. They will be given explicit attention early in the acquisition process (see Section 7-B).

g. Accelerated Acquisition Strategies. Accelerated acquisition strategies (see Section 5-A) will place additional emphasis on supportability design requirements and provide adequate front-end funding to achieve established readiness objectives within the shortened development cycle.

h. Interim Contractor Support. Program Managers should seek to structure their programs such that interim contractor support will not be required.

(1) When determined to be necessary, interim contractor support will be planned to avoid compressing support delivery schedules. Cost, schedule, deployment needs, and design stability will be

assessed, and a schedule established for support structure element delivery that strikes the best balance.

(2) Transition to organic support will be planned with the schedule based on design stability, demonstration of capability to support the system, and availability of support resources for the mature system.

i. Depot Maintenance Support. Depot source of repair assignment to other than interim contract support will be made as defined in DoD Directive 4151.1, "Use of Contractor and DoD Resources for Maintenance of Materiel" (reference (f)).

(1) The acquiring DoD Component will initiate the depot source of repair assignment decision process within 90 days of engineering and manufacturing development contract award.

(2) The acquiring DoD Component logistics head will conduct a program review for programs that fail to meet the 90 day suspense.

(3) This review will focus on removing impediments to a depot source of repair assignment decision and will establish a time phased action plan for removing those impediments.

(4) The Services will use the Logistics Depot Maintenance Inter-Service regulation (reference (g)) for additional guidance.

j. Spares Acquisition Integrated with Production. When determined to be cost-effective, procurement of selected spares may be combined with procurement of identical items being procured for deployment.

(1) Spares acquisition integrated with production may be used to procure spares from either the prime contractor or a subcontractor who is the design control activity.

(2) Spares acquisition integrated with production requirements will be specified in the Integrated Logistics Support Plan.

k. Post-Production Support. Post-production support planning will be based upon the support requirements and concepts established by the integrated logistics support process and contained in the Integrated Logistics Support Plan. The following guidelines apply:

(1) Post-production support planning should be a joint effort involving Government and contractors. The contract for Phase II, Engineering and Manufacturing Development, will require the contractor to include post-production support considerations in the early trade-off studies prescribed by MIL-STD-1388 (reference (h)).

(2) The contractor's plan for post-production support should be presented at integrated logistics support reviews and updated

throughout the remaining system life. The management concept will be included in the Integrated Logistics Support Plan.

(3) An updated Integrated Logistics Support Plan will be completed before the production phase-out contract.

l. Logistics Resources. Logistics resource (funding, manpower, facilities, etc.) estimates and decisions will be based on the results of a well defined program of analyses/demonstrations, realistic estimates of initial and mature system reliability and maintainability values, and field experience on similar systems (or subsystems). The uncertainty of early planning data will be addressed in developing logistics resource estimates. Resource estimates will be updated as test data and operational experience becomes available.

m. Milestone Decision Reviews. Integrated logistics support progress of the preceding phase and the plans for the following phase will be addressed at each milestone decision point. A representative list of considerations to be addressed is at attachment 2.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
* OSD	ASD(P&L)	DASD(PR)/WSIG *
Dept of Army	DCSLOG	DALO-SMS
* Dept of Navy	ASN(RDA)	CNO (N4) HQMC/I&L *
Dept of Air Force	SAF/AQK	AF/LEY
CJCS (Joint Staff)	DJ4	J4/LPD

Attachments - 2

1. Integrated Logistics Support Elements
2. Integrated Logistics Support Considerations at Milestone Decision Points

INTEGRATED LOGISTICS SUPPORT ELEMENTS

The integrated logistics support effort will encompass the ten elements identified below. Each of these ten elements must be addressed for both hardware and software in both peacetime and wartime conditions.

1. Maintenance Planning. The process conducted to evolve and establish maintenance concepts and requirements for the lifetime of the system.

2. Manpower and Personnel. The identification and acquisition of military and civilian personnel with the skills and grades required to operate and support the system over its lifetime at peacetime and wartime rates.

3. Supply Support. All management actions, procedures, and techniques used to determine requirements to acquire, catalog, receive, store, transfer, issue, and dispose of secondary items. This includes provisioning for both initial support and replenishment supply support. It includes the acquisition of logistics support for support and test equipment.

4. Support Equipment. All equipment (mobile or fixed) required to support the operation and maintenance of the system. This includes associated multi-use end items, ground handling and maintenance equipment, tools, metrology and calibration equipment, test equipment, and automatic test equipment.

5. Technical Data. Scientific or technical information recorded in any form or medium (such as manuals and drawings). Computer programs and related software are not technical data; documentation of computer programs and related software are. Also excluded are financial data or other information related to contract administration.

6. Training and Training Support. The processes, procedures, techniques, training devices, and equipment used to train civilian and active duty and reserve military personnel to operate and support the system. This includes individual and crew training (both initial and continuation); new equipment training; initial, formal, and on-the-job training; and logistics support planning for training equipment and training device acquisitions and installations.

7. Computer Resources Support. The facilities, hardware, system software, software development and support tools, documentation, and people needed to operate and support embedded computer systems.

8. Facilities. The permanent, semipermanent, or temporary real property assets required to support the system, including conducting studies to define facilities or facility improvements, locations, space needs, utilities, environmental requirements, real estate requirements, and equipment.

9. Packaging, Handling, Storage, and Transportation. The resources, processes, procedures, design considerations, and methods to ensure that all system, equipment, and support items are preserved, packaged, handled, and transported properly, including environmental considerations, equipment preservation requirements for short and long term storage, and transportability.

10. Design Interface. The relationship of logistics related design parameters to readiness and support resource requirements. These logistics related design parameters are expressed in operational terms rather than as inherent values and specifically relate to system readiness objectives and support costs of the system.

INTEGRATED LOGISTICS SUPPORT CONSIDERATIONS AT MILESTONE DECISION POINTS

This attachment contains a representative listing of typical issues to be considered and addressed at milestone decision points and during the acquisition phases leading up to these points.

1. Activities Accomplished by Milestone 0, Concept Studies Approval

   a. Known or projected support resource constraints should have been identified in the Mission Need Statement. If appropriate, these constraints should be based on analysis of systems currently in the inventory which satisfy similar needs.

   b. To the extent practicable, proposed study efforts should provide for:

      (1) Analysis of support costs, manpower requirements, and readiness drivers of current fielded systems and identification of readiness and support cost targets for improvement,

      (2) Development of alternative operational and support concepts and evaluation of their potential implications on support resources (e.g., manpower quantities by skills or aptitude level, training concept and resources, facilities),

      (3) Assessment of potential integrated logistics support program requirements, resource impact, and risk reduction measures for alternative acquisition strategy options, including accelerated acquisition strategies, and

      (4) Identification of logistic technologies that are or will be available for insertion into proposed concepts.

2. Activities Accomplished by Milestone I, Concept Demonstration Approval

   a. A baseline operational scenario(s) should be defined for the most promising system concept(s). The scenario must include peacetime and wartime operations and have adequate detail for support planning purposes. Preliminary readiness objectives and thresholds will be established.

   b. An initial Integrated Logistics Support Plan (ILSP) will have been drafted, and milestones should be developed for each integrated logistics support element.

   c. The support resource implications of alternative operational and support concepts should be evaluated. Projected logistics resource

requirements should be identified and included in program funding proposals.

d. Support cost drivers (e.g., software support) for current systems should be identified and potential targets for improvements on the most promising system concept(s) tentatively established.

e. Projected system transportability requirements should be identified and evaluated against the capabilities of existing transportation assets and the impact on strategic deployment.

f. Logistics and system design parameters, including testability, that are critical to the measurement and attainment of system readiness and support cost objectives should be identified. Milestones for developing critical support elements should be established.

g. Major items of support related hardware and software (e.g., automated test stations and simulators) requiring development should be tentatively identified.

h. Logistics considerations should be integrated into requests for proposal (specifically, the contract data requirements list and instructions to offerors), source selection evaluation factors, and contracts.

i. Planning and baselining for total facilities support should begin with emphasis on types of facilities and gross scope, based on experience with similar systems and with major focus on test and evaluation needs. An initial procurement strategy should be developed so facilities funding can be established.

j. For accelerated acquisition strategies, additional resources (including test articles) and management actions should be identified to control logistics risks and execute the integrated logistics support development program.

3. <u>Activities Accomplished by Milestone II, Development Approval</u>

a. A baseline support concept, including a maintenance concept backed up by documented analyses, should be established.

b. A logistics support analysis program has been initiated to serve as the single data base for integrated logistics support documentation.

c. A consistent set of objectives and thresholds for readiness, reliability and maintainability (including integrated diagnostics, if applicable), and other logistics parameters should be established and presented in comparison to a contemporary baseline system. Both technical thresholds (to be verified by development test and evaluation) and operational thresholds (to be verified by operational test and evaluation) should be established for reliability and maintainability, inherent availability, and operational availability.

d. The sensitivity of manpower and other support resource requirements to changes in key parameters (including reliability and maintainability and utilization rate) and the associated impact on system readiness and supportability should be analyzed and logistics risk areas identified.

e. Manpower requirements documented in the Integrated Logistics Support Plan will be consistent with those reported in the Manpower Estimate Report.

f. Trade-offs should be conducted to determine the best balance among hardware and software characteristics, support concepts, and support resource requirements. Changes to established requirements for support resources (such as unique skills or specialties) that are new or in short supply should be identified.

g. NATO standardization and interoperability requirements should be reflected in integrated logistics support planning when appropriate.

h. Integrated logistics support considerations should be clearly defined and given appropriate weight in requests for proposal, source selection evaluation factors, and contract provisions.

i. Test and evaluation plans should be adequate to develop a data base for quantitatively assessing achievement of support related thresholds, adequacy of support plans and resources, and impact on cost and readiness objectives.

j. A preliminary list of candidate items should be developed for contractor support during initial deployment.

k. Facilities design planning should be initiated, completed, and ready for contract award in the year that facilities will be authorized and funds appropriated.

l. Clearly defined systems engineering procedures (such as the reliability centered maintenance approach) should be implemented to influence the evolving system design, to define automated diagnostics requirements, and to determine logistics support structure elements requirements.

4. <u>Activities Accomplished by Milestone III, Production Approval</u>

a. Analyses, test and evaluation results, and independent reviews should confirm the adequacy of the proposed maintenance plan and programmed support resources to meet objectives for peacetime readiness and wartime employment.

b. Parameters used in determining support resource requirements are traceable to program objectives and thresholds. Spares investment levels should be related explicitly to system readiness objectives and are based on realistic estimates of demand rates and system utilization.

c. Support acquisition funding profiles should be traceable to those presented at Milestone II, and the impact of any changes upon readiness objectives or support capability objectives should be assessed.

d. A preliminary manpower document and supporting analysis should be available, and confirmation that manpower requirements can be met should be presented.

e. Plans should be developed and responsibilities assigned for follow-on readiness assessments beginning with system deployment.

f. Software and related computer support plans (Computer Resources Life Cycle Management Plan) should be developed and reflect procedures, requirements, milestones, and responsibilities for maintaining and maturing software and related support of embedded computer systems after the system is fielded.

g. Plans should be developed for cost-effective post-production support, including a strategy for continued systems and logistics engineering and management reviews to ensure that readiness objectives are met and sustained.

h. The development status and production lead times of integrated logistics support elements should be commensurate with support capability objectives and deployment needs.

i. The Integrated Logistics Support Plan should provide for smooth transition of support responsibility from contractor to organic support (if applicable).

j. The depot source of repair decision will be accomplished or a time phased action plan for reaching that decision will be developed.

k. NATO standardization and interoperability requirements should be reflected in integrated logistics support planning if relevant.

l. Contract requirements should be consistent with integrated logistics support plans and support related objectives and thresholds.

m. Facility construction should be planned to be completed in time to support scheduled deployment.

n. Transportability approval should be given by the appropriate transportability agent, and strategic mobility requirements should be demonstrated where relevant.

o. Independent reviews by DoD Component training and operating commands should affirm the adequacy of training plans, and timely delivery of training equipment should be planned to support scheduled deployment.

p. Explicit plans and adequate resources should exist for:

(1) Validation and delivery of logistics support structure elements to meet deployment needs,

(2) Post-deployment review, evaluation and analysis of support capability, operation and support costs, and manpower in relation to system readiness objective,

(3) Maturation of supportability and correction of deficiencies by changes to production design and planning,

(4) Adjustments to support resources based on field reliability and maintainability and readiness experience,

(5) Identification of projected obsolescence dates, planned modifications, and life extension programs, and

(6) Evaluation of alternative post-production concepts and related strategies, including buyout, sustained production, competitive industrial base maintenance, and organic versus contractor support.

PART 7

SECTION B

HUMAN SYSTEMS INTEGRATION

References:
(a) DoD Directive 5000.53, "Manpower, Personnel, Training, and Safety (MPTS) in the Defense System Acquisition Process," December 30, 1988 (canceled)
(b) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(c) Title 10, United States Code, Section 2434, "Independent Cost Estimates; Operational Manpower Requirements"
(d) DoD Directive 1322.18, "Military Training," January 9, 1987
(e) DoD Directive 1430.13, "Training Simulators and Devices," August 22, 1986
(f) MIL-STD-1379, "Military Training Programs"
(g) MIL-STD-1472, "Human Engineering Design Criteria for Military Systems, Equipment, and Facilities"
(h) MIL-STD-1800, "Human Factors Engineering"
(i) MIL-STD-1801, "User-System Interface"
(j) MIL-H-46855, "Human Engineering Requirements for Military Systems, Equipment, and Facilities"

1. PURPOSE

a. This section replaces DoD Directive 5000.53, "Manpower, Personnel, Training, and Safety (MPTS) in the Defense System Acquisition Process" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for effective integration of human factors engineering, manpower, personnel, training, health hazards, and safety considerations into the acquisition of defense systems.

2. POLICIES

a. Human considerations (as depicted on the next page) shall be effectively integrated into the design effort for defense systems to improve total system performance and reduce costs of ownership by focusing attention on the capabilities and limitations of the soldier, sailor, airman, or marine.

b. Objectives for the human element of the system shall be initially established at Milestone I, Concept Demonstration Approval, and be traceable to readiness, force structure, affordability, and wartime operational objectives. They shall be subsequently refined and updated at successive milestone decision points.

HUMAN SYSTEMS INTEGRATION				
HUMAN FACTORS ENGINEERING	MANPOWER	PERSONNEL	TRAINING	SAFETY AND HEALTH HAZARDS
PHYSICAL & MENTAL CAPABILITIES & LIMITATIONS ANTHROPOMETRIC & BIOMEDICAL CRITERIA MAN-MACHINE INTERFACE MISSION, FUNCTION, & HUMAN REQUIREMENTS ANALYSES SKILL, KNOWLEDGE, & APTITUDES PERFORMANCE ASSESSMENTS	WARTIME REQUIREMENTS DEPLOYMENT CONSIDERATIONS FORCE STRUCTURE OPERATING STRENGTH MANNING CONCEPTS	PERSONNEL CLASSIFICATION & SELECTION DEMOGRAPHICS ACCESSION RATES ATTRITION RATES RETENTION RATES PROMOTION FLOW TRAINING FLOW	TRAINING CONCEPTS & STRATEGY TASK ANALYSIS METHODS MEDIA/EQUIPMENT SIMULATION OP TEMPO TRAINING SYSTEM EVALUATION TRAINING DEVELOPMENT PLAN	SYSTEM SAFETY/ HEALTH HAZARDS PLAN HUMAN ERROR ANALYSES SYSTEM RELIABILITY ANALYSES LESSONS LEARNED ENVIRONMENTAL CONSIDERATIONS PROTECTIVE EQUIPMENT

TRADE-OFF ANALYSES

ENHANCE TOTAL SYSTEM PERFORMANCE
WHILE REDUCING LIFE-CYCLE COST

3. PROCEDURES

a. Program Documentation

(1) Any existing human systems constraints will be identified in the Mission Need Statement (MNS) (see Section 4-B).

(2) The Operational Requirements Document (ORD) (see Section 4-B) should include:

(a) Objectives and minimum acceptable requirements relating to operation, maintenance, training, and support of the system,

(b) Projected manpower, personnel, training, and safety limitations, considering existing systems, programs, or force structure being traded off to support the new or modified system, and

(c) Objectives and minimum acceptable requirements for manpower and training which may be incorporated, as appropriate, in the acquisition program baseline.

(3) A human systems integration plan will be developed that:

(a) Identifies critical human system factors that have a significant impact on readiness, life-cycle cost, schedule, or performance. It should include potential cost, schedule and design risks and trade-offs which concern human system integration factors and plans to manage and reduce program risks.

(b) Discusses the manpower impact of the new system as compared to its predecessor or comparable system(s) and states the sources of the manpower resources for the new system.

(c) Discusses requirements for new occupational specialities, requirements for high quality personnel or "hard-to-fill" military and civilian occupations, and how these personnel requirements will be met.

(d) Describes how human factors engineering will be applied to the system design effort, and

(e) Summarizes how safety and health hazard lessons learned are being applied to the new system.

(f) Addresses the training requirements and effectiveness of the new training system. It should include requirements for new or additional training resources and identifies critical points in the training schedule.

(g) Discusses the impact fielding the new system will have on unit readiness and whether the training base is adequate to meet surge and mobilization requirements.

(4) The Risk Assessment Annex of the Integrated Program Summary (see Section 4-E of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)) will:

(a) Summarize potential cost, schedule, and design risks that result from human system integration factors,

(b) Highlight current human system cost drivers. Discuss the manpower impact of the most promising alternative system(s) as compared to its predecessor or comparable systems.

(c) Discuss major cost, schedule, and performance trade-off decisions to be made by the milestone decision authority for current and subsequent milestones.

b. Human Factors Engineering. A human factors engineering program will be established for each system acquisition (see Section 6-H).

c. Manpower

(1) Manpower requirements for the system will be assessed to:

(a) Influence the system design to moderate operational, maintenance, training, and support manpower requirements (see Section 6-H),

(b) Ensure the system can be operated and supported within the manpower limitations established for it (see Section 4-B),

(c) Influence operations and support concepts to reduce inefficient manning and organizational concepts (see Section 7-A), and

(d) Ensure required manpower is programmed for support of the operational system. DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)) contains guidance on preparation of the Manpower Estimate Report required by Title 10, United States Code, Section 2434, "Independent Cost Estimates; Operational Manpower Requirements" (reference (c)).

(2) Manpower projections will consider resource limitations and manpower reduction goals.

d. Personnel. Personnel requirements for the system will be assessed to:

(1) Influence the system design to moderate skill requirements and limit or reduce the use of occupational specialties with high aptitude and skill requirements or with mobilization, rotation, or flow rate problems stemming from accession or retention limitations (see Section 6-H); and

(2) Ensure appropriate planning is being done for acquiring, training, or reallocating personnel and skills to support the operational system.

e. Training

(1) Training requirements for the system will be assessed to:

(a) Influence the system design to moderate training requirements (see Section 6-H), optimize the selection of training alternatives, and ensure that prime system data is available to permit timely development of training system equipment and courseware;

(b) Ensure appropriate training is being planned for support of the operational system; and

(c) Ensure required training resources (trainers, facilities, equipment) are programmed for support of the operational system.

(2) Tasks which require extensive training will be identified and targeted for design trade-off analyses.

(3) Existing training resources will be assessed to determine ability to support training needs. The requirement for new or additional training resources based on peacetime operating tempos as well as surge and mobilization will be highlighted. The inefficient use of operational equipment and munitions for training will be minimized where possible.

(4) Training materials and training devices will be integrated into the total system using the procedures in DoD Directives 1322.18 and 1430.13 (references (d) and (e)). In accordance with these Directives, a total system training plan should be developed by Milestone II which will include a description of the total training system and address the training and/or operational system development schedule.

f. Safety. System safety engineering will identify, evaluate, and eliminate or control safety and health hazards (see Section 6-I).

g. Test and Evaluation. The Test and Evaluation Master Plan (see Part 8) will address human performance issues to provide data to validate that manpower, personnel, training, systems safety, and health hazard design requirements have been met. System testing will be accomplished under operationally realistic conditions using personnel deemed to be typical users.

h. Manpower, Personnel, and Training Data Requirements. For acquisition category I programs, a Manpower Estimate Report required by Title 101 United States Code, Section 2434, "Independent Cost Estimates; Operational Manpower Requirements" (reference (c)) will be submitted at Milestone II, Development Approval, and Milestone III, Production Approval. Procedures for preparation of the Manpower Estimate Report are contained in DoD 5000.2-M (reference (b)).

i. Additional Guidance. Additional guidance is contained in MIL-STD-1379, MIL-STD-1472, MIL-STD-1800, MIL-STD-1801, and MIL-H-46855 (references (f) through (j)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix below identifies offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(FM&P)	DASD(R&R)/TFR
Dept of Army	DCSPER	DAPE-MR
Dept of Navy	ASN(RDA)	ASN(MRA)
Dept of Air Force	ASAF(MRAI&E)	AF/PRQ

PART 7

SECTION C

INFRASTRUCTURE SUPPORT

References:
(a) DoD Directive 5160.51 "Precise Time and Time Interval - Planning, Coordination, and Control," June 14, 1985 (canceled)
(b) DoD Directive 4640.11, "Mandatory Use of Military Telecommunications Standards in the MIL-STD-188 Series," December 21, 1987 (canceled)
(c) DoD Directive 4630.7, "Electrical Power Modernization Program for Critical Command, Control, and Communications Facilities," December 28, 1984 (canceled)
(d) DoD 5025.1-M, "DoD Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, December 23, 1988
(e) MIL-STD-188 Series, "Military Telecommunications Standards"
(f) DoD Directive 4630.5, "Compatibility and Interoperability of Tactical C^3I Systems," October 9, 1985
(g) Federal Information Process Standard 146, "Government Open System Interconnection Profile (GOSIP)"

1. PURPOSE

a. This section replaces DoD Directive 5160.51, "Precise Time and Time Interval - Planning, Coordination, and Control"; DoD Directive 4640.11, "Mandatory Use of Military Telecommunications Standards in the MIL-STD-188 Series"; and DoD Directive 4630.7, "Electrical Power Modernization Program for Critical Command, Control, and Communications Facilities" (references (a), (b),and (c)), which have been canceled.

b. These policies and procedures are designed to ensure that new systems are compatible with the infrastructure that will support them, unique requirements for support are identified, and proper planning is done to put that support in place.

c. This section authorizes the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) to publish DoD 4630.7-M, "Design Features Manual for Major Fixed Command, Control, and Communication Facilities Power Systems" in accordance with DoD 5025.1-M, Department of Defense Directives System Procedures" (reference (d)).

2. POLICIES

a. Each new system, or major change to an existing system, shall be assessed for its interaction with and integration into the command, control, communications, and intelligence structure.

b. Each new system shall identify early the support it requires from support agencies and commands.

3. PROCEDURES

a. MIL-STD-188 Series. The MIL-STD-188 series (reference (e)) addresses telecommunications design parameters and influences the functional integrity of telecommunications systems and their ability to interoperate efficiently with other functionally similar Government and commercial systems. The MIL-STD-188 series, appropriately tailored, will be used for all inter- and intra-DoD Component systems and equipment to ensure interoperability and compatibility.

b. Electrical Power for Critical Fixed Command, Control, and Communication Facilities. Proper emphasis will be given to electric power for critical fixed command, control, and communications facilities.

(1) Overall reliability of command, control, and communications powerplant design should be achieved through cost-effective application of sound engineering principles, selection of quality components, redundancy of critical subsystems, and judicious application of automatic controls. Design features should be used to enhance survivability of such powerplants in threat environments.

(2) DoD 4630.7-M will be used for design of electrical power systems in new critical fixed command, control, and communications facilities and should be used in the evaluation and design of improvements for electrical power systems in existing facilities.

c. Compatibility and Interoperability. To ensure compatibility and interoperability of tactical command, control, communications, and intelligence systems, acquisition programs for such systems will comply with DoD Directive 4630.5, "Compatibility and Interoperability of Tactical C^3I Systems" (reference (f)).

d. Utilization of Frequency Spectrum. The usable portion of the radio frequency spectrum is vital in the support of military operations. As a general policy, concepts for new systems will avoid or minimize the need for additional radio frequency spectrum support. Policies and procedures for electromagnetic compatibility and radio frequency management are contained in Section 6-G.

e. Mapping, Charting, and Geodesy (MC&G) Support

(1) The availability of mapping, charting, and geodesy products can materially affect the fielding and operational effectiveness of many systems. Mapping, charting, and geodesy production requirements will be identified early and included in the acquisition strategy.

(a) Activities to be considered include determining and specifying requirements based upon the system's operational roles and anticipated geographic deployment.

(b) Accuracy and area requirements for mapping, charting, and geodesy support will be established to determine technology and resource baselines.

(c) Specifically, the criteria for precise mensuration to support development of target data bases will be addressed, if applicable.

(d) Both peacetime and wartime support objectives will be established by Milestone I and every effort should be made to use existing standard Defense Mapping Agency products.

(3) Consideration will be given to the design trade-offs when defining system capabilities that require mapping, charting, and geodesy support. Factors to be considered are availability of mapping, charting, and geodesy production resources and sufficient priority to ensure the needed mapping, charting, and geodesy support can be available at the appropriate milestones.

(4) Mapping, charting, and geodesy support requirements must be evaluated and factored into total life-cycle cost estimates for the concept/system (see Section 10-A).

f. Intelligence Support. Intelligence support implementation guidelines and procedures are stated in Section 4-A. Unique intelligence support requirement costs will be evaluated and factored into total life-cycle cost estimates for the concept/system (see Section 10-A).

g. Precise Time and Time Interval Support

(1) All DoD systems that use precise time or precise frequency will use the DoD reference standard which will be established and maintained by the U.S. Naval Observatory. The standard will be coordinated with recognized national and international standards to ensure worldwide continuity of precision.

(2) The Department of the Navy is the DoD precise time and time interval manager with responsibilities for:

(a) Developing an annual DoD-wide summary of precise time and time interval requirements, and

(b) Coordinating the development of precise time and time interval techniques among DoD Components.

(3) DoD Components that use precise time and time interval will appoint a precise time and time interval manager to coordinate their requirements and development efforts with the DoD manager.

h. National Environmental Support. Weather, oceanographic, and astrogeophysical support requirements should be identified as early as possible to ensure the support processes, equipment, and data are available during the acquisition process and after systems are fielded. Requirements for environmental support should be forwarded to the appropriate DoD Component environmental service organization.

i. Standardization and Interoperability. Standardization and interoperability will be given the highest priorities in all future DoD automated information systems acquisitions.

(1) To meet these priorities, a common set of data communications protocols will be used by DoD automated information systems. The U.S. Government Open Systems Interconnection Profile was adopted as a Federal Information Process Standard (FIPS-146) (reference (g)) in August 1988.

(2) These protocols will be mandatory for use in all DoD requests for proposal (RFPs) for new automated information systems and for major upgrades that require network services.

j. Host Nation Approval. For programs planning system deployment and operation outside of the continental United States, host nation approval will be obtained through the appropriate unified theater command(s) prior to deployment of the system into the host nation(s).

(1) Host nation approval time varies, can take up to 2 years, and may involve the Department of State for major defense acquisition programs.

(2) The acquisition program is responsible for funding all conferences and tests required to obtain host nation approval, including the travel, per diem, and salaries of host nation inspectors at the manufacturing facility.

(3) Host nation approval requests will include a complete electrical and physical description of the equipment to be imported and operated in the host nation, since some host nations conduct physical delivery inspections.

(4) As a government-to-government responsibility, host nation approval cannot be assigned as a contractual responsibility of the system contractor.

k. Connection Approval. For programs requiring deployment, connection, and operation of U.S. communications support equipment outside of the continental U.S. on host nation leased circuits or public switched networks, connection approval will be obtained from each host nation's postal, telephone, and telegraph agency through the appropriate unified theater command.

(1) Generally, host nation approval must be obtained prior to obtaining connection approval from each host nation. Connection approval will be obtained prior to the planned deployment,

connection, and operation of the communications support equipment in each host nation.

(2) Processing leadtime of 6 to 12 months should be planned for each connection approval request to each postal, telephone, and telegraph agency.

(3) As a technical review and approval process, connection approval can be assigned as a contractual responsibility of the system contractor.

1. Milestone Decision Reviews. The availability and cost of infrastructure requirements will be addressed at each milestone decision point to ensure that the resources can be in place to support system testing and system operations.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(C3I)	DASD(I) DASD(C3)
Dept of Army	DISC4	SAIS-AE
Dept of Navy	ASN(RDA)	ASN(MRA)
Dept of Air Force	SAF/AQK	AF/LEY
CJCS (Joint Staff)	DJ6	J6P

PART 8

TEST AND EVALUATION

References:
(a) DoD Directive 5000.3, "Test and Evaluation," March 12, 1986 (canceled)
(b) DoD 5000.3-M-1, "Test and Evaluation Master Plan Guidelines," January 1990 (canceled)
(c) DoD 5000.3-M-3, "Software Test and Evaluation Manual," November 1987 (canceled)
(d) DoD 5000.3-M-6, "Threat Simulator Program Policy and Procedures," April 1989 (canceled)
(e) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(f) DoD 5000.3-M-2, "Foreign Weapons Evaluation and NATO Comparative Test Programs Procedures Manual," August 1988, authorized by this Instruction
(g) DoD 5000.3-M-4, "Joint Test and Evaluation Procedures Manual," August 1988, authorized by this Instruction
(h) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988
(i) Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs"
(j) DoD Directive 3200.11, "Major Range and Test Facility Base," September 29, 1980
(k) Title 10, United States Code, Section 2366, "Major systems and munitions programs: survivability testing and lethality testing required before full-scale production"
(l) Title 10, United States Code, Section 2400, "Low-rate initial production of new systems"
(m) Title 10, United States Code, Section 2362, "Testing requirements: wheeled or tracked armored vehicles"
(n) Title 10, United States Code, Section 2350a.(g), "Side-by-Side Testing"
(o) Title 10, United States Code, Section 2457, "Standardization of equipment with North Atlantic Treaty Organization members"
(p) Title 10, United States Code, Section 138, "Director of Operational Test and Evaluation"

1. PURPOSE

a. This Part replaces DoD Directive 5000.3, "Test and Evaluation" (reference (a)), which has been canceled.

b. The policies and procedures in this Part establish the basis for conducting test and evaluation activities in support of the acquisition process.

c. DoD 5000.3-M-1, "Test and Evaluation Master Plan Guidelines"; DoD 5000.3-M-3, "Software Test and Evaluation Manual"; and DoD 5000.3-M-6, "Threat Simulator Program Policy and Procedures" (references (b), (c), and (d)) are canceled. The policy, procedures, and guidelines in these manuals have been replaced by this Part and Part 7 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (e)).

d. This Part authorizes the publication of DoD 5000.3-M-2, "Foreign Weapons Evaluation and NATO Comparative Test Programs Procedures Manual" and DoD 5000.3-M-4, "Joint Test and Evaluation Procedures Manual" (references (f) and (g)) in accordance with DoD 5025.1-M, "Department of Defense Directives System Procedures" (reference (h)).

2. GENERAL POLICIES

a. Test and evaluation programs shall be structured to:

(1) Provide essential information for assessment of acquisition risk and for decisionmaking;

(2) Verify attainment of technical performance specifications and objectives;

(3) Verify that systems are operationally effective and suitable for intended use; and

(4) Provide essential information in support of decisionmaking.

b. Test objectives for each phase shall be designed to demonstrate system performance appropriate to each phase and milestone. For acquisition category I and II programs for conventional weapons systems designed for use in combat, a beyond low-rate initial production decision must be supported by completed independent initial operational test and evaluation as required by Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs" (reference (i)). Operational test and evaluation does not include an operational assessment based exclusively on:

(1) Computer modeling;

(2) Simulation; or

(3) An analysis of system requirements, engineering proposals, design specification, or any other information contained in program documents.

c. Test planning must begin in Phase 0, Concept Exploration and Definition. Both developmental and operational testers shall be

involved early to ensure that the test program for the most promising alternative can support the acquisition strategy.

d. Test and evaluation planning shall address measures of performance with appropriate quantitative criteria, test event or scenario description, resource requirements (e.g., special instrumentation, test articles, targets, validated threat simulators, threat systems or surrogates, and personnel), and test limitations.

(1) Test planning, at a minimum, must address all system components (hardware, software and human interfaces) that are critical to the achievement and demonstration of contract technical performance specifications and minimum acceptable operational performance requirements specified in the Operational Requirements Document.

(2) Quantitative criteria will be phased so as to provide substantive evidence for analysis of hardware, software and system maturity and readiness to proceed through the acquisition process.

(3) The Test and Evaluation Master Plan should focus on the overall structure, major elements, and objectives of the test program that is consistent with the acquisition strategy. It should include sufficient detail to ensure the timely availability of both existing and planned test resources required to support the test and evaluation program.

(4) Testing shall be planned and conducted to take full advantage of existing investment in DoD ranges, facilities, and other resources, wherever practical, unless otherwise justified in the Test and Evaluation Master Plan. DoD Directive 3200.11, "Major Range and Test Facility Base" (reference (j)) identifies the major ranges and test facilities.

e. Early testing of prototypes in Phase II, Demonstration and Validation, and early operational assessments shall be emphasized to assist in identifying risks. Validated and certified models, simulations, and test beds may also be used as appropriate.

f. The Director, Operational Test and Evaluation and the Director, Defense Research and Engineering shall be granted full and timely access to all available developmental and operational test information.

g. The Deputy Director of Defense Research and Engineering (Test and Evaluation) shall ensure compliance with the developmental test and evaluation policies and procedures of this Instruction and ensure threat simulator acquisitions meet developmental and operational test and evaluation requirements, including validation.

h. A combined developmental test and evaluation and operational test and evaluation approach should be considered when there are time and cost savings.

(1) The combined approach must not compromise either developmental or operational test objectives.

(2) A final independent phase of operational test and evaluation shall be required for beyond low-rate initial production decisions.

i. Appropriate measures shall be taken to protect sensitive design information and test data throughout the acquisition process.

3. DEVELOPMENTAL TEST AND EVALUATION POLICIES

a. Developmental test and evaluation programs shall:

(1) Identify potential operational and technological limitations of the alternative concepts and design options being pursued,

(2) Support the identification of cost-performance trade-offs,

(3) Support the identification and description of design risks,

(4) Substantiate that contract technical performance and manufacturing process requirements have been achieved, and

(5) Support the decision to certify the system ready for operational test and evaluation.

b. Live fire test and evaluation, as defined in Title 10, United States Code, Section 2366, "Major systems and munitions programs: survivability testing and lethality testing required before full-scale production" (reference (k)) must be conducted on (unless a waiver is approved):

(1) Acquisition category I and II programs for:

(a) A covered major system (a vehicle, weapons platform, or conventional weapon system designed to provide some degree of protection to the user in combat),

(b) A major munition or missile, or

(2) A product improvement program of any acquisition category that will significantly affect the survivability of a covered major system or the lethality of a munition or missile produced under a major munitions program or missile program.

c. If live fire test and evaluation would be unreasonably expensive and impractical, a waiver must be made and certification submitted to Congress prior to entering the Engineering and Manufacturing Development phase. The waiver must include a report explaining how survivability of a covered major system or lethality of a major munitions or missile program will be evaluated and an assessment of the possible alternatives to realistic survivability testing of a

covered major system. See Part 11, DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (e)) for live fire test and evaluation waiver procedures.

d. Production qualification test and evaluation shall be completed prior to the full rate production decision.

4. OPERATIONAL TEST AND EVALUATION POLICIES

a. Operational test and evaluation programs shall be structured to determine the operational effectiveness and suitability of a system under realistic combat conditions and to determine if the minimum acceptable operational performance requirements as specified in the Operational Requirements Document have been satisfied.

(1) Threat representative forces shall be used whenever possible.

(2) Typical users shall operate and maintain the system or item under conditions simulating combat stress and peacetime conditions. The use of simulations or models in operational test and evaluation is limited by Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs" (reference (i)).

(3) Production or production representative articles shall be used for the dedicated phase of operational test and evaluation that supports the full rate production decision.

b. The use of system contractors in support of the operational test and evaluation conducted to support a decision to proceed beyond low-rate initial production is restricted by Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs" (reference (i)). In acquisition category I and II programs, they may participate only to the extent that is planned for them to be involved in the operation, maintenance, and other support of the system being tested when it is deployed in combat.

c. The use of impartial Contracted Advisory and Assistance Services (CAAS) is also prescribed by Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs" (reference (i)):

(1) The Director of Operational Test and Evaluation of the Department of Defense may not contract with any person for advisory and assistance services with regard to the test and evaluation of a system if that person participated in (or is participating in) the development, production, or testing of such system for a military department or Defense Agency (or for another contractor of the Department of Defense).

(2) The Director of Operational Test and Evaluation of the Department of Defense may waive the limitation under subparagraph 4.c.(1), above, in any case if the Director determines in writing that sufficient steps have been taken to

ensure the impartiality of the contractor in providing the services. The Inspector General of the Department of Defense shall review each such waiver and shall include in the Inspector General's semi-annual report an assessment of those waivers made since the last such report.

(3) A contractor that has participated (or is participating) in the development, production, or testing of a system for a DoD Component (or for another contractor of the Department of Defense) may not be involved in any way in the establishment of criteria for data collection, performance assessment, or evaluation activities for the operational test and evaluation.

d. All hardware and software alterations that materially change system performance (operational effectiveness and suitability) shall be adequately tested and evaluated. This includes system upgrades as well as changes made to correct deficiencies identified during test and evaluation.

e. Naval vessels, the major systems integral to ship construction, and military satellite programs typically have development and construction phases which extend over long periods of time and involve small procurement quantities. To facilitate assessments of system performance (operational effectiveness and suitability), the independent operational test activity shall:

(1) Monitor or participate in all relevant testing and use these results to make operational assessments, and

(2) Conduct an operational test and evaluation during low-rate initial production to assess operational effectiveness and suitability as required by Title 10, United States Code, Section 2400, "Low-rate initial production of new systems" (reference (l)) for acquisition category I programs.

5. PROCEDURES

a. A Test and Evaluation Master Plan will be prepared for all acquisition programs.

(1) Test and Evaluation Master Plans for all acquisition category I programs and other acquisition programs designated for Office of the Secretary of Defense test and evaluation oversight will be approved by the Director, Operational Test and Evaluation and the Deputy Director, Defense Research and Engineering (Test and Evaluation).

(2) Test and Evaluation Master Plans for all other acquisition category programs will be approved by the DoD Component milestone decision authority.

(3) The Test and Evaluation Master Plan will be used to generate detailed test and evaluation plans and to ascertain schedule and

resource implications associated with the test and evaluation program.

(4) The Test and Evaluation Master Plan format and procedures for acquisition category I and other acquisition category programs designated for Office of the Secretary of Defense oversight are provided in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (e)). This format may be used at the discretion of the milestone decision authority for other acquisition category II, III, and IV programs and highly sensitive classified programs.

(5) An annual listing of the programs designated for Office of the Secretary of Defense test and evaluation oversight will be jointly published by the Director, Operational Test and Evaluation and the Deputy Director, Defense Research and Engineering (Test and Evaluation).

b. Multi-Service or Joint Program Test and Evaluation. A lead organization will be designated to coordinate all testing involving more than one Military Department or Defense Agency. This lead organization will prepare a single Test and Evaluation Master Plan and a single test and evaluation report on the operational effectiveness and suitability of the system for each participating organization.

c. Certification of Readiness for Operational Test and Evaluation. The developing agency will formally certify that the system is ready for the dedicated phase of operational test and evaluation to be conducted by the DoD Component operational test activity.

d. Operational Test and Evaluation Plans. The Director, Operational Test and Evaluation must approve, in writing, the adequacy of the operational test and evaluation plans for all acquisition category I programs and other designated programs (including the projected funding) prior to the initiation of operational testing.

(1) DoD Components will brief the Director, Operational Test and Evaluation on the concepts for the test and evaluation 120 days prior to the test and submit the test plan to the Director, Operational Test and Evaluation, 60 days prior to the test. Any major revisions to the operational test will be reported to the Director, Operational Test and Evaluation, upon implementation.

(2) These test plans will include test objectives, measures of effectiveness, planned operational scenarios, threat simulation, resources, test limitations, and methods of data gathering, reduction, and analysis. The planned test events will be described in sufficient detail to permit an assessment of operational realism.

e. DoD Component Reporting of Test Results

(1) Acquisition category I programs and other programs designated for Office of the Secretary of Defense test and evaluation oversight (see subparagraph 5.a.(4), above) require test results reporting.

(2) Copies of the formal, detailed developmental and operational test and evaluation reports of the results, conclusions, and recommendations which are prepared at the end of each phase of developmental and operational test and evaluation will be provided to the Director, Operational Test and Evaluation, and the Deputy Director, Defense Research and Engineering (Test and Evaluation). Reports in support of a milestone decision will be submitted in accordance with Defense Acquisition Board procedures and documentation requirements (see Section 13-A).

(3) All developmental and operational test reports will identify any significant test limitations and the resulting effect on demonstrating whether the system tested met contract specification requirements (developmental test and evaluation) or minimum operational performance requirements (operational test and evaluation).

f. Defense Acquisition Board Assessment. At each formal review of an acquisition category I program under development, the Deputy Director, Defense Research and Engineering (Test and Evaluation), will provide the Defense Acquisition Board with a technical assessment of the performance of the system. The Director, Operational Test and Evaluation, will provide an assessment which includes comments on test adequacy and the Director's assessment of the system's operational effectiveness and suitability.

g. Live Fire Test and Evaluation Report. An independent Office of the Secretary of Defense Live Fire Test and Evaluation Report on covered major system, major munitions and missile acquisition category I and II programs (see paragraph 3.b., above) must be submitted by the Secretary of Defense (or as delegated to the Under Secretary of Defense for Acquisition for acquisition category I programs or the Director, Defense Research and Engineering, for acquisition category II programs) to the Armed Services and Appropriations Committees of the Senate and the House of Representatives prior to a decision to proceed beyond low-rate initial production. This report is required by Title 10, United States Code, Section 2366, "Major systems and munitions programs: survivability testing and lethality testing required before full-scale production" and Section 2362, "Testing requirements: wheeled or tracked armored vehicles" (references (k) and (m)) and will be prepared by the Deputy Director, Defense Research and Engineering (Test and Evaluation). A Live Fire Test and Evaluation Report is also required for a covered product improvement program of any acquisition category which is likely to significantly affect the survivability of a covered major system or the lethality of a major munition or missile produced under an acquisition category I or II program. See Part 10, DoD 5000.2-M, "Defense Acquisition

Management Documentation and Reports" (reference (e)) for live fire test and evaluation report procedures.

h. Beyond Low-Rate Initial Production Report. Before an acquisition category I or Director, Operational Test and Evaluation-designated program can proceed beyond low-rate initial production, the Director, Operational Test and Evaluation, must submit a written report to Congress. This report is required by Title 10, United States Code, Section 2399, "Operational test and evaluation of defense acquisition programs" (reference (i)). This report will assess:

(1) The adequacy of conducted operational test and evaluation, and

(2) Whether the test and evaluation results confirm that the items or components tested are operationally effective and suitable for use in combat by typical military users.

i. Foreign Comparative Test Notifications and Reports to Congress

(1) The Deputy Director, Defense Research and Engineering (Test and Evaluation),will notify Congress a minimum of 30 days prior to the commitment of funds for initiation of new Foreign Comparative Test evaluations. These notifications will be submitted to the Speaker of the House of Representatives and the Armed Services and Appropriations Committees of the Senate and the House of Representatives. This notification is required by Title 10, United States Code, Section 2350a.(g), "Side-by-Side Testing" (reference (n)).

(2) The Secretary of Defense (as delegated to the Under Secretary of Defense for Acquisition) shall include in the annual report to Congress required by Title 10, United States Code, Section 2457(d), "Standardization of equipment with North Atlantic Treaty Organization members" (reference (o)) information on:

(a) The equipment, munitions, and technologies manufactured and developed by major allies of the United States that were evaluated under Title 10, United States Code, Section 2350a.(g), "Side-by-Side Testing" (reference (n)) during the previous fiscal year.

(b) The obligation of any funds under Title 10, United States Code, Section 2350a.(g), "Side-by-Side Testing" (reference (n)) during the previous fiscal year.

(c) The equipment, munitions, and technologies that were tested under Title 10, United States Code, Section 2350a.(g), "Side-by-Side Testing" (reference (n)) and procured during the previous fiscal year.

j. Annual Operational Test and Evaluation Reports. The Director, Operational Test and Evaluation, will prepare an annual report summarizing all operational test and evaluation activities within the Department of Defense during the preceding fiscal year. Each such

report will be submitted concurrently to the Secretary of Defense, the Under Secretary of Defense for Acquisition, and Congress not later than 10 days after transmission of the President's Budget for the next fiscal year to Congress. This report is required by Title 10, United States Code, Section 138, "Director of Operational Test and Evaluation" (reference (p)).

6. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD DT&E OT&E	DUSD(A) DOT&E	Dir, T&E DepDir, R&A
Dept of Army	DUSA(OR)	DACS-TE
Dept of Navy	ASN(RDA)	CNO(N091) MCRDAC/AWT
Dept of Air Force	ASAF(A)	SAF/AQV
CJCS (Joint Staff)	VCJCS	J8/SPED

PART 9

CONFIGURATION AND DATA MANAGEMENT

Configuration control, including the technical data which defines the configuration, is an absolutely essential element of a successful acquisition program.

The policies and procedures presented in this Part establish a common frame of reference for identifying, documenting, and controlling system configuration and technical data during all phases of the acquisition process. These policies and procedures must be judiciously applied. They are not a substitute for good judgment and common sense, nor are they intended to stifle innovation.

SECTION	SUBJECT
A	Configuration Management
B	Technical Data Management

PART 9

SECTION A

CONFIGURATION MANAGEMENT

References: (a) DoD Directive 5010.19, "DoD Configuration Management Program, " October 28, 1987 (canceled)
* (b) MIL-STD-973, "Configuration Management" *
(c) MIL-STD-490, "Specification Practices"
(d) DoD-STD-2167, "Defense System Software Development"
* *

1. PURPOSE

a. This section replaces DoD Directive 5010.19, "DoD Configuration Management" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for configuration management throughout the life cycle of configuration items.

2. POLICIES

a. An effective configuration management program shall be established to implement the decisions made in the systems engineering process by:

(1) Identifying, documenting, and verifying the functional and physical characteristics of a configuration item,

(2) Controlling changes to an item and its documentation,

(3) Recording the configuration of actual items, and

(4) Auditing the configuration item and its configuration identification.

b. Configuration management shall be applied to any item:

(1) Developed wholly or partially with Government funds, including nondevelopmental items when the development of technical data is required to support off-the-shelf equipment or software, or

(2) Designated for configuration management for reason of integration, logistics support, or interface control.

3. PROCEDURES

a. Configuration Management Program

(1) Procedures will be tailored to be consistent with the complexity, criticality, quantity, size, and intended use of the items. Standard processes will be used through the tailored application of relevant military standards (references (b) through (d)), adapted to specific program characteristics.

(2) Program Managers will conduct configuration management activities during an acquisition program. These activities will transfer to the Service systems, logistics, or materiel command upon item management transfer from the Program Manager.

(3) When more than one DoD Component is involved in the acquisition, modification, or support of a configuration item, the lead DoD Component will develop and document mutual agreements and procedures for the configuration management of the item.

b. Configuration Items. A configuration item is defined as an aggregation of hardware or software that satisfies an end use function and is designated by the Government for separate configuration management.

(1) Configuration items will be directly traceable to the work breakdown structure (see Section 6-B).

(2) Any item required for logistics support and designated for separate procurement is also a configuration item.

(3) Computer hardware and software will be treated as configuration items. Computer software will be treated as computer software configuration items throughout the life of the program regardless of how the software will be stored (e.g., read-only memory devices, magnetic tape or disc, compact discs, nonvolatile random access memory).

c. Configuration Baselines. Configuration baselines will be used to ensure an orderly transition from one major commitment point to the next. These points are normally milestone decisions.

(1) Configuration baselines (functional, allocated, and product) will be identified and documented in accordance with MIL-STD-973 and/or MIL-STD-490 (references (b) and (c)).

(2) A baseline plus approved changes from that baseline constitutes the current approved configuration identification.

d. Configuration Identification. Configuration identification will be prepared in the form of technical documentation in accordance with

MIL-STD-973, MIL-STD-490, and DoD-STD-2167 (references (b), (c), and (d)). Approved configuration identification will be the basis for configuration audits, configuration control, and configuration status accounting. *

e. Change Control. Configuration changes will be controlled in accordance with MIL-STD-973 (reference (b)) to identify the impact of proposed changes to functional and physical characteristics and approved configuration identification. * *

(1) A configuration control board (CCB) will be established to review proposed changes to approved configuration identification and advise the Program Manager.

(2) Approved engineering changes affecting items being delivered for the operational inventory should be grouped for implementation to reduce the number of configurations supported in the field.

(3) All documentation (operator manuals, maintenance data, programmer manuals, training materials, engineering data, specifications) will be updated to reflect design changes and made available concurrent with implementation of the change.

(4) For a configuration change to a fielded system, all hardware, software, and documentation necessary to implement the change will be kitted together. Prior to release of the change kit, a proof test or other validation/verification will be conducted to ensure that the kit is adequate and complete.

f. Configuration Status Accounting. Configuration status accounting will provide a track of configuration identification changes and document the configuration of items. Configuration status will be documented through tailored application of MIL-STD-973 and DoD-STD-2167, (references (b) and (d)). * * *

g. Documentation. Configuration records for each configuration item will be established when the applicable configuration baseline is established. These records will include both current and historical information to ensure traceability from the initial baseline.

h. Configuration Audits. Configuration audits will verify and document that the configuration item and its configuration identification agree, are complete and accurate, and satisfy program requirements. MIL-STD-973 and DOD-STD-2167 (references (b) and (d)) contain procedures for conducting configuration audits. * *

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	Dir, CALS
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

PART 9

SECTION B

TECHNICAL DATA MANAGEMENT

References:
(a) DoD Instruction 5010.12, "DoD Technical Data Management Program," January 23, 1989 (canceled)
(b) DoD Instruction 4151.9, "DoD Technical Manual Program Management," January 3, 1989 (canceled)
(c) DoD 5010.12-L, "Acquisition Management Systems and Data Requirements Control List (AMSDL)," reissued Semi-Annually in April and October, authorized by this Instruction
(d) DoD 5025.1-M, "Department of Defense Directives System Procedures," December 1990, authorized by DoD Directive 5025.1, "Department of Defense Directives System," December 23, 1988
(e) Title 10, United States Code, Section 2302, "Definitions"
(f) MIL-STD-1840, "Automated Interchange of Technical Information"
(g) MIL-HDBK-59, "Computer-Aided Acquisition and Logistics Support Program Implementation Guide"
(h) Public Law 96-511, "Paperwork Reduction Act of 1980"
(i) Federal Acquisition Regulation (FAR), Part 27, "Patents, Data, and Copyrights"
(j) Defense Federal Acquisition Regulation Supplement (DFARS), Part 227, "Patents, Data, and Copyright"
(k) MIL-STD-1806, "Marking Technical Data Prepared by or for the Department of Defense"
(l) DoD Directive 5200.21, "Dissemination of DoD Technical Information," September 27, 1979
(m) DoD-STD-963, "Data Item Descriptions (DIDs), Preparation of"
(n) DoD-STD-1700, "Data Management Program"
(o) MIL-T-31000, "Technical Data Package, General Specifications for"

1. PURPOSE

a. This section replaces DoD Instruction 5010.12, "DoD Technical Data Management Program" and DoD Instruction 4151.9, "DoD Technical Manual Program Management" (references (a) and (b)), which have been canceled

b. These policies and procedures establish the basis for an effective program for management of technical data and technical manuals. These policies and procedures do not apply to:

(1) Technical data for cryptologic activities,

(2) Technical manuals for nuclear weapon systems supported by publications under the Joint Nuclear Weapons Publications System, or

(3) Data submitted by an offeror in response to a request for proposal (RFP).

c. This section authorizes the Assistant Secretary of Defense (Production and Logistics) to publish DoD 5010.12-L, "Acquisition Management Systems and Data Requirements Control List (AMSDL)" (reference (c)) and DoD 5010.12-M, "Procedures for the Acquisition and Management of Technical Data" in accordance with DoD 5025.1-M, "Department of Defense Directives System Procedures" (reference (d)).

2. POLICIES

a. Technical data, is defined in Title 10, United States Code, Section 2302, "Definitions" (reference (e)) as recorded information (regardless of the form or method of the recording) of a scientific or technical nature (including computer software documentation) relating to supplies procured by an agency. Technical data does not include computer software or financial, administrative, cost or pricing, or management data or other information incidental to contract administration.

(1) Technical data is required to define and document an engineering design or product configuration (sufficient to allow duplication of the original items) and is used to support production, engineering, and logistics activities.

(2) A technical data package shall include all engineering drawings, associated lists, process descriptions, and other documents which define the physical geometry, material composition, performance characteristics, manufacture, assembly, and acceptance test procedures.

(3) Technical data which provides instructions for the installation, operation, maintenance, training, and support of a system or equipment can be formatted into a technical manual.

(a) A technical manual normally includes operation and maintenance instructions, parts lists or parts breakdown, and related technical information or procedures exclusive of administrative procedures.

(b) This data may be presented in any form (e.g. hard copy, audio and visual displays, magnetic tape, disks, or other electronic devices).

(c) Technical orders that meet the criteria of this definition may also be classified as technical manuals.

b. The DoD Component having management responsibility for an item shall ensure that the Government has complete access to the data necessary

to support the essential requirements of all users throughout the item's life cycle. This access may be achieved by:

(1) Procuring, storing, and maintaining the necessary data in a Government data repository; or

(2) Procuring access to the data through a contractor integrated technical information service (see Section 6-M).

3. PROCEDURES

a. Establishing Data Requirements

(1) User data requirements will be established by use of a data call to all potential users.

(a) A data requirements review board will be established to review data call recommendations and advise the Program Manager.

(a) A data requirements review board will be convened before issuing a solicitation for any acquisition having a potential cost of $5 million or more.

(2) Only the minimum data needed to permit cost-effective support of research, development, production, cataloging, provisioning, training, operation, maintenance, and related logistics functions over the life cycle of the item will be acquired.

(a) When the production contract for a single design is to be competed, product drawings and associated lists must be delivered by the end of Phase II, Engineering and Manufacturing Development.

(b) Production contracts must include product drawings and associated lists for items that will be reprocured or manufactured in-house. When appropriate, the data package will include information suitable to compete replenishment of subtier spare parts including part level acceptance test procedures.

(3) Standard data item descriptions (DIDs) that exceed the requirements of the data needed must be tailored. Tailoring may be accomplished to:

(a) Accept contractor format, or

(b) Reduce the scope through deletion or selection of existing words, paragraphs, or sections.

(4) Contract provisions must ensure that contractors and subcontractors prepare and update technical data packages as an integral part of their design, development, and production effort and must define the contractor's responsibility for

accuracy and completeness of technical data packages and technical manuals. All technical data and technical manuals will be updated to reflect approved design changes and made available concurrent with the implementation of the change.

(5) Data should be ordered in contractor format unless the Government format is necessary or more cost-effective. Maximum use will be made of commercial technical manuals, or their modifications, that meet DoD Component requirements.

(a) Contract deliverable data will be prepared and used in digital form unless it is not cost-effective for the Government. Maximum use should be made of available contractor automated data bases. Data to be delivered in digital form will comply with computer aided acquisition and logistics support (CALS) initiatives and MIL-STD-1840 (reference (f)). Refer to MIL-HDBK-59 (reference (g)) for guidance in selecting the specific digital data.

(b) When options are established for delivery of digital data, the program office will ensure that all the recipients of the digital data have the necessary capability to receive, store, and maintain the data. Where operational units are recipients, the system design should include the necessary capability to receive, store, and display the data.

(d) Technical manuals must be written to the reading and skill levels of the people for whom they are intended to ensure that the target audience understands the technical manual text or text-graphics combination.

(6) Logistics support analysis data will be used to the maximum extent to define and develop source data for technical manuals.

b. Planning for New Technical Manuals. Plans will be developed for each new group of technical manuals supporting a weapon system, weapon system component, or support equipment to ensure the technical accuracy and adequacy of technical manual content. These plans will provide for:

(1) The optimum number and types of conventional publications and other media such as audiovisual systems, tape, disc, or other electronic devices;

(2) Technical manual availability in:

(a) Preliminary form using contractor in-house manuals and repair and test documentation, as practicable, until the design is stable, and

(b) Final form for the programmed operational date for the equipment or system, except for materiel under contractor support.

(3) Clear definition of contractor's responsibility for accuracy and completeness of technical manuals and contractor and DoD Component's participation in validation and verification; and

(4) Review of technical manual plans during in-process reviews to ensure timely completion of validation and verification in time to support realistic operational test and evaluation.

c. Data Acquisition Documents. Specific requirements for the preparation of deliverable data or for record keeping are to be documented in specifications, standards, and data item descriptions, collectively known as data acquisition documents.

(1) Data requirements in solicitations and contracts will be selected from data item descriptions listed in the Acquisition Management Systems and Data Requirements Control List (reference (c)). Before being listed in the Acquisition Management Systems and Data Requirements Control List, new or revised data item descriptions will be reviewed by the Acquisition Management Systems and Data Requirements Control List clearance office in compliance with the requirements of Public Law 96-511, "Paperwork Reduction Act of 1980" (reference (h)).

(2) A one-time data item description may be developed to define the content and format requirements of a data product if an appropriate data item description is not contained in the Acquisition Management Systems and Data Requirements Control List. One-time data item descriptions will be used on only one contract.

(3) One-time data item descriptions will be approved in accordance with DoD Component procedures. A record of such approvals will be maintained within each DoD Component. An annual listing of approvals as of September 30 will be submitted to the Acquisition Management Systems and Data Requirements Control List clearance office no later than November 30 of each year.

(4) Data item descriptions will not be used to delineate requirements for technical manuals for weapon systems, weapon systems components, or support equipment. These manuals will be acquired by line item and have an exhibit attached to the acquisition document. The acquisition of technical manual administrative and/or management data such as status reports, validation plan schedules, and manuals other than those to support a weapon system shall be acquired by Data Item Description.

d. Ordering, Delivery, Inspection, and Acceptance of Data. Data will be ordered, delivered, inspected, and accepted in accordance with the Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement (references (i) and (j)).

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	Dir, CALS
Dept of Army	ASA(RDA)	SARD-ZP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	AF/LE	AF/LEY
Other DoD Components	DLA	DLA-SE

PART 10

BUSINESS MANAGEMENT AND CONTRACTS

Business management is a critical element of acquisition program execution. The selection of contractual sources and contract requirements must be well thought out and tailored to accomplish stated objectives while ensuring an equitable sharing of risks.

The policies and procedures presented in this part address cost estimating, contract planning, and the definition and application of contract requirements. These policies and procedures must be judiciously applied. They are not a substitute for good judgment and common sense, nor are they intended to stifle innovation.

SECTION	SUBJECT
A	Cost Estimating
B	Selection of Contractual Sources
C	Acquisition Streamlining

PART 10

SECTION A

COST ESTIMATING

References: (a) Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements"
(b) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(c) DoD Directive 5000.4, "OSD Cost Analysis Improvement Group," October 30, 1980

1. PURPOSE

These policies and procedures establish the basis for the production and review of cost estimates in support of defense acquisition programs.

2. POLICIES

a. Cost estimates shall be prepared in support of Milestone I and all subsequent milestone reviews.

b. Cost estimates prepared in support of milestone and other reviews shall be:

(1) Explicitly based on the program objectives, operational requirements, and contract specifications for the system (see Section 11-A), including plans for such matters as peacetime utilization rates and the maintenance concept;

(2) Comprehensive in character, identifying all elements of additional cost that would be entailed by a decision to proceed with development, production, and operation of the system; and

(3) Neither optimistic nor pessimistic, but based on a careful assessment of risks and reflecting a realistic appraisal of the level of cost most likely to be realized.

3. PROCEDURES

a. Cost Estimates. Two separate cost estimates will be prepared in support of Milestone I and all subsequent milestone reviews.

(1) One of these estimates will be prepared by the program office; the other will be prepared by an organization that does not report through the acquisition chain.

(2) For joint programs, one estimate will be made by the joint program office and a second prepared by an organization designated by the milestone decision authority.

(3) As is warranted by the issues involved, a program office cost estimate and/or a cost estimate made by an organization not reporting through the acquisition chain may be required at program reviews. In these instances, the requirements for cost estimates will be appropriately tailored for the purposes of the review as established by the milestone decision authority.

b. Cost Analysis Improvement Group -- Acquisition Category I D. The Office of the Secretary of Defense Cost Analysis Improvement Group (CAIG) will provide the Under Secretary of Defense for Acquisition a report on the cost of acquisition category I D programs for which milestone approval is sought in accordance with Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements" (reference (a)). As required by the considerations at issue, the Cost Analysis Improvement Group will also provide a report on costs in connection with Defense Acquisition Board or Defense Acquisition Board Committee program reviews. Defense Acquisition Board procedures are contained in Section 13-A.

(1) The DoD Component responsible for acquisition of a system will support the work of the Cost Analysis Improvement Group by providing cost, programmatic, and technical information required to estimate costs and appraise cost risks, and will facilitate any visits of the Cost Analysis Improvement Group staff to the program office and/or contractor(s) for the system.

(2) For acquisition category I D joint programs, the Chair of the Cost Analysis Improvement Group, in coordination with the Chair of the cognizant Defense Acquisition Board Committee and the Program Manager, will designate the independent organization to prepare the second cost estimate for Milestone I and subsequent reviews.

(3) The Chair of the Cost Analysis Improvement Group will establish requirements for cost estimates appropriately tailored for the purposes of Defense Acquisition Board program reviews as established by the Under Secretary of Defense for Acquisition or the cognizant Defense Acquisition Board Committee Chair.

(4) Whether for a milestone review or a program review:

(a) Draft documentation of each estimate will be provided to the Cost Analysis Improvement Group as specified in

Section 13-C and in Part 15 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)).

(b) The two cost estimates will be briefed to the Cost Analysis Improvement Group at least 21 calendar days before the milestone review meeting of the cognizant Defense Acquisition Board Committee. Documentation will be provided as specified in Section 13-C.

c. Cost Analysis Improvement Group -- Acquisition Category I C. The Cost Analysis Improvement Group will provide the DoD Component Acquisition Executive with a report on the cost of an acquisition category I C program on which milestone approval is sought in accordance with Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements" (reference (a)).

(1) The DoD Component responsible for acquisition of a system will support the work of the Cost Analysis Improvement Group by providing cost, programmatic, and technical information required to estimate costs and appraise cost risks, and will facilitate any visits of the Cost Analysis Improvement Group staff to the program office and/or contractor(s) for the system.

(2) Draft documentation of each estimate will be provided to the Cost Analysis Improvement Group as specified in Section 13-C and in Part 15 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)).

d. Additional Guidance. Substantive guidance on cost estimates and more detailed procedural guidance is provided in DoD Directive 5000.4 (reference (c)).

4. RESPONSIBILITIES AND POINTS OF CONTRACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

PART 10

SECTION B

SELECTION OF CONTRACTUAL SOURCES

References:
(a) DoD Directive 4105.62, "Selection of Contractual Sources for Major Defense Systems," September 9, 1985 (canceled)
(b) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(c) Federal Acquisition Regulation (FAR), Subpart 15.6, "Source Selection"
(d) Defense Federal Acquisition Regulation Supplement (DFARS), Subpart 215.6, "Source Selection"
(e) DoD Directive 5500.7, "Standards of Conduct," May 6, 1987
(f) DoD Directive 5400.7, "DoD Freedom of Information Act Program," May 13, 1988
(g) DoD 5400.7-R, "DoD Freedom of Information Act Program," July 1989, authorized by DoD Directive 5400.7, "DoD Freedom of Information Act Program," May 13, 1988

1. PURPOSE

a. This section replaces DoD Directive 4105.62, "Selection of Contractual Sources for Major Defense Systems" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for:

(1) Selecting contractors that can best meet the Government's needs as described in the solicitation.

(2) Ensuring that the source selection process provides for the impartial, equitable, and comprehensive evaluation of each offeror's proposal and minimizes the cost of the selection process to Government and industry.

c. This section:

(1) Applies to acquisition category I and II programs,

(2) Must be tailored when applied to acquisition category III and IV program, and

(3) May be supplemented by DoD Components.

2. POLICIES

a. The DoD Component Head responsible for an acquisition category I or II program shall be the Source Selection Authority, with power of

delegation, unless otherwise directed by the Under Secretary of Defense for Acquisition.

b. The Under Secretary of Defense for Acquisition shall be notified by the Source Selection Authority in advance of the intention to award a contract for an acquisition category I or II program.

c. The Source Selection Authority is responsible for the proper conduct of the source selection process and shall ensure that:

(1) The Source Selection Plan and the evaluation factors are consistent with the requirements of the solicitation, the policies of DoD Directive 5000.1, "Defense Acquisition" (reference (b)) and this section.

(2) People with the requisite skills and experience to execute the Source Selection Plan are appointed to the Source Selection Advisory Council and the Source Selection Evaluation Board.

(3) Conflicts of interest, or the appearance thereof, are avoided.

(4) Premature or unauthorized disclosure of source selection information is avoided.

(5) The Under Secretary of Defense for Acquisition is informed of the outcome of the source selection after selection but before public announcement.

(6) The supporting rationale for a final source selection is documented before a contract award is announced.

d. A Source Selection Advisory Council may be appointed by the Source Selection Authority to provide advice to the Source Selection Authority. The Council may also be requested to prepare a comparative analysis of the evaluation results.

e. A Source Selection Evaluation Board shall be responsible for evaluating proposals and reporting the findings to the Source Selection Advisory Council or the Source Selection Authority.

f. The Program Manager shall be responsible for developing and implementing the acquisition strategy, preparing the Source Selection Plan, and for obtaining Source Selection Authority approval of the plan before issuance of the solicitation.

g. The Procurement Contracting Officer shall be responsible for preparation of solicitations and contracts, any communications with potential offerors, consistency of the Source Selection Plan with requirements of the Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement (references (c) and (d)), award of the contract, and any other functions and requirements specified in the Federal Acquisition Regulation, except for the source selection responsibilities of the Source Selection Authority.

h. All participants in the source selection process shall avoid the appearance of or actual conflicts of interest. See DoD Directive 5500.7, "Standards of Conduct" (reference (e)).

i. Persons, other than the Contracting Officer, participating in the evaluation shall avoid any discussions with offerors regarding proposals or related matters without the prior approval of the source selection authority.

j. Independent evaluators who are not part of the Advisory Council or Evaluation Board may require access to proposal information to fulfill their responsibilities. Independent evaluators who assess specific areas, such as cost or test and evaluation proposals, and who have access to proposal information, are bound by the same rules regarding conflict of interest and information disclosure as members of the source selection organization, whether or not they are designated members of the Advisory Council or Evaluation Board.

3. PROCEDURES

a. Organization

(1) The contracting officer is responsible for selecting the source or contract award unless another official is designated as the source selection authority. In acquisition category I and II programs, a formal source selection involving boards, councils, or other groups for proposal evaluation is essential.

(2) Although the Source Selection Authority function may be delegated, the Component Head normally will reserve the right to be briefed on the source selection results before announcement of the contract award.

(3) The Source Selection Advisory Council, when utilized, is a group of senior people with the requisite expertise to advise the Source Selection Authority on an acquisition.

(4) The Source Selection Evaluation Board is composed of people representing the various functional and technical disciplines relevant to the acquisition, to ensure a comprehensive evaluation of each offeror's proposal.

b. Release of Information. The effectiveness and integrity of the source selection process requires that all data and information received or developed during the source selection process be handled with the utmost discretion to avoid any compromise. Source selection data typically includes commercial and financial data received in confidence. Any public disclosure must be considered carefully in advance in accordance with DoD Directive 5400.7, "DoD Freedom of Information Act Program" (reference (f)) and DoD 5400.7-R, "DoD Freedom of Information Act Program" (reference (g)).

c. Source Selection Plan and Solicitation

(1) A Source Selection Plan will be prepared by the Program Manager, reviewed by the Procurement Contracting Officer, and approved by the Source Selection Authority before the issuance of the solicitation. Typically, a Source Selection Plan will consist of at least two parts.

(a) The first part describes the organization, membership, and responsibilities of the source selection team. This part of the plan normally does not contain source selection sensitive information.

(b) The second part of the plan identifies evaluation factors and detailed procedures for proposal evaluation. Source selection sensitive information in the plan must be protected from unauthorized disclosure to ensure the fairness and integrity of the source selection process.

(2) The purpose of evaluation factors is to inform offerors of the importance the Government attaches to various aspects of a proposal. Evaluation factors are a list of those aspects of a proposal that will be evaluated quantitatively and qualitatively to arrive at an integrated assessment as to which proposal can best meet the Government's need as described in the solicitation.

(3) To ensure fairness in the source selection process, evaluation factors and their relative importance must flow from the statement of work and must be furnished to all potential offerors in the solicitation.

(a) The relative importance of evaluation factors will be indicated in the solicitation. However, when numerical weights are applied by the Source Selection Authority or Advisory Council, such weights will not be disclosed either to offerors or to evaluators other than the Advisory Council. This is to preclude intentional or unintentional bias in proposals or evaluations.

(b) Evaluation factors in the Source Selection Evaluation Board evaluation plan may be broken down to sublevels below that specified in the solicitation.

(c) Technical and cost evaluation factors, when practicable, may follow a work breakdown structure (see Section 6-B) to a level where technical criteria can be scored.

(d) Unless the solicitation is amended, the relative importance of the factors will not be changed and no new factors will be introduced.

(e) Excessive subdivision of factors should be avoided to preclude an unnecessarily detailed assessment that obscures

significant differences among proposals due to an averaging of pluses and minuses at the lowest levels.

(4) Although cost is always a factor in source selection, lowest proposed contract cost often is not the determining factor in selecting sources for development.

(a) When cost is weighted in development source selections, the specified relative order of importance is intended to provide general guidance to offerors on the relative importance that the Government attaches to cost considerations, including unit procurement cost and life cycle cost objectives (see Sections 4-D and 6-K). Such guidance is intended to be used by offerors to include affordability considerations when making trade-offs to achieve a balanced proposal that is responsive to mission requirements while also reflecting program constraints.

(b) Typically, cost increases in importance as a discriminator in the source selection decision when differences among proposals relative to other factors are small and when cost proposals have a high degree of realism and credibility.

(5) In evaluating proposals, the Government will consider both program objectives and thresholds. Objectives are proposed contract specification values (see Section 11-A). Thresholds are minimum acceptable values that will enable the proposed system to satisfy the mission need (see Section 5-B).

(a) To the extent a proposed system exceeds the proposed contract specification values, the additional capability must be demonstrated to be advantageous and operationally meaningful to the Government.

(b) The range between objectives and thresholds is appropriate for trade-offs among parameters in the offeror's development of the most cost-effective solution to the Government's mission need.

(c) When the acquisition strategy includes the solicitation of alternate proposals, offerors are encouraged to pursue innovative concepts and propose objectives and variances different from those prescribed in the solicitation, if a more cost-effective solution to the Government's mission need can be demonstrated.

d. Tailoring

(1) Evaluation factors must be tailored to the appropriate phase of a system acquisition. Solicitations typically may include:

(a) An assessment of the extent to which proposed system capabilities meet the program objectives identified in the

solicitation and satisfy the minimum acceptable operational requirements;

(b) An assessment of technical and financial risk to design, produce, and operate the proposed system within schedule, cost, and other resource constraints;

(c) An assessment of the degree to which the proposed system can be used satisfactorily in operations, considering such items as availability, wartime usage rates, interoperability, transportability, safety, human factors, supportability, and manpower and training requirements;

(d) An assessment of the offeror's management, financial, technical, manufacturing, and other resources available or planned to develop and produce successfully the proposed system within schedule and resource constraints;

(e) Data rights for future competitive procurement, including high value spares;

(f) The realism of the offeror's contract and life cycle cost estimate, considering the scope of work to be performed and the degree of technical risk involved in the proposed system concept; and

(g) The offeror's recent and relevant past performance (measured by such indicators as quality, timeliness, cost, schedule, operational effectiveness, and suitability) should be considered in assessing the probability of successful accomplishment of the proposed effort in a timely and cost-effective manner.

(2) Those military and commercial specifications and standards identified for guidance during Phase I, Demonstration and Validation, should be tailored in contract requirements for Phase II, Engineering and Manufacturing Development, and, when priced production options are solicited, for initial production. For Phase III, Production and Deployment, the emphasis of the evaluation factors typically will shift from an assessment of the technical soundness of the proposed system concept to more objective criteria regarding the achievement of performance, producibility,schedule, and life-cycle cost objectives.

e. Special Instructions. In addition to the evaluation factors, solicitations should provide guidance to offerors regarding proposal page limitations, number of copies required, and the structure of proposals into separate volumes on technical, fabrication, cost, management, and other factors to facilitate the evaluation.

f. Draft Solicitations. The use of draft solicitations is encouraged to obtain feedback from prospective offerors. Draft requests should be as complete as possible, including a statement of work, specifications, data requirements, evaluation factors, and general

and specific provisions. Sufficient time should be allowed to permit prospective offerors to respond meaningfully. Feedback for consideration in preparing the final request for proposal should include identification of cost drivers, noncost-effective contract requirements, and any other changes that would enhance the acquisition program by improving system performance or by reducing life-cycle costs.

g. Proposal Evaluation

(1) Evaluation factors are used to make an integrated assessment of each offeror's ability to satisfy the requirements of the solicitation. Proposals are evaluated within these factors. The Source Selection Evaluation Board does not evaluate the relative merits of one proposal as compared to another. The Board individually evaluates proposals against the requirements of the solicitation. Only the Source Selection Authority and, if requested, the Source Selection Advisory Council will apply judgment regarding relative merits.

(2) Objective data, such as actual cost or demonstrated technical performance and field reliability and maintainability achievement on another similar or related system, is used in proposal evaluations to the extent that it is available and pertinent. However, objective data can only provide the basis for a judgment. The proposal evaluation process ensures that judgments are based soundly and that the integrated assessment takes into consideration all relevant information.

(3) There is no prescribed methodology for rating. Past practices include color coding, numerical, and plus or minus checks. The important thing is not the rating methodology but the consistency with which it is applied to elements of proposals and among proposals, to ensure a thorough and fair evaluation.

(a) Evaluators must be well grounded in their field of technical expertise and be able to apply mature professional judgment. Evaluators normally use not only data furnished with the proposal but also other relevant information obtained from pre-award surveys, field technical reports, and advisors or consultants. Cost evaluators also use field pricing reports and audit reports in their analysis.

(b) Each evaluator must support the rating assigned with a concise narrative that addresses strengths, weaknesses, and risks in the proposal. Factorssuch as production capability and management approach are considered but may or may not be evaluated separately, as directed by the Source Selection Authority. These factors typically have a pervasive impact and therefore cannot be evaluated in the same way as other, more narrowly defined, factors.

(c) Contractor assistance, if needed, will be obtained strictly in accordance with law, the Federal Acquisition Regulation (including Federal Acquisition Regulation paragraph 37.104(b)) and the Defense Federal Acquisition Regulation Supplement, if applicable. Advisory Contractor personnel will not rate or rank proposals, assign numerical scores or otherwise act in a decisionmaking capacity. The use of advisory contractor personnel must be approved by the Source Selection Authority in advance of their participation.

(4) Although proposals and evaluation factors are subdivided into manageable entities, a proposal evaluation is an integrated assessment and not merely a summation of scores. For example:

(a) The soundness of the technical approach in a proposal is evaluated on the basis of both the feasibility of the technical approach described in the proposal and the level of resources to be applied in terms of the quantity and skill mix of the proposed labor.

(b) The reasonableness of the level of resources applied also becomes a factor in the evaluation of the cost proposal when the quantity, quality, and pay rates of the direct labor input as well as materials, subcontracts, and indirect input are assessed for reasonableness and realism.

(5) Proposal evaluations will be documented for the purposes of creating a record as to how the overall score of the proposal was derived and creating a record that demonstrates that the evaluation was fair, comprehensive, and performed in accordance with the evaluation plan.

(6) In preparing for proposal evaluations, it is important to note that the evaluation plan is based on the statement of work. The evaluation plan, and consequently the proposal evaluation, can only assess an offeror's response to stated objectives and thresholds.

(a) To provide offerors the opportunity to make trade-offs and propose innovative solutions, the work statement should include a description of the mission need and minimum acceptable operational performance (see Section 5-B) and should be written in terms of performance objectives rather than design requirements to the maximum extent practicable. Military and commercial specifications and standards should be identified for guidance only in Phase I, Demonstration and Validation.

(b) To preclude incorporating by reference unnecessary specifications and standards, they will be tailored and incorporated into contract requirements for Phase II, Engineering and Manufacturing Development, and Phase III, Production and Deployment.

(c) In addition to operational performance, the solicitation and the evaluation plan should include other objectives regarding operational suitability, producibility engineering and planning, production planning, design to cost, standardization, interoperability, productivity improvement, quality assurance, foreign source participation, the level and extent of testing, warranties, the identification of cost drivers in future spare parts acquisitions and the utilization of commercially available, nonproprietary or military standardized parts, and other criteria, as appropriate, for the specific acquisition.

(7) Proposal evaluators must consider the technical, schedule, operational readiness and support, and financial risks inherent in a proposal. One means of assessing that risk is to review an offeror is recent actual performance in relevant areas.

(a) Past performance, as an element of risk analysis, may be used as one predictor of the probability of satisfactory performance on the proposed program being evaluated.

(b) Evidence of past performance may be obtained from numerous sources, such as the offerors, pre-award surveys, on-site Government people at a contractor's facility, field data collection systems, and other procuring activities that are or were customers of the offeror whose proposal is being evaluated.

(8) Independent cost estimates are necessary as a benchmark against which to compare proposal cost estimates. Such estimates may be either Government estimates of a notional system that would satisfy the need or independent cost estimates of the specific systems approach proposed by the offeror. The latter has the advantage of using the same baseline as that proposed by the offeror.

(a) The realism of the offeror's proposal should be indicated by a ranking relative to the Government's estimate. Partial estimates, particularly of high risk areas, may be used when time or cost constraints do not permit development of a complete independent estimate for each proposal.

(b) Life cycle cost estimates will take into consideration all costs to the Government, including costs incurred or avoided as a result of changes in such areas as maintenance procedures, use of facilities, shipping, training, and staffing.

(9) Cost proposals are evaluated not only from the standpoint of total cost to the Government but also considering the reasonableness and realism of the cost estimate. Reasonableness is determined by an assessment of the level of the proposed

effort. The Government's objective is to pay a fair and reasonable price for work performed under contracts.

(a) The test for reasonableness ensures that the Government does not pay more than what is fair, considering system effectiveness and suitability as well as efficiency in the conduct of the design and manufacturing phases.

(b) The test for realism ensures that risk is taken into consideration to preclude a buy-in that promises low cost but cannot be substantiated as credible by either the level of the proposed effort or the efficiency with which the work is to be carried out.

(10) Elements of cost are evaluated to aid in the assessment of the total cost to the Government. Even when the principal cost driver is the direct input (labor and material), the management of indirect costs and rate structures must be evaluated both from the standpoint of their absolute level as well as trends.

(11) Solicitations will notify offerors that proposals that are unrealistic in terms of technical or schedule commitments, or unrealistically low in cost or price, will be considered indicative of a lack of understanding of the complexity and risk in the contract requirements.

h. Clarifications and Negotiations. The Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement (references (c) and (d)) apply.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	UASD(A)	Dir, DefProc
Dept of Army	ASA(RDA)	SARD-ZP
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQC

PART 10

SECTION C

ACQUISITION STREAMLINING

References: (a) DoD Directive 5000.43, "Acquisition Streamlining," January 15, 1986 (canceled)
(b) MIL-HDBK-248, "Acquisition Streamlining"
(c) DoD 4120.3-M, "Defense Standardization and Specification Program Policies, Procedures and Instructions," August 1978, authorized by this Instruction
(d) DoD Index of Specifications and Standards (DoDISS)
(e) DoD 5010.12-L, "Acquisition Management Systems and Data Requirements Control List (AMSDL)," October 1987, authorized by this Instruction

1. PURPOSE

a. This section replaces DoD Directive 5000.43, "Acquisition Streamlining" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for developing innovative and cost-effective acquisition strategies to reduce the time and cost of acquisition programs while maintaining or improving product quality.

c. This section authorizes the Assistant Secretary of Defense (Production and Logistics) to publish MIL-HDBK-248, "Acquisition Streamlining" (reference (b)) in accordance with DoD 4120.3-M, "Defense Standardization and Specification Program Policies, Procedures and Instructions" (reference (c)).

2. POLICIES

a. All acquisitions shall be streamlined and contain only those requirements which are essential and cost-effective.

(1) Requirements shall be stated in terms of performance rather than "how-to-manage" or "how-to-design" procedures.

(2) Management data requirements shall be limited to those essential for effective control.

b. Design solutions and specifications, standards, and related documents shall not be applied prematurely.

c. Acquisition process requirements not prescribed by Public Law, the Federal Acquisition Regulation, or supplements thereto, shall be tailored to meet specific needs of individual programs as described

in Part 2 of this Instruction. This includes business practices, methods, and procedures. Relief or exemption shall be sought for those requirements that fail to add value, are not essential, or are not cost-effective.

d. Nondevelopmental items shall be used to meet acquisition requirements wherever possible.

e. Early industry involvement in the acquisition effort shall be encouraged to take advantage of industry expertise to improve the acquisition strategy.

3. PROCEDURES

a. Standardization Documents. Cited specifications, standards, and related documents will be selected from the DoD Index of Specifications and Standards (DoDISS) (reference (d)) and the Acquisition Management Systems and Data Requirements Control List (AMSDL) (reference (e)). Documents not listed in these sources will not be used unless they are essential and unique to a program.

b. Applicability of Standardization Documents. The applicability of specifications, standards, and related documents will be:

(1) Phase I, Demonstration and Validation: for guidance only.

(2) Phase II, Engineering and Manufacturing Development: limited to the documents specifically cited in the contract as requirements and to specified portions of documents directly referenced in those cited documents (first tier references). All other referenced documents (second tier and below) will be for guidance only.

(3) Phase III, Production and Deployment: limited to the documents identified as the production baseline.

c. Use of Contractor Management Systems. A contractor's management systems, internal procedures, methods, processes, and data product formats will be used to the maximum extent practicable.

d. Streamlining Procedures. MIL-HDBK-248 (reference(b)) outlines procedures for acquisition streamlining. The following changes pertain to the application of the procedures in the handbook, pending its revision to reflect the acquisition process established by this Instruction.

(1) The following is a crosswalk between the acquisition phases, and the actions to be taken in each phase, that are identified in the handbook and the phases established by this Instruction.

HANDBOOK	DoD INSTRUCTION 5000.2
Concept Exploration	Phase 0, Concept Exploration and Definition

Demonstration and Validation	Phase I, Demonstration and Validation
Full-Scale Development	Phase II, Engineering and Manufacturing Development
Production	Phase III, Production and Deployment

(2) The System Concept Paper (SCP) prepared for Milestone I and the Decision Coordinating Paper (DCP) prepared for Milestones II and III no longer exist. The content of those documents is now in the Integrated Program Summary (see Section 11-C) at each milestone.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(P&L)	DASD(PR)/MM *
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX

PART 11

PROGRAM CONTROL AND REVIEW

The Program Manager and the decisionmakers in the acquisition chain to the milestone decision authority can effectively control a program only if they are kept informed of emerging problems. The information needed comes from a monitoring system which is based on the premise of management by exception.

The material contained in the following sections, organized as indicated below, describes the required monitoring system and identifies uniform policies and procedures for the review and oversight of all acquisition programs.

SECTION	SUBJECT
A	Program Objectives and Baselines
B	Contract Performance Measurement
C	Milestone Review Procedures and Documentation
D	Periodic Program Status Reports and Required Certifications
E	Program Plans

PART 11

SECTION A

PROGRAM OBJECTIVES AND BASELINES

References: (a) Title 10, United States Code, Section 2435, "Enhanced program stability"
(b) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

a. This section implements Title 10, United States Code, Section 2435, "Enhanced program stability" (reference (a)).

b. These policies and procedures establish the basis for the preparation, submittal, approval, and reporting of acquisition program baselines for defense acquisition programs.

c. The purpose of the acquisition program baseline is to:

(1) Enhance program stability, and

(2) Provide a critical reference point for measuring and reporting the status of program implementation.

2. POLICIES

a. Acquisition program baselines shall embody the cost, schedule, and performance objectives for the program. They shall be approved by the milestone decision authority at milestone reviews as follows:

(1) The Concept Baseline, approved at Milestone I, shall be applicable to the effort in Phase I, Demonstration and Validation;

(2) The Development Baseline, approved at Milestone II, shall be applicable to the effort in Phase II, Engineering and Manufacturing Development; and

(3) The Production Baseline, approved at Milestone III, shall be applicable to the effort in Phase III, Production and Deployment.

b. Each baseline shall contain objectives for key cost, schedule, and performance parameters. Performance parameters shall include supportability. Objectives shall be accompanied by minimum acceptable requirements known as thresholds. Key parameters are those that if the thresholds are not met, the milestone decision

authority would require a reevaluation of alternative concepts or design approaches.

(1) Program objectives evolve from broad, general objectives at Milestone I to system-specific, detailed requirements at Milestone III.

(a) Program objectives are established based on the results of the preceding program phase(s).

(b) They must meet or exceed the thresholds and, in the case of performance, should represent an operationally meaningful, cost-effective, and affordable increment in capability above the minimum acceptable.

(2) Minimum acceptable operational requirements are established in the Operational Requirements Document at each milestone (see Section 4-B).

(3) The thresholds establish deviation limits, i.e.; the parameters beyond which the Program Manager may not trade off cost, schedule, or performance without authorization from the milestone decision authority.

c. The Program Manager shall maintain a Current Estimate of the program actually being executed.

(1) The Current Estimate represents the trade-offs between cost, schedule, and performance made by the Program Manager as well as changes made in the program external to the Program Manager (e.g., by Congressional action).

(2) Program breaches occur when the Current Estimate of the program falls outside one or more acquisition program baseline thresholds.

(3) The method of advising the milestone decision authority of program breaches is through program deviation reporting.

d. Acquisition program baselines and deviation reporting are required for all acquisition categories. The formality of the baseline and the deviation reporting shall vary by acquisition category.

(1) Acquisition category I programs shall have formal baselines and deviation reporting in accordance with the formats and reporting procedures specified in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)).

(2) The deviation criteria for acquisition category I programs, beginning with the Concept Baseline, shall be in accordance with Section 11-D of this Instruction.

(3) The formality of baselines, deviation criteria, and deviation reporting for acquisition category II, III, and IV programs

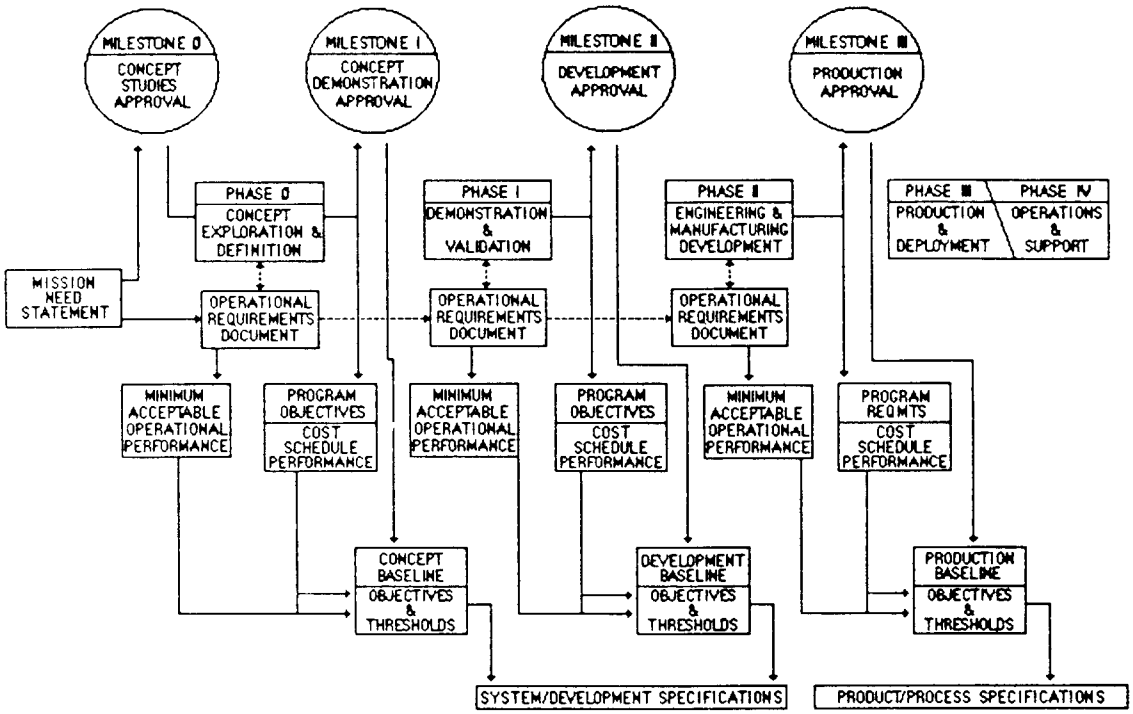
shall be as specified by the milestone decision authority. They shall be tailored to the priority, value, and risk inherent in the program. In no case shall they be stricter than the criteria applicable to acquisition category I programs.

e. Once signed by the milestone decision authority, acquisition program baselines shall only be changed at subsequent milestone or program reviews or, with the approval of the milestone decision authority, as a response to an unrecoverable baseline deviation.

* *

3. PROCEDURES

a. General Relationships. The chart below depicts the relationship of acquisition program baselines to program milestones, phases, and other program documentation. The baselines and relationships are described in detail in the following paragraphs.



b. Concept Baseline. The Concept Baseline will contain broad objectives and thresholds for key cost, schedule, and performance parameters (see Section 4-B).

(1) The thresholds for the key performance parameters identified in the Concept Baseline will be the minimum acceptable operational requirements identified in the Operational Requirements Document for those parameters.

(a) If a required operational capability date is identified in the Operational Requirements Documents, it will be included in the Concept Baseline as a schedule threshold.

(b) Cost thresholds will be established by the milestone decision authority based on affordability assessments.

(2) Objectives should be established based on the results of concept definition studies, cost and operational effectiveness analyses (see Section 4-E), and affordability assessments (see Section 4-D).

(a) Objectives should be reasonable and realistic and, in the case of performance parameters, should reflect an operationally meaningful, measurable, cost-effective, and affordable increment in capability beyond the thresholds.

(b) Performance objectives in the Concept Baseline should be the starting point for developing initial, draft system specifications during Phase I, Demonstration and Validation.

(3) A Current Estimate which fails to meet a cost, schedule, or performance threshold will constitute a reportable program deviation.

(4) The Concept Baseline will be submitted by the designated component official through the milestone decision authority chain as a stand-alone part of the Milestone I documentation (see Section 11-C). It will be approved or modified by the milestone decision authority as a result of a favorable Milestone I decision.

c. Development Baseline. The Development Baseline will contain more detailed and refined objectives and thresholds for key cost, schedule, and performance parameters (see Section 4-B).

(1) Thresholds for the key performance parameters will be included in the Development Baseline using the minimum acceptable operational requirements identified in the Operational Requirements Document for those parameters.

(2) Development objectives will be a refinement of the broad objectives established in the Concept Baseline based on the results of Phase I, Demonstration and Validation, the cost and operational effectiveness analyses (see Section 4-E), and affordability assessments (see Section 4-D).

(a) Values for objectives in the Development Baseline may be different from the values for like objectives in the Concept Baseline.

(b) The number and types of parameters for which objectives are established in the Development Baseline will usually be expanded over those contained in the Concept Baseline.

(3) Objectives should be reasonable and realistic and, in the case of performance parameters, should represent an operationally

meaningful, measurable, cost-effective, and affordable increment in capability beyond the threshold. Performance requirements in system and development specifications should be traceable to the performance objectives in the Development Baseline for related parameters.

(4) A Current Estimate that fails to meet a cost, schedule, or performance threshold will constitute a reportable program deviation. Deviation criteria for cost and schedule will be in accordance with paragraph 2.d., above.

(5) The Development Baseline will be submitted as a stand-alone part of the Milestone II documentation (see Section 11-C) and be approved or modified by the milestone decision authority as a result of a favorable Milestone II decision.

d. Production Baseline. The Production Baseline will contain updated objectives and thresholds for key cost, schedule, and performance parameters (see Section 4-B).

(1) Thresholds for the key performance parameters will be included in the Production Baseline. The basis for these parameters will be the minimum acceptable operational requirements contained in the Operational Requirements Document for the parameters.

(2) Production objectives will be a refinement and, as appropriate, an expansion of the objectives established in the Development Baseline. They are to be based on the results of Phase II, Engineering and Manufacturing Development, updated affordability assessments (see Section 4-D), and any updates to cost and operational effectiveness analyses (see Section 4-E).

(3) Performance objectives should represent an operationally meaningful, measurable, cost effective, and affordable increment in capability beyond the threshold. Performance requirements in the system, development, and/or product specifications should be traceable to the performance objectives in the Production Baseline for related parameters.

(4) A Current Estimate that fails to meet a cost, schedule, or performance threshold will constitute a reportable program deviation. Deviation criteria for cost and schedule will be in accordance with paragraph 2.d., above.

(5) The Production Baseline will be submitted as a stand-alone part of the Milestone III documentation (see Section 11-C) and be approved by the milestone decision authority as part of the Milestone III decision.

e. Relationship of Baseline Thresholds, Exit Criteria, and Contract Specifications.

(1) Acquisition program baseline objectives and thresholds are derived from the objectives and minimum acceptable operational

performance requirements specified in the Operational Requirements Document and from acquisition-driven program objectives for cost, schedule, and performance. Values for acquisition program baseline parameters reflect the cost and performance characteristics of the system as it is expected to be produced and/or fielded as well as the program schedule.

(2) Exit criteria are the specific minimum requirements that must be satisfactorily demonstrated before an effort or program can progress further in the current acquisition phase or transition to the next acquisition phase. Failure to meet an exit criterion halts the progress of the system towards the next milestone decision point.

(a) Exit criteria are tied to the acquisition phase in which the program is currently engaged and represent a point on the path or growth curve towards the cost, schedule, and performance characteristics of the system defined in the acquisition program baseline.

(b) Exit criteria are not always performance parameters, but may be training events, test events, costs, or contract provisions.

(c) If an exit criterion is a performance parameter, demonstrating the achievement of that exit criterion is a necessary step towards successful attainment of the operational requirement at production (e.g., speed, weight) or fielding (e.g., reliability, software maturity).

(3) Contract specifications are the requirements levied on a contractor. Contract specifications reflect the expected capabilities to be produced and/or fielded and are traceable to the cost, schedule, and performance objectives of the acquisition program baseline. Contract specifications are also tied to the acquisition phase in which the program is currently engaged. Contract specifications reflect the demonstration requirements for that phase including unique demonstration requirements in support of exit criteria.

f. Additional Guidance. Additional explanation of the relationship between acquisition program baselines and exit criteria is given at Attachment 1.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dir, RE
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	VCJCS	J8/SPED

* Attachment - 1 *

* 1. Acquisition Program Baselines and Exit Criteria *

PART 11
SECTION A
ATTACHMENT 1

ACQUISITION PROGRAM BASELINES AND EXIT CRITERIA

Each acquisition program baseline contains objectives and minimum acceptable requirements -- known as thresholds -- for key cost, schedule, and performance parameters. While the level of detail of the acquisition program baseline evolves as the program progresses, subparagraph 3.e.(1) of Section 11-A states that "values for acquisition program baseline parameters reflect the cost and performance characteristics of the system as it is expected to be produced and/or fielded..." (emphasis added). Exit criteria, unlike the acquisition program baseline, are tailored to the phase and are described in both Part 2 and subparagraph 3.e.(2) of Section 11-A as program-specific results to be required in the phase. Exit criteria are gates that must be passed for significant events to occur during a phase, as well as criteria which must be satisfied at the end of a phase before passing to the next phase.

1. Acquisition Program Baselines -- Purpose, Content, and Evolution

   a. Paragraph 2.b. of Section 11-A defines key parameters for baselines as "those that if the thresholds are not met the milestone decision authority would require a reevaluation of alternative concepts or design approaches." This means the milestone decision authority may revisit the Milestone I or II decision unless there is a compelling reason to relax the threshold. Thresholds and objectives in the acquisition program baseline should be determined, by and large, by the interrelated work done in the previous phase -- requirements evolution, cost estimates, acquisition strategy determination, and cost and operational effectiveness analyses.

   b. The identification of acquisition program baseline parameters is done by both the requirements validation authority and the milestone decision authority. The requirements validation authority -- the Joint Requirements Oversight Council for acquisition category I D programs -- identifies the key operational performance (and schedule, if appropriate) parameters in the Operational Requirements Document, and these parameters should be included in the acquisition program baseline. The milestone decision authority may include in the acquisition program baseline other performance parameters identified by technical risk assessment, cost and operational effectiveness analysis, etc.

   c. Likewise, the specification of values for the acquisition program baseline parameters is done by both the requirements validation authority and the milestone decision authority. The values of thresholds for operational performance, and occasionally for operational capability schedules, are derived from the Operational Requirements Document as described in Section 4-B. The Operational Requirements Document values should be influenced by analyses as well as military judgment. Acquisition program baseline objectives for operational performance may be derived from the operational requirements document but as noted in

subparagraph 2.c.(3) of Section 4-B, they may be influenced by other considerations such as cost and operational effectiveness analyses. Values for both thresholds and objectives for non-operational key parameters are specified by the milestone decision authority based on assessments and analyses. Objectives may be the same as the threshold values, or they may represent a meaningful increment beyond the threshold level.

d. The initial acquisition program baseline at Milestone I, the Concept Baseline, contains a few key, high-level cost, schedule, and performance parameters. Subsequent baselines (Development at Milestone II and Production at Milestone III) include additional, more detailed, key parameters representing the results of tradeoffs during the previous phase. Demonstration of these key parameters -- and other parameters in the operational requirements document -- provide the test data and analyses to assess if the system is operationally effective and suitable and meets the mission need. The higher order parameters in the previous baseline -- possibly refined as a result of tradeoffs and analyses in the previous phase -- should be retained in the new baseline unless no longer judged to be key.

e. At earlier milestones, risk management, as described in paragraph 3 of Part 2, and the achievement of any exit criteria, as described in paragraph 2, below, establish confidence in our ability to achieve program thresholds. Performance thresholds should be demonstrated prior to commitment to full-rate production (Milestone III) unless the particular parameter (e.g., reliability) requires more test data than can reasonably be expected at Milestone III. In this case, a value on a growth curve should be demonstrated.

2. Exit Criteria -- Purpose, Nature, and Use

a. During a phase, exit criteria may serve as "gates" that, when successfully passed (or exited), allow the program office to expand its activities or commitments within that phase (e.g., long-lead procurement or low-rate initial production), with or without a formal program review. At the end of a phase, exit criteria are any program-specific accomplishments required in addition to the minimum required accomplishments for the phase (listed in Part 3) and any other acquisition decision memorandum direction. In either case, exit criteria may be related to performance, technology (e.g., demonstrate a new manufacturing process), or events (e.g., critical design review, first flight, final assembly). Exit criteria may be established for a parameter that is also a performance parameter in the acquisition program baseline if the demonstration of that acquisition program baseline parameter to some value -- not necessarily the threshold -- is critical to risk reduction for the particular phase of the program. This usage is most likely for the Demonstration and Validation Phase.

b. Exit criteria should be carefully and selectively applied. They are intended to be beneficial to both the milestone decision authority and the program manager. For the milestone decision authority, the use of exit criteria offers flexibility to set execution boundaries for each phase of the program and to regulate the amount of oversight to be applied during the phase. For the program manager, the use of exit criteria offers the

freedom to execute key events during the phase without the formality of milestone decision authority and staff reviews except at milestone decisions. However, if exit criteria are not met, they may delay progress or trigger a program review. To be effective, exit criteria must be specific and quantitative. They are not intended to repeat or usurp the minimum required accomplishments for each phase contained in this Instruction, or the acquisition program baseline objectives and thresholds.

3. Different Purposes, Different Functions

The acquisition program baseline defines the overall acquisition program (cost, schedule, performance) for a system as the user expects it to ultimately perform and the DoD expects it to cost. Program status is measured and reported relative to the acquisition program baseline. Exit criteria define program specific achievements for a phase of the acquisition program that are measures of progress (risk reduction), during and/or at the end of a phase, toward meeting APB thresholds. Additional program activities or program reviews are triggered by failure to meet exit criteria.

PART 11

SECTION B

CONTRACT PERFORMANCE MEASUREMENT

References:
(a) DoD Instruction 7000.2, "Performance Measurement for Selected Acquisitions," June 10, 1977 (canceled)
(b) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction
(c) Cost/Schedule Control Systems Criteria Joint Implementation Guide (AFSCP 173-5, AFCCP 173-5, AFLCP 173-5, AMC-P 715-5, NAVSOP 3627, DLA H 8400.2, DCAA P 7641.47), October 1, 1987
(d) Cost/Schedule Control Systems Criteria Joint Surveillance Guide (AFSCP 173-6, AFLCP 173-6, AMC-P 715-10, NAVMAT P 5243, DSA H 8315.1, DCAA P 7641.46) July 1, 1974
(e) Defense Federal Acquisition Regulation Supplement (DFARS), Subpart 234.005-71, "Contract Clauses for Major Systems Acquisition," and Contract Clause 252.234-7001, "Cost/Schedule Control Systems"
(f) Federal Acquisition Regulation (FAR), Subpart 31.202, "Direct Costs," and Subpart 31.203, "Indirect Costs," current edition

1. PURPOSE

a. This section replaces DoD Instruction 7000.2, "Performance Measurement for Selected Acquisitions" (reference (a)), which has been canceled.

b. These policies and procedures establish the basis for applying cost/schedule control systems criteria (C/SCSC) to significant defense contracts.

c. The purpose of cost/schedule control systems criteria is to provide contractor and the Government program managers with accurate data to monitor execution of their program and to:

(1) Preclude the imposition of specific cost and schedule management control systems by providing uniform evaluation criteria to ensure contractor cost and schedule management control systems are adequate;

(2) Provide an adequate basis for responsible decisionmaking by both contractor management and DoD Component personnel by requiring that contractors' internal management control systems produce data that:

(a) Indicate work progress;

(b) Properly relate cost, schedule, and technical accomplishment;

(c) Are valid, timely, and able to be audited; and

(d) Provide DoD Component managers with information at a practical level of summarization; and

(3) Bring to the attention of DoD contractors, and encourage them to accept and install, management control systems and procedures that are most effective in meeting requirements and controlling contract performance.

2. POLICIES

a. When applicable, the contract shall require that any system used by the contractor in planning and controlling the performance of the contract shall meet the criteria set forth in this section.

(1) Nothing in these criteria is intended to affect the basis on which costs are reimbursed and progress payments made, and nothing herein shall be construed as requiring the use of any single system, or specific method of management control or evaluation of performance.

(2) The contractor's internal systems need not be changed, provided they satisfy these criteria.

(3) The contractors' management control systems shall include policies, procedures, and methods which are designed to ensure that they shall accomplish the considerations highlighted in attachment 1.

b. Unless waived by the milestone decision authority or a designated representative, compliance with the cost/schedule control systems criteria shall be required on significant contracts and subcontracts within all acquisition programs, including highly sensitive classified programs and major construction programs.

(1) This also includes significant contracts executed for foreign governments and for specialized organizations such as the Defense Advanced Research Projects Agency, and significant acquisition effort performed by Government activities.

(2) Significant contracts are research, development, test, and evaluation contracts with a value of $60 million or more or procurement contracts with a value of $250 million or more (in fiscal year 1990 constant dollars).

c. Compliance with the cost/schedule control systems criteria shall not be required on firm fixed price contracts (including firm fixed price contracts with economic price adjustment provisions), time and materials contracts, and contracts which consist mostly of level-of-

effort work. Exceptions may be made by the milestone decision authority for individual contracts.

d. On contracts that are determined to be not significant enough for cost/schedule control systems criteria application, the cost/schedule status report (C/SSR) shall be required unless excluded under paragraph 2.c., above. The cost/schedule status report is described in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)).

3. PROCEDURES

a. General. Cost and schedule performance data provided to the Government will be summarized directly from the same systems used for internal contractor management.

(1) The policies and procedures contained herein will not be construed as requiring the use of specific systems or changes in accounting systems which will adversely affect the equitable distribution of costs to all contracts, or compliance with cost accounting standards, rules, and regulations.

(2) No changes will be required in contractors' existing cost and schedule control systems except those changes minimally necessary to meet the cost/schedule control systems criteria.

b. Subcontracts. Subcontracts within applicable programs, excluding those that are firm fixed price, may be selected for application of cost/schedule control systems criteria by mutual agreement between prime contractor and the contracting DoD Component, according to the criticality of the subcontract to the program.

(1) Coverage of certain critical subcontracts may be directed by the Program Manager, subject to the changes clause of the contracts.

(2) In those cases where a subcontractor is not required to comply with the criteria, the cost/schedule status report approach to performance measurement will normally be used. (See DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (b)).)

c. Milestone Decision Review. The applicability of cost/schedule control systems criteria and provisions concerning the acceptability and use of contractor's cost/schedule control systems will be:

(1) Included in the Integrated Program Summary (IPS) developed in support of a Milestone II or Milestone III decision review (see Section 11-C);

(2) Addressed in acquisition plans; and

(3) Set forth in solicitations and made a contractual requirement in appropriate procurements (see Subparts 234.005-71 and

252.234-7001 of the Defense Federal Acquisition Regulation Supplement (reference (e)).

d. Reviews of Systems. To ensure compliance with cost/schedule control systems criteria, contractors' systems will be reviewed during various phases of the contracting process as follows:

(1) Where the cost/schedule control systems criteria are included as a requirement in the request for proposal, an evaluation review will be performed as an integral part of the source selection process.

(2) After contract award, an in-plant demonstration review will be made to verify that the contractor is operating systems that meet the criteria.

(3) Upon successful completion of the demonstration review, contractors will not be subjected to another demonstration review unless there are positive indications that the contractors' systems no longer operate so as to meet the criteria.

(4) Subsequent contracts may require a review of shorter duration and less depth to ensure proper and effective application of the accepted systems to the new contract.

(5) Detailed procedures relating to contractual application, interpretive guidance, inter-Service relationships, and conduct of systems reviews are in the Cost/Schedule Control Systems Criteria Joint Implementation Guide (reference (c)).

e. Advance Agreement. After determination that a management system meets the cost/schedule control systems criteria, an advance agreement may be established between the Department of Defense and the contractor to be incorporated by reference into future contracts.

(1) The use of the advance agreement contemplates the execution of a written instrument that references the cost/schedule control systems criteria and negotiated provisions, which:

(a) Reflect an understanding between the contractor and the DoD of the cost/schedule control systems criteria requirements.

(b) Identify the specific cost/schedule control systems criteria compliant system(s) that the contractor intends to use on applicable contracts with DoD Components.

(2) The advance agreement will include or reference a written description of the accepted system(s).

(a) The system description should be in sufficient detail to permit adequate surveillance by responsible parties.

(b) The use of the advance agreement is preferred where a number of separate contracts between one or more DoD Components and the contractor may be entered into during the term of the advance agreement.

(c) The DoD Component negotiating the advance agreement with the contractor will make the agreement for all prospective contracting DoD Components.

(3) Action to develop an advance agreement may be started by either the contractor or the DoD Component, normally in connection with a contractual requirement.

(a) Reference to an advance agreement satisfies the cost/schedule control systems criteria requirement in requests for proposal.

(b) Procedures for executing advance agreements are included in the Cost/Schedule Control Systems Criteria Joint Implementation Guide (reference (c)).

f. Surveillance. Recurring evaluations of the effectiveness of the contractor's policies and procedures will be performed to ensure that the contractor's system continues to meet the cost/schedule control systems criteria and provides valid data consistent with the intent of this section.

(1) Surveillance reviews will be based on selective tests of reported data and periodic evaluations of internal practices during the life of the contract.

(2) Guidance for surveillance is contained in the Cost/Schedule Control Systems Criteria Joint Surveillance Guide (reference (d)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

a. Each DoD Component will designate a component performance measurement cost/schedule control systems criteria focal point.

(1) The Component focal points will constitute the Performance Measurement Joint Executive Group (PMJEG).

(2) The Performance Measurement Joint Executive Group will provide uniform joint policy and procedure recommendations for DoD Component Head approval.

(3) The Performance Measurement Joint Executive Group will provide uniform cost/schedule control systems criteria interpretation, arbitration, and coordination with industry.

b. The Defense Contract Audit Agency and applicable contract administration offices will participate in reviews of contractors' systems under their cognizance, perform surveillance, and collaborate

with each other and with the procuring DoD Component in reviewing areas of joint interest.

c. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, CM
Dept of Army	ASA(RDA)	SARD-ZP
Dept of Navy	ASN(RDA)	Dir, APIA
Dept of Air Force	ASAF(FM)	SAF/FMC

Attachments - 2

1. Cost/Schedule Control Systems Criteria
2. Cost/Schedule Control Systems Definitions

COST/SCHEDULE CONTROL SYSTEMS CRITERIA

The contractors' management control systems shall include policies, procedures and methods that are designed to ensure that they will accomplish the considerations reflected herein.

1. Organization

   a. Define all authorized work and related resources to meet the requirements of the contract, using the contract work breakdown structure (WBS).

   b. Identify the internal organizational elements and the major subcontractors responsible for accomplishing the authorized work.

   c. Provide for the integration of the contractor's planning, scheduling, budgeting, work authorization and cost accumulation systems with each other, the contract work breakdown structure, and the organizational structure.

   d. Identify the managerial positions responsible for controlling overhead (indirect costs).

   e. Provide for integration of the contract work breakdown structure with the contractor's functional organizational structure in a manner that permits cost and schedule performance measurement for contract work breakdown structure and organizational elements.

2. Planning and Budgeting

   a. Schedule the authorized work in a manner which describes the sequence of work and identifies the significant task interdependencies required to meet the development, production, and delivery requirements of the contract.

   b. Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure output.

   c. Establish and maintain a time-phased budget baseline at the cost account level against which contract performance can be measured. Initial budgets established for this purpose will be based on the negotiated target cost. Any other amount used for performance measurement purposes must be formally recognized by both the contractor and the Government.

   d. Establish budgets for all authorized work with separate identification of cost elements (labor, material, etc.).

e. To the extent the authorized work can be identified in discrete, short span work packages, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire cost account can not be subdivided into detailed work packages, identify far term effort in larger planning packages for budget and scheduling purposes.

f. Provide that the sum of all work package budgets, plus planning package budgets within a cost account equals the cost account budget.

g. Identify relationships of budgets or standards in work authorization systems to budgets for work packages.

h. Identify and control level-of-effort activity by time-phased budgets established for this purpose. Only that effort which cannot be identified as discrete, short span work packages or as apportioned effort may be classed as level-of-effort.

i. Establish overhead budgets for the total costs of each significant organizational component whose expenses will become indirect costs. Reflect in the contract budgets at the appropriate level the amounts in overhead pools that are planned to be allocated to the contract as indirect costs.

j. Identify management reserves and undistributed budget.

k. Provide that the contract target cost plus the estimated cost of authorized but unpriced work is reconciled with the sum of all internal contract budgets and management reserves.

3. Accounting

a. Record direct costs on an applied or other acceptable basis in a manner consistent with the budgets in a formal system that is controlled by the general books of account.

b. Summarize direct costs from cost accounts into the work breakdown structure without allocation of a single cost account to two or more work breakdown structure elements.

c. Summarize direct costs from the cost accounts into the contractor's functional organizational elements without allocation of a single cost account to two or more organizational elements.

d. Record all indirect costs which will be allocated to the contract.

e. Identify the bases for allocating the cost of apportioned effort.

f. Identify unit costs, equivalent unit costs, or lot costs as applicable.

g. The contractor's material accounting system will provide for:

(1) Accurate cost accumulation and assignment of costs to cost accounts in a manner consistent with the budgets using recognized, acceptable costing techniques.

(2) Determination of price variances by comparing planned versus actual commitments.

(3) Cost performance measurement at the point in time most suitable for the category of material involved, but no earlier than the time of actual receipt of material.

(4) Determination of cost variances attributable to the excess usage of material.

(5) Determination of unit or lot costs when applicable.

(6) Full accountability for all material purchased for the contract, including the residual inventory.

4. Analysis

a. Identify at the cost account level on a monthly basis using data from, or reconcilable with, the accounting system:

(1) Comparison of budgeted cost for work scheduled and budgeted cost of work performed;

(2) Comparison of budgeted cost for work performed and actual (applied where appropriate) direct costs for the same work; and

(3) Variances resulting from the comparisons between the budgeted cost for work scheduled and the budgeted cost for work performed and between the budgeted cost for work performed and actual or applied direct costs, classified in terms of labor, material, or other appropriate elements together with the reasons for significant variances.

b. Identify on a monthly basis, in the detail needed by management for effective control, budgeted indirect costs, actual indirect costs, and cost variances with the reasons for significant variances.

c. Summarize the data elements and associated variances listed in subparagraphs 4.a.(1) and (2), above, through the contractor organization and work breakdown structure to the reporting level specified in the contract.

d. Identify significant differences on a monthly basis between planned and actual schedule accomplishment and the reasons.

e. Identify managerial actions taken as a result of criteria items in paragraphs 4.a. through 4.d., above.

f. Based on performance to date, on commitment values for material, and on estimates of future conditions, develop revised estimates of cost

at completion for work breakdown structure elements identified in the contract and compare these with the contract budget base and the latest statement of funds requirements reported to the Government.

5. Revisions and Access to Data

a. Incorporate contractual changes expeditiously, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the functional organizations.

b. Reconcile original budgets for those elements of the work breakdown structure identified as priced line items in the contract, and for those elements at the lowest level in the program work breakdown structure, with current performance measurement budgets in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control.

c. Prohibit retroactive changes to records pertaining to work performed that would change previously reported amounts for direct costs, indirect costs, or budgets, except for correction of errors and routine accounting adjustments.

d. Prevent revisions to the contract budget base except for Government directed changes to contractual effort.

e. Document internally the changes to the performance measurement baseline and notify expeditiously the procuring activity through prescribed procedures.

f. Provide the Contracting Officer and the Contracting Officer's authorized representatives with access to the information and supporting documentation necessary to demonstrate compliance with the cost/schedule control systems criteria.

COST/SCHEDULE CONTROL SYSTEMS DEFINITIONS

1. Actual Cost of Work Performed (ACWP). The cost incurred and recorded in accomplishing the work performed within a given time period.

2. Actual Direct Costs. Those costs identified specifically with a contract, based upon the contractor's cost identification and accumulation system as accepted by the cognizant Defense Contract Audit Agency representatives. (See definition 14, below.)

3. Allocated Budget. (See definition 32, below.)

4. Applied Direct Cost. The amount recognized in the time period associated with the consumption of labor, material, and other direct resources, without regard to the date of commitment or the date of payment. These amounts are to be charged to work-in-progress in the time period that any one of the following occurs:

   a. When labor, material, and other direct resources are actually consumed.

   b. When material resources are withdrawn from inventory for use.

   c. When material resources are received that are identified uniquely to the contract and scheduled for use within 60 days.

   d. When major components or assemblies are received on a line flow basis that are identified specifically and uniquely to a single serially numbered end item.

5. Apportioned Effort. Effort that is not readily divisible into work packages, but is related proportionately to measured effort.

6. Authorized Work. Effort that has been definitized and is on contract, plus that for which definitized contract costs have not been agreed to, but for which written authorization has been received.

7. Baseline. (See definition 24, below.)

8. Budgeted Cost for Work Performed (BCWP). The sum of the budgets for completed work packages and completed portions of open work packages, plus the applicable portion of the budgets for level of effort and apportioned effort.

9. Budgeted Cost for Work Scheduled (BCWS). The sum of budgets for all work packages, planning packages, etc., scheduled to be accomplished (including in-process work packages), plus the amount of level-of-effort

and apportioned effort scheduled to be accomplished within a given time period.

10. Budgets for Work Packages. (See definition 36, below.)

11. Contract Budget Base. The negotiated contract cost plus the estimated cost of authorized unpriced work.

12. Contractor. An entity in private industry which enters into contracts with the Government. In this Instruction, the word also may apply to Government-owned, Government-operated activities that perform work on defense programs.

13. Cost Account. A management control point at which actual costs may be accumulated and compared to the budgeted cost of the work performed. A cost account is a natural control point for cost/schedule planning and control, since it represents the work assigned to one responsible organizational element on one contract work breakdown structure element.

14. Direct Costs. Any costs that may be identified specifically with a particular final cost objective. This term is explained in the Federal Acquisition Regulation (reference (f)).

15. Estimate at Completion (EAC). Actual direct costs, plus indirect costs allocable to the contract, plus estimate of costs (direct and indirect) for authorized work remaining.

16. Indirect costs. Costs, which because of their incurrence for common or joint objectives, are not subject readily to treatment as direct costs. This term is further defined in the Federal Acquisition Regulation (reference (f)).

17. Initial Budget. (See definition 22, below.)

18. Internal Replanning. Replanning actions performed by the contractor for remaining effort within the recognized total allocated budget.

19. Level-of-Effort (LOE). Effort of a general or supportive nature that does not produce definite end products.

20. Management Reserve or Management Reserve Budget. An amount of the total allocated budget withheld for management control purposes, rather than designated for the accomplishment of a specific task or set of tasks. It is not a part of the performance measurement baseline.

21. Negotiated Contract Cost. The estimated cost negotiated in a cost plus fixed fee contract, or the negotiated contract target cost in either a fixed price incentive contract or a cost plus incentive fee contract.

22. Original Budget. The budget established at, or near, the time that the contract was signed and based on the negotiated contract cost.

23. Overhead. (See definition 16, above.)

24. Performance Measurement Baseline. The time phased budget plan against which contract performance is measured. It is formed by the budgets assigned to scheduled cost accounts and the applicable indirect budgets. For future effort, not planned to the cost account level, the performance measurement baseline also includes budgets assigned to higher level contract work breakdown structure elements and undistributed budgets. It equals the total allocated budget less management reserve.

25. Performing Organization. A defined unit within the contractor's organizational structure, which applies the resources to perform the work.

26. Planning Package. A logical aggregation of far term work within a cost account which may be identified and budgeted in early baseline planning, but is not yet defined into work packages.

27. Procuring Activity. The subordinate command in which the Procurement Contracting Officer is located. It may include the program office, related functional support offices, and procurement offices. Examples of procuring activities are the Army Missile Command, Naval Sea Systems Command, and Air Force Electronic Systems Division.

28. Replanning. (See definition 18, above.)

29. Reprogramming. Replanning of the effort remaining in the contract, resulting in a new budget allocation that exceeds the contract budget base.

30. Responsible Organization. A defined unit within the contractor's organizational structure that is assigned responsibility for accomplishing specific tasks.

31. Significant Variances. Those differences between planned and actual performance requiring further review, analysis, or action. Thresholds should be established as to the magnitude of variances that will require variance analysis, and the thresholds should be revised as needed to provide meaningful analysis during execution of the contract.

32. Total Allocated Budget. The sum of all budgets allocated to the contract. Total allocated budget consists of the performance measurement baseline and all management reserve. The total allocated budget will reconcile directly to the contract budget base. Any differences will be documented as to quantity and cause.

33. Undistributed Budget. Budget applicable to contract effort that has not yet been identified to contract work breakdown structure elements at, or below, the lowest level of reporting to the Government.

34. Variances. (See definition 31, above.)

35. Work Breakdown Structure (WBS). (See Section 6-B.)

36. Work Package Budgets. Resources that are assigned formally by the contractor to accomplish a work package, expressed in dollars, hours, standards, or other definitive units.

37. Work Packages. Detailed tasks or material items identified by the contractor for accomplishing work required to complete the contract. A work package has the following characteristics:

a. It represents units of work at levels where work is performed.

b. It is clearly distinguishable from all other work packages.

c. It is assignable to a single organizational element.

d. It has scheduled start and completion dates and, as applicable, interim milestones; all of which are representative of physical accomplishment.

e. It has a budget or assigned value expressed in terms of dollars, manhours, or other measurable units.

f. Its duration is limited to a relatively short time span or it is subdivided by discrete value milestones to ease the objective measurement of work performed.

g. It is integrated with detailed engineering, manufacturing, or other schedules.

PART 11

SECTION C

MILESTONE REVIEW PROCEDURES AND DOCUMENTATION

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

These policies and procedures establish the basis for documentation and review of programs by the milestone decision authority once the Program Manager believes that the program is ready to proceed into the next acquisition phase.

2. POLICIES

a. Review of a program's progress by the milestone decision authority shall, as a minimum, occur at the four milestones beginning with program initiation that are identified in Part II of this Instruction.

(1) The purpose of a milestone review shall be to determine:

(a) Where the program is versus where the program should be;

(b) Where the program is going and how the Program Manager proposes to get there;

(c) What risks exist in the program and how the Program Manager will identify and close those risks; and

(d) Is the Program Manager's proposed approach affordable.

(2) The scope and formality of a milestone review shall depend on the program's acquisition category.

(3) The process for identification of issues that are the subject matter of the review shall be the same regardless of the program's acquisition category.

b. Documentation is the primary means for the functional staff and the Program Manager to provide the milestone decision authority with the information needed to make a milestone decision.

(1) Documentation shall be limited to that required to support the purpose of the review and to that required by statute.

(2) The scope and formality of the documentation required to support the purpose of the review shall depend on the program's acquisition category.

c. An advisory board or council, emulating the Defense Acquisition Board, may be established by the DoD Components to advise milestone decision authorities.

3. PROCEDURES

a. Milestone Review Procedures

(1) A stylized model agenda for reviewing a program at a milestone is shown below. This agenda mirrors the contents of the Integrated Program Summary and the Integrated Program Assessment described in paragraph 3.b., below.

(a) Decision requested;

(b) Program execution status (satisfaction of exit criteria and financial management status);

(c) Threat highlights and existing system shortfalls;

(d) Alternatives assessed and results;

(e) Most promising alternative and rationale;

(f) Acquisition Strategy (including test and evaluation planning, contracting approach, and cooperative opportunities);

(g) Cost drivers and major tradeoffs (cost-schedule-performance);

(h) Risk assessment and plans to reduce risk (including concurrency);

(i) Affordability of selected alternative (funding and manpower);

(j) Recommendations

(2) The Defense Acquisition Board milestone review process is described in Part 13 of this Instruction.

(3) All other milestone reviews will emulate the Defense Acquisition Board review process.

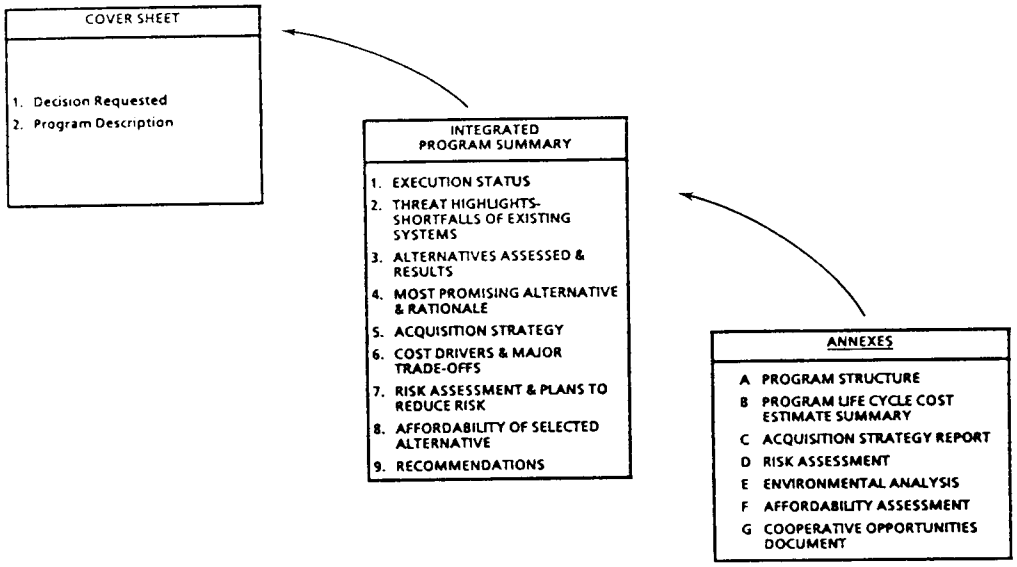
b. Milestone Documentation

(1) Both the staff at each review level and the Program Manager will provide a report on the elements of the above model at the milestone review.

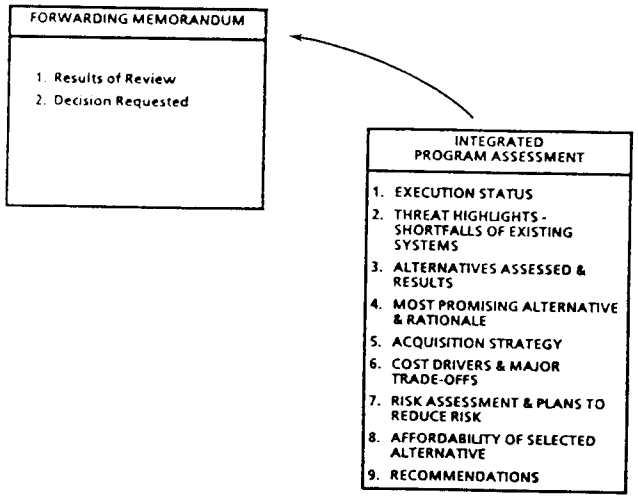
(a) The means the Program Manager uses to report on the elements of the above model to the milestone decision authority is the Integrated Program Summary.

(b) The means the staff uses to provide its independent assessment of the program to the milestone decision authority is the Integrated Program Assessment.

(c) The Integrated Program Summary is organized into the major components shown below. See DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)) for the format of the Integrated Program Summary.



(d) The Integrated Program Assessment follows the format of the Executive Summary in the Integrated Program Summary with a forwarding memorandum from the staff or committee chair instead of the Cover Sheet. The Integrated Program Assessment does not have annexes.



(e) Both the Program Manager's report and the staff report will form the basis for the milestone decision authority to resolve differences between the staff and the Program Manager and well as providing the basis for making the milestone decision.

(f) The annexes to the Integrated Program Summary along with the stand alone documentation identified in the attached table of documentation provide the staff the information it needs to do its assessment function.

(2) The acquisition program baseline (see Section 11-A) is the Program Manager's contract with the acquisition decision chain identifying the minimum acceptable cost, schedule, and performance thresholds and establishing program objectives. The objectives and thresholds define the areas in which the Program Manager may make tradeoff decisions without further engaging the milestone decision authority.

(3) Formats for the documentation shown in the attached tables are provided in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)).

(a) These formats must be used for acquisition category I programs and for category II, III, and IV programs that are subject to a particular document by statute.

(b) These formats may be used for acquisition category II, III, and IV programs not subject to a particular document by statute at the discretion of the DoD Components.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-ZBA
Dept of Navy	ASN(RDA)	Dir, RE
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

Attachments - 2

1. Acquisition Category I Milestone Documentation Requirements
2. Acquisition Category II, III, and IV Milestone Documentation Requirements

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
REQUIREMENTS	DOCUMENTS													
Mission Need Statement	DoDI 5000.2	X				X					Defines broad operational capability need (see 4-B).	Service /Unified and Specified Commands Joint Staff/OSD Staff	Chairman, Joint Requirements Oversight Council	Under Secretary of Defense (Acquisition)
Operational Requirements Document	DoDI 5000.2	X					X	X	X	X	Identifies minimum acceptable performance requirements to satisfy the operational need; also includes performance objectives that would provide operationally meaningful increases in capability (see 4-B).	User or User's representative	Milestone I - ACAT I As designated by the JROC Chairman Milestones II, III & IV ACAT I D As designated by the JROC Chairman ACAT I C Service Chief or as delegated (or DoD Component Head or as delegated if not a Service)	Acqn category I D Under Secretary of Defense (Acquisition) Joint Requirements Oversight Council Acqn category I D & I C Component Acquisition Executive Program Executive Officer Program Manager

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
System Threat Assessment Report	DoDI 5000.2	X					X	X	X	X	Documents the Military Department's threat assessment at the system level.	Component Intelligence Command/Agency	Acqn category I-MS I Director, Defense Intelligence Agency Acqn category ID-MS II and MS III and IV Director, Defense Intelligence Agency Acqn category IC-MS II and MS III and IV Director, Component Intelligence Command/ Agency	Acqn category ID Under Secretary of Defense (Acquisition) Acqn category IC Milestone Decision Authority Acqn category ID & IC Service Chief or as designated Component Acquisition Executive Program Executive Officer Program Manager
Defense Intelligence Agency Intelligence Report	DoDI 5000.2	X				X	X	X	X	X	Validates the basis for the threat in the Mission Need Statement and System Threat Assessment Report. (Not required for acquisition category IC programs for Milestone II/III/IV)	Defense Intelligence Agency	Director, Defense Intelligence Agency	Under Secretary of Defense (Acquisition) Joint Requirements Oversight Council Component Acquisition Executive Program Executive Officer Program Manager
Joint Requirements Oversight Council Assessment	Secretary of Defense "Defense Management Report to the President", July 1989	X					X	X	X	X	Verifies the need and confirms that the proposed performance objectives and thresholds to be contained in the program baseline satisfy the operational need. (Not required for acquisition category IC programs for Milestone II/III/IV)	Joint Requirements Oversight Council	Vice Chairman, Joint Chiefs of Staff	Under Secretary of Defense (Acquisition)

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ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
ACQUISITION	**DOCUMENTS/ WAIVERS**													
Integrated Program Summary	DoDI 5000.2	X					X	X	X	X	Highlights status of critical areas and plans for future acquisition. Replaces the System Concept Paper and Decision Coordinating Paper. • Annex A--Program Structure • Annex B--Program Life Cycle Cost Estimate Summary • Annex C--Acquisition Strategy Report (10 U.S.C. δ2439) • Annex D--Risk Assessment • Annex E--Environmental Analysis (42 U.S.C.δ4321-4347) • Annex F--Affordability Assessment. • Annex G--Cooperative Opportunities Document (10 U.S.C. δ2350a(e)).	Program Executive Officer or Designated Component Official with support from the Program Manager	Acqn category ID Component Acquisition Executive Acqn category IC Designated Component Official	Acqn category ID Under Secretary of Defense (Acquisition) Acqn category IC Milestone Decision Authority

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ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Integrated Program Assessment	DoDI 5000.2	X					X	X	X	X	Summarizes the independent assessment of the program. Identifies critical areas, issues and recommendations for the milestone decision authority. (Uses the same format as the Integrated Program Summary) (Affordability assessment at OSD level is performed by USD(A)/AP&PI & ASD(PA&E))	Acqn category ID Defense Acquisition Board Committee Acqn category IC As determined by the Component Acquisition Executive	Acqn category ID Defense Acquisition Board Committee Chairman Acqn category IC As determined by the Component Acquisition Executive	Acqn category ID Under Secretary of Defense (Acquisition) Acqn category IC Milestone Decision Authority Program Executive Officer Program Manager
Program Life Cycle Cost Estimate	DoDI 5000.2	X					X	X	X	X	Documents the Program Manager's or Designated Component Official's life-cycle cost estimate of the program. Used by the milestone decision authority along with the independent cost estimate to determine the acquisition program baseline cost estimate and affordability of the program.	Program Manager or Designated Component Official	Acqn category ID Component Acquisition Executive Acqn category IC Program Executive Officer	Acqn category ID Under Secretary of Defense (Acquisition) Acqn category ID & IC Milestone Decision Authority Cost Analysis Improvement Group Director, Independent Cost Activity

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ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Acquisition Program Baseline Agreement	DoDI 5000.2 10 U.S.C. δ2435 (For Milestones II and III)	X					X	X	X	X	Document the cost, schedule, and performance baseline agreement between the milestone decision authority and Program Manager or Designated Component Official.	Program Manager or Designated Component Official	Acqn category ID Under Secretary of Defense (Acquisition) Acqn category IC Milestone Decision Authority	Acqn category ID & IC Service Chief or as designated Component Acquisition Executive Program Executive Officer Program Manager Acqn category IC Under Secretary of Defense (Acquisition) (information only)
Manpower Estimate Report	10 U.S.C. δ2434	X						X ⊥	X ⊥		Identifies the manpower resources necessary to operate, maintain, train, and support a weapon system	Service Manpower Sponsor	Component Acquisition Executive	Acqn category ID Under Secretary of Defense (Acquisition) ASD(FM&P) Acqn category IC ASD(FM&P) (information only)

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ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Test and Evaluation Master Plan	DoDI 5000.2 10 U.S.C. §2399(b)(1) (Prior to start of operational testing)	X					X	X	X	X	Lists the critical Developmental Test and Operational Test objectives and outlines the testing and evaluation approach and methodology.	Program Manager or Designated Component Official	Acqn category I D & I C Component Approval Component Acquisition Executive OSD Approval DoD Director, Operational Test and Evaluation Deputy Director Defense Research and Engineering (Test and Evaluation)	Acqn category I D Under Secretary of Defense (Acquisition) Acqn category I C Milestone Decision Authority Acqn category I D & I C Service Chief or as designated Congress (For naval vessels and satellites only - submitted with the Low-Rate Initial Production Report (below))

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Low-Rate Initial Production Report for Naval Vessels and Satellites	10 U.S.C. §2400(c)	X						X			Provides Congress: •an explanation of the rate and quantity prescribed for low-rate initial production and the considerations in establishing that rate and quantity, •a Test and Evaluation Master Plan, and •an acquisition strategy which has been approved by the milestone decision authority and which includes the procurement objectives in terms of total quantity of articles to be procured and annual production rates. Note: The low-rate initial production rate and quantity explanation may be included in the Acquisition Strategy Report of Annex C to the Integrated Program Summary.	Program Manager	Milestone Decision Authority	Congress

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Live Fire Test and Evaluation Waiver	10 U.S.C. δ2366(c)	X						X *			Certifies to Congress: (* prior to entering Phase II): * when live fire survivability testing of a covered major system (or covered product improvement program thereto) or lethality testing of a major munitions or a missile program (or covered product improvement program thereto) would be unreasonably expensive and impractical. * certification must include a report on plans to evaluate survivability or lethality and assess possible alternatives to realistic survivability testing.	Program Manager	Under Secretary of Defense (Acquisition)	Congress

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Developmental Test & Evaluation Report	DoDI 5000.2	X						X	X		Provides results of developmental test and evaluation. (Includes Live Fire test results/report as required)	Component Developmental Test and Evaluation Activity	Commander, Developmental Test and Evaluation Activity	Component Head Service Chief or as designated Milestone Decision Authority DoD Director, Operational Test and Evaluation Deputy Director, Defense Research & Engineering (Test and Evaluation) Component Acquisition Executive Program Executive Officer Program Manager
INDEPENDENT	**DOCUMENTS**													
Independent Cost Estimate	DoDI 5000.2 10 U.S.C. δ2434 (for Milestones II and III)	X					X	X	X	X	Documents the Component's Independent Life-Cycle Cost Estimate.	Independent Cost Activity	Director, Independent Cost Activity	Acqn category ID & IC Milestone Decision Authority Cost Analysis Improvement Group Service Chief or as designated Component Acquisition Executive Program Executive Officer Program Manager

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ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Independent Cost Estimate Report (Acquisition category ID & IC) NOTE: A draft Cost Analysis Requirements Description (CARD) is required no later than the Planning Meeting proceding a Defense Acquisition Board Review (see Part 15/DoD 5000.2-M)	DoDI 5000.2 10 U.S.C. §2434 (for Milestones II and III)	X					X	X	X	X	Assesses the Component's Independent Life-Cycle Cost Estimate and provides an independent (of the Component) cost estimate.	Cost Analysis Improvement Group, Office of the Assistant Secretary of Defense (Program Analysis & Evaluation)	Chairman, Cost Analysis Improvement Group	Under Secretary of Defense (Acquisition) Service Chief or as designated Component Acquisition Executive Program Executive Officer Program Manager
Cost and Operational Effectiveness Analysis	DoDI 5000.2	X					X	X	X	X	Analyzes the comparative cost-effectiveness of alternatives at Milestones I and II. At Milestones III and IV, the analysis is an update of previous analysis as required.	Independent Analysis Activity (as determined by DoD Component Head, or as delegated)	Acqn category ID & IC As determined by DoD Component Head, or as delegated	Acqn category ID Under Secretary of Defense (Acquisition) Assistant Secretary of Defense (Program Analysis & Evaluation) Acqn category ID & IC Milestone Decision Authority Component Acquisition Executive Program Executive Officer Program Manager

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ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Early Operational Assessment Report	DoDI 5000.2	X						X *			* When required to support a Low-Rate Initial Production decision, with exit criteria, at Milestone II.	Component Operational Test and Evaluation Activity	Commander, Operational Test and Evaluation Activity	Component Head Service Chief or as designated Milestone Decision Authority DoD Director, Operational Test and Evaluation Deputy Director, Defense Research and Engineering (Test and Evaluation) Component Acquisition Executive Program Executive Officer Program Manager

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Operational Test & Evaluation Report	10 U.S.C. 138(e)(1)	X							X		Provides the results of initial operational test and evaluation.	Component Operational Test and Evaluation Activity	Commander, Operational Test and Evaluation Activity	Component Head Service Chief or as designated Milestone Decision Authority DoD Director, Operational Test and Evaluation Deputy Director, Defense Research & Engineering (Test & Evaluation) Component Acquisition Executive Program Executive Officer Program Manager
Live Fire Test and Evaluation Report	10 U.S.C. §2366(d)	X							X		Provides an independent OSD report to Congress that: •a covered major system (or covered product improvement program thereto) has completed realistic survivability testing; •a major munitions or a missile program (or covered product improvement program thereto) has completed realistic lethality testing; •describes the results of survivability or lethality testing and gives an overall assessment of the testing.	Deputy Director, Defense Research & Engineering (Test & Evaluation)	Under Secretary of Defense (Acquisition)	Congress

ACQUISITION CATEGORY I MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Beyond Low-Rate Initial Production Report	10 U.S.C. §2399(b)(2)(3)(4)	X							X		Notifies Congress of DoD Director, Operational Test & Evaluation's assessment of: •adequacy of initial operational test and evaluation, and •whether the test results confirm the items or components are effective and suitable for combat prior to the milestone decision authority's decision to proceed beyond low-rate initial production, i.e. approval for full-rate production.	DoD Director, Operational Test & Evaluation	DoD Director, Operational Test & Evaluation	Congress Secretary of Defense Component Head Under Secretary of Defense (Acquisition) Component Acquisition Executive Program Executive Officer Program Manager
DECISION	MEMORANDUM													
Acquisition Decision Memorandum	DoDI 5000.2	X				X	X	X	X	X	Provides the decisions of the milestone decision authority (including approval of the Acquisition Strategy Report if not approved prior to the milestone) and the exit criteria for the next phase of the program.	Acqn category I D Defense Acquisition Board Executive Secretary Acqn category I C Component Acquisition Executive's Staff Executive Secretary	Acqn category I D Under Secretary of Defense (Acquisition) Acqn category I C Milestone Decision Authority	Component Head Service Chief or as designated Component Acquisition Executive Program Executive Officer Program Manager

ACQUISITION CATEGORY II, III, AND IV MILESTONE DOCUMENTATION REQUIREMENTS

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
REQUIREMENTS	DOCUMENTS													
Mission Need Statement	DoDI 5000.2		X	X	X	X					Defines broad operational capability need (see Section 4-B).	Service Commands and Staffs;Component Commands;Joint Staff	Service Chief or as delegated (or DoD Component Head or as delegated if not a Service)	Component Acquisition Executive Joint Requirements Oversight Council (information only)
Operational Requirements Document	DoDI 5000.2		X	X	X		X	X	X	X	Identifies minimum acceptable performance requirements to satisfy the operational need; also includes performance objectives that would provide operationally meaningful increases in capability (see Section 4-B).	User or User's representative	Service Chief or as delegated (or DoD Component Head or as delegated if not a Service)	Milestone decision authority Program Manager
System Threat Assessment	DoDI 5000.2		X	X	X		X	X	X	X	Documents the Military Department's threat assessment at the system level.	Component Intelligence Command/Agency	Director, Component Intelligence Command/ Agency	Milestone Decision Authority Program Manager
Intelligence Report	DoDI 5000.2		X	X		X	X	X	X	X	Validates the basis for the threat in the Mission Need Statement and system threat assessment.	Component Intelligence Command/Agency	Director, Component Intelligence Command/ Agency	Milestone Decision Authority Program Manager

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
ACQUISITION	DOCUMENTS/ WAIVERS													
Integrated Program Summary	DoDI 5000.2		X	X	X		X	X	X	X	Highlights status of critical areas and plans for future acquisition. •Annex A - Program Structure. •Annex B - Program Life Cycle Cost Estimate Summary. •Annex C - Acquisition Strategy Report. •Annex D - Risk Assessment. •Annex E - Environmental Analysis (42 U.S.C.§4321-4347) •Annex F - Affordability Assessment.	Acqn category II Program Executive Officer or Designated Component Official with support from the Program Manager Acqn category III & IV Program Manager or Designated Component Official	Designated Component Official	Milestone Decision Authority
Integrated Program Assessment	DoDI 5000.2		X	X	X		X	X	X	X	Summarizes the assessment of the program. Identifies critical areas, issues and recommendations for the milestone decision authority. (Uses the same format as the Integrated Program Summary)	Appropriate staff, committee or council	As determined by the Component Acquisition Executive	Milestone Decision Authority

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Program Life Cycle Cost Estimate	DoDI 5000.2		X	X	X		X	X	X	X	Documents the Program Manager's or Designated Component Official's life cycle cost estimate of the program. Used by the milestone decision authority, along with the independent cost estimate (for acquisition category II programs), to determine the acquisition program baseline cost estimate and affordability of the program.	Program Manager or Designated Component Official	Acqn category II Program Executive Officer Acqn category III & IV Designated Component Official	Acqn category II Milestone Decision Authority Director, Independent Cost Activity Acqn category III & IV Milestone Decision Authority
Acquisition Program Baseline Agreement	DoDI 5000.2		X	X	X		X	X	X	X	Documents the cost, schedule and performance baseline agreement between the milestone decision authority and Program Manager or Designated Component Official.	Program Manager or Designated Component Official	Milestone Decision Authority	Service Chief or as designated Program Manager
Test and Evaluation Master Plan	DoDI 5000.2		X	X	X		X	X	X	X	Lists the critical Developmental Test and Operational Test objectives and outlines the testing and evaluation approach and methodology.	Program Manager or Designated Component Official	Component Approval Milestone Decision Authority OSD Approval (If OSD T&E Oversight) DoD Director, Operational Test and Evaluation Deputy Director Defense Research and Engineering (Test and Evaluation)	Service Chief or as designated Component DT&E and OT&E activities

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Live Fire Test and Evaluation Waiver	10 U.S.C. §2366		X	X **	X **			X *			Certifies to Congress (*prior to entering Phase II): •when live fire survivability testing of a covered major system (or covered product improvement thereto) or lethality testing of a major munitions or a missile program (or covered product improvement thereto) would be unreasonably expensive and impractical. •certification must include a report on plans to evaluate survivability or lethality and assess possible alternatives to realistic survivability testing. **An ACAT III or IV "covered product improvement program" which is likely to affect significantly the survivability of a covered major system or which is likely to affect significantly the lethality of the munition or missile produced under a major munitions program or a missile program.	Program Manager	Director, Defense Research & Engineering	Congress

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Developmental Test & Evaluation Report	DoDI 5000.2		X	X	X			X	X		Provides the results of developmental test and evaluation. (Includes Live Fire test results/report as required)	Component Developmental Test and EvaluationActivity	Commander, Developmental Test and Evaluation Activity	Service Chief or as designated Milestone Decision Authority Program Manager If OSD T&E Oversight DoD Director, Operational Test and Evaluation Deputy Director, Defense Research & Engineering (Test & Evaluation)
INDEPENDENT	**DOCUMENTS**													
Independent Cost Estimate	DoDI 5000.2		X				X	X	X	X	Documents the Component's Independent Life-Cycle Cost Estimate.	Independent Cost Activity	Director, Independent Cost Activity	Service Chief or as designated Milestone Decision Authority Program Executive Officer Program Manager
Cost and Operational Effectiveness Analysis	DoDI 5000.2		X	X	X		X	X	X	X	Analyzes the comparative cost-effectiveness of alternatives at Milestones I and II. The Milestone III and IV analysis is an update of previous analysis, if required.	Independent Analysis Activity (as determined by DoD Component head, or as delegated)	As determined by DoD Component Head, or as delegated	Milestone Decision Authority

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Early Operational Assessment Report	DoDI 5000.2		X	X	X			X *			*When required to support a Low-Rate Initial Production decision, with exit criteria, at Milestone II.	Component Operational Test and Evaluation Activity	Commander, Operational Test and Evaluation Activity	Service Chief or as designated Milestone Decision Authority Program Manager If OSD T&E oversight DoD Director, Operational Test and Evaluation Deputy Director, Defense Research & Engineering (Test & Evaluation)
Operational Test & Evaluation Report	10 U.S.C. §138(e)(1)		X	X	X				X		Provides the results of initial operational test and evaluation.	Component Operational Test and Evaluation Activity	Commander, Operational Test and Evaluation Activity	Service Chief or as designated Milestone Decision Authority Program Manager If OSD T&E oversight DoD Director, Operational Test and Evaluation Deputy Director, Defense Research & Engineering (Test & Evaluation)

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Live Fire Test and Evaluation Report	10 U.S.C. §2366		X	X *	X *				X		Provides an independent OSD report to Congress that: •a covered major system (or covered product improvement thereto) has completed realistic survivability testing; •a major munitions or a missile program (or covered product improvement thereto) has completed realistic lethality testing; •describes the results of survivability or lethality testing and gives an overall assessment of the testing. *An ACAT III or IV "covered product improvement program" which is likely to affect significantly the survivability of a covered major system or which is likely to affect significantly the lethality of the munition or missile produced under a major munitions program or a missile program.	Deputy Director, Defense Research & Engineering (Test & Evaluation)	Director, Defense Research & Engineering	Congress

ACQUISITION CATEGORY II, III AND IV MILESTONE DOCUMENTATION REQUIREMENTS

DOCUMENT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY									PURPOSE OF DOCUMENT	PREPARED BY	APPROVED BY OR VALIDATED BY	SUBMITTED TO
		ACQUISITION CATEGORY				MILESTONE								
		I	II	III	IV	0	I	II	III	IV				
Beyond Low-Rate Initial Production Report	10 U.S.C. §138(a)(2)(B) 10 U.S.C. §2399(b)(2)(3)(4)		X *	X *	X *				X		Notifies Congress of DoD Director, Operational Test & Evaluation's assessment of: •adequacy of initial operational test and evaluation, and •whether the test results confirm the items or components are effective and suitable for combat prior to the milestone decision authority's decision to proceed beyond low-rate initial production, i.e. approval for full-rate production. *For those programs designated by DoD Director, Operational Test & Evaluation (DOT&E) for DOT&E oversight	DoD Director, Operational Test and Evaluation	DoD Director, Operational Test and Evaluation	Congress Secretary of Defense Component Head Under Secretary of Defense (Acquisition) Component Acquisition Executive Program Executive Officer Milestone Decision Authority Program Manager
DECISION	**MEMORANDUM**													
Acquisition Decision Memorandum	DoDI 5000.2		X	X	X	X	X	X	X	X	Provides the decisions of the milestone decision authority (including approval of the Acquisition Strategy Report if not approved prior to the milestone) and the exit criteria for the next phase of the program.	Milestone Decision Authority staff	Milestone Decision Authority	Service Chief or as designated Component Acquisition Executive Program Manager

PART 11

SECTION D

PERIODIC PROGRAM STATUS REPORTS AND REQUIRED CERTIFICATIONS

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

These policies and procedures establish the basis for the submission of periodic program status reports and statutory certifications required during execution of an acquisition phase.

2. POLICIES

a. Program Manager reporting shall be based on the principle of management by exception.

b. Periodic reports, designed to provide the milestone decision authority with adequate information to oversee the acquisition process, shall be limited to those reports required by statute or by this Instruction.

c. The scope and formality of reporting requirements shall vary by acquisition category.

3. PROCEDURES

a. The tables at attachments 1 and 2 summarize the general reporting requirements for all programs by acquisition category.

b. Formats for the major reports and certifications shown in the attached tables and required of Program Managers are provided in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)).

(1) These formats must be used for reporting for acquisition category I programs and for acquisition category II, III, and IV programs that are subject to a particular report or certification by statute.

(2) These formats may be used for acquisition category II, III, and IV programs not subject to a particular report or certification by statute at the discretion of the DoD Components.

4. 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 Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dir, RE Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

Attachments - 2

1. Acquisition Category I Periodic Reports and Required Certifications
2. Acquisition Category II, III, and IV Periodic Reports and Required Certifications

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
ACQUISITION	REPORTS									
Defense Acquisition Executive Summary(DAES) RCS: DD-ACQ(Q)1429	DoDI 5000.2	X				•Quarterly to the Component Acquisition Executive. •Quarterly to the Under Secretary of Defense (Acquisition)	Provides Component Acquisition Executive and Under Secretary of Defense (Acquisition) status of program progress and serves as an early warning mechanism for potential or actual breaches of: •the baseline Selected Acquisition Report, •major contract cost baseline(for contracts > $40 million), or •the acquisition program baseline. (The DAES now includes Unit Cost Report data)	Program Manager	Component Acquisition Executive	Under Secretary of Defense (Acquisition)
Selected Acquisition Report RCS: DD-COMP(Q&A) 823	10 U.S.C. §2432	X				Annually (30 days and 60 days for preliminary and final Selected Acquisition Reports, respectively, after the President's budget submit to Congress)	Provides Congress a summary of key cost, schedule, technical baseline information and program variance analysis relative to the baseline Selected Acquisition Report.	Program Manager	Under Secretary of Defense (Acquisition)	Congress

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
Defense Enterprise Program (Milestone Authorization) Baseline Description and Request to Obligate Funds RCS: Exempt	10 U.S.C. §2437	X				As required (Within 90 days of designation of a Defense Enterprise Program for milestone authorization)	Provides Congress an acquisition program baseline description and a request for authority to obligate funds to proceed into or complete the Engineering and Manufacturing Development phase or proceed into or complete the Production phase (Authority will not exceed five years for either phase).	Program Manager	Under Secretary of Defense (Acquisition)	Congress
Cooperative Research and Development Projects Report RCS: Exempt	10 U.S.C. §2350a.	X				Annually (Not later than 1 March of each year)	Provides Congress: •A description of status, funding, and schedule of existing cooperative research and development projects for which a Memorandum of Understanding (or other formal agreement) has been entered into; •A description of the purpose, funding and schedule of any proposed new projects included in the President's budget submit to Congress for which a Memorandum of Understanding (or other formal agreement) has not been entered into.	Deputy Under Secretary of Defense (International Programs)	Under Secretary of Defense (Acquisition)	Congress

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
•Exception Reports •Exception Defense Acquisition Executive Summary RCS: DD-ACQ(Q)1429	DoDI 5000.2 10 U.S.C. §2433	X				As required (Whenever there is reasonable cause to believe a breach of: •unit cost in the baseline Selected Acquisition Report (SAR), •major contract cost baseline (>$40 million), or •acquisition program baseline could occur).	Notifies Under Secretary of Defense (Acquisition) of: •an anticipated increase of: •> 15% (and again if > 25%) in unit cost over the baseline SAR; •≧ 15% in cost over a major contract cost baseline; or •an anticipated breach of acquisition program baseline thresholds (See thresholds below under Program Deviation Report). If a breach has occurred or will occur, then a Program Deviation Report is required. Note: Another exception DAES report is required for a subsequently anticipated additional 5% increase in unit cost or major contract cost.	Program Manager	Component Acquisition Executive	Under Secretary of Defense (Acquisition)
•Exception Selected Acquisition Report RCS: DD-COMP(Q&A) 823	10 U.S.C. §2432	X				As required (Within 45 days after quarter in which a unit cost or schedule breach occurred).	Notifies Congress of a: •≧ 15% Program Acquisition Unit Cost or Current Procurement Unit Cost increase and/or •≧ 180 day delay in a program milestone relative to the baseline SAR.	Program Manager	Under Secretary of Defense (Acquisition)	Congress

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
•Program Deviation Report RCS: Exempt	10 U.S.C. §2435* DoDI 5000.2**	X				As required (Immediately upon determination by the Program Manager that a breach has occurred or will occur).	Notifies Component Acquisition Executive of a breach of the acquisition program baseline thresholds. Includes Baseline Change Request if necessary. •Deviation thresholds for Phase I are the cost, schedule or performance thresholds in the acquisition program baseline. •Deviation thresholds for Phase II and III are: •Cost increase (base year dollars) of: *•> 15% Research, Development, Test and Evaluation; *•> 5% Procurement; **•> 15% Average Unit Procurement Cost; or **•> 15% MILCON *•Schedule delay of > 180 days; *•Performance < threshold.	Program Manager	Milestone Authorization Programs Component Acquisition Executive All Other Programs Program Executive Officer	Milestone Authorization Programs Under Secretary of Defense (Acquisition) All Other Programs Component Acquisition Executive

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
•Report of Results of Program Deviation Review RCS: Exempt	10 U.S.C. §2435	X				As required (Within 45 days of the Program Manager submitting a Program Deviation Report to the Component Acquisition Executive).	Provides the Under Secretary of Defense (Acquisition) the Program Deviation Report and the results of the review panel which reviewed the respective program.	Chairman of the Review Panel	Component Acquisition Executive	Under Secretary of Defense (Acquisition)
•Defense Enterprise Program (Milestone Authorization) Breach Congressional Notification Letter RCS: Exempt	10 U.S.C. §2437	X				As required (Within 15 days of receiving a Program Deviation Report).	Notifies Congress of Under Secretary of Defense (Acquisition) intention to formally review program and intention to provide a revised baseline coincident with the next President's budget.	Under Secretary of Defense (Acquisition) (Director, Acquisition Policy and Program Integration)	Under Secretary of Defense (Acquisition)	Congress
•Exception Unit Cost Report Congressional Notification Letter RCS: DD-COMP(Q&AR) 1591	10 U.S.C. §2433	X				As required (Within 30 days of DoD Component Head determination of a unit cost breach of the baseline SAR > 15%).	DoD Component Head notifies Congress of a Program Acquisition Unit Cost or Current Procurement Unit Cost Increase > 15% over the baseline Selected Acquisition Report.	Program Manager	DoD Component Head	Congress (copies of proposed letters to Under Secretary of Defense (Acquisition) 5 days before submittal to Congress)

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
•Exception Unit Cost Report Congressional Certification Letter RCS: DD-COMP(Q&AR) 1591	10 U.S.C. §2433	X				As required (Within 60 days of DoD Component Head determination of a unit cost breach of the baseline SAR > 25%).	Under Secretary of Defense (Acquisition) certifies to Congress for a Program Acquisition Unit Cost or Current Procurement Unit Cost increase > 25% over the Selected Acquisition Report baseline that: •Program is essential to national security; •There are no less costly alternatives with ≧ military capabilities; •New unit cost estimates are reasonable; •Management structure is adequate to control unit cost.	Program Manager	Under Secretary of Defense (Acquisition)	Congress
<u>PROCUREMENT</u>	<u>REPORTS</u>									
Acquisition Plan RCS: DD-P&L(AR)1684	Federal Acquisition Regulation (FAR) Subpart 7.1 Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 207.1	X				Prior to solicitation release	Approves procurement planning relative to acquisition strategy, contract type, and functional procurement requirements for: •Development contracts: •≧ $2 million for all years and •Production and service contracts •≧ $5 million for any fiscal year or •≧ $15 million for all fiscal years.	Contracting Officer	As determined by Senior Procurement Executive Note: Cannot be approved until after the Acquisition Strategy Report is approved by the milestone decision authority	As determined by Senior Procurement Executive

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
Justification and Approval RCS: Exempt	FAR Subpart 6.3 DFARS Subpart 206.3 Public Law 101-189, Section 818 (FY-90/91Authorization Act), November 29, 1989 (10 U.S.C. §2304(f))	X				Prior to contract award	Documents justification and approval of procurement using less than full and open competition.	Contracting Officer	•Senior Procurement Executive (For contracts > $10 million). •Delegable to flag or general officer or Senior Executive Service official within the Senior Procurement Executive's organization - (for contracts: •> $10 million, but •≦ $50 million). •In accordance with Federal Acquisition Regulation/Defense Federal Acquisition Regulation Supplement (for contracts: ≦ $10 million).	-----
Business Clearance RCS: Exempt	FAR Subpart 15.8 DFARS Subpart 215.8	X				Prior to and after negotiations	Documents Contracting Officer's predetermined negotiating position prior to start of negotiations and actual post-negotiation results.	Contracting Officer	Head of the Contracting Activity or as delegated.	As determined by Senior Procurement Executive

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
Contract Award Announcement RCS: DD-LA(AR)1279 OMB Control No. 0704-0288	FAR Subpart 5.3 DFARS Subpart 205.3	X				Prior to contract award	Announces award for contract > $5 million.	Contracting Officer	Component Office of Public Affairs	Congress Secretary of Defense Component Head Under Secretary of Defense (Acquisition) Component Acquisition Executive Assistant Secretary of Defense (Public Affairs) Assistant Secretary of Defense (Legislative Affairs) Component Office of Legislative Affairs
Multi-Year Procurement Contract Certification RCS: DD-COMP(AR) 1092	10 U.S.C. §2306(h)	X				Prior to signing multi-year procurement contract for any fiscal year.	Certifies to Congress that: • Support is fully funded in multi-year procurement contract, • Production is ≥ Minimum Economic Production Rate, • Achieves a 10% savings relative to current negotiated contracts adjusted for changes in quantity and inflation or compared to annual contracts if no recent contract experience exists.	Program Manager	Under Secretary of Defense (Acquisition)	Congress

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ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
Fixed Price Type Contracting Certification RCS: Exempt	Public Law 101-511, Section 8038 (FY-91 Appropriations Act) November 5, 1990	X				30 calendar days prior to authorization to use a fixed price development contract > $25 million (or > $10 million when for development of a major system or subsystem of a major system and if funded with Fiscal Year 1990-1993 or subsequent year funds if so directed by law).	Certifies to Congress that risk has been decreased to the extent that realistic pricing can occur and that an equitable sharing of risk between the government and contractor exists.	Program Manager Contracting Officer	Under Secretary of Defense (Acquisition)	Congress
Value Engineering Report RCS: DD-P&L(SA)1138	OMB Circular A-131	X				Annual (90 days after the end of the fiscal year) (DoD Components submit data 45 days after the end of the fiscal year)	Documents the status of value engineering program efforts and identifies areas for program improvement	Deputy Assistant Secretary of Defense (Production & Logistics)(Production Resources)(Industrial Productivity & Quality)	Assistant Secretary of Defense (Production & Logistics)	Office of Management and Budget
CONTRACT COST	**MANAGEMENT REPORTS**									
Contractor Cost Data Reporting Plan	DoDI 5000.2 DoDI 5000.4	X				60 days prior to solicitation release for advanced development prototype or Engineering and Manufacturing Development program.	Documents the Program Work Breakdown Structure from which contract Work Breakdown Structures will be selected, and designates report requirements and frequency for specific Work Breakdown Structure elements for contractor cost reporting.	Program Manager, in coordination with DoD Component Contract Cost Data Reporting focal point representative(s)	Acqn category ID & IC Chairman, Cost Analysis Improvement Group	-----

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ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
Contractor Cost Data Reporting OMB Control No. 0704-0188	DoDI 5000.2	X				Normally semiannually	Reports contractor nonrecurring and recurring costs by Work Breakdown Structure for a contract; reports functional costs for selected Work Breakdown Structures; and reports unit/lot costs for deliverable equipment, to support the cost estimating data requirements of the Department of Defense.	Contractor	----	Program Manager Component Cost Analysis offices OSD Cost Analysis Improvement Group
Cost Performance Report or Cost /Schedule Status Report OMB Control No. 0704-0188	DoDI 5010.12L	X				Normally Monthly	Reports summary contract cost and schedule progress and variance from the contract baseline for making program management decisions.	Contractor	----	Program Manager
Contract Funds Status Report OMB Control No. 0704-0188	DoDI 5010.12L	X				Quarterly	Reports the amount of funds required for completion of the contract.	Contractor	----	Program Manager

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
TESTING	REPORTS/ WAIVERS									
Summary Operational Test and Evaluation Report RCS: DD-OT&E(A)1722	10 U.S.C. §138	X				Annually	Provides Congress a summary of operational test and evaluation activities of the Department of Defense during the preceding fiscal year.	DoD Director, Operational Test and Evaluation	DoD Director, Operational Test and Evaluation	Congress
Standardization of Equipment with NATO Members Report RCS: Exempt	10 U.S.C. §2457(d) 10 U.S.C. §2350a.(g)	X				Annually	Provides Congress information, in the 10 U.S.C.§2457(d) report, under 10 U.S.C.§2350a.(g) on: •the obligation of any funds for "side-by-side" testing during the previous fiscal year; •equipment, munitions, and technologies manufactured and developed by major allies of the United States that were: ••evaluated during the previous fiscal year; ••tested and procured during the previous fiscal year.	Deputy Director, Defense Research & Engineering (Test & Evaluation)	Under Secretary of Defense (Acquisition)	Congress

ACQUISITION CATEGORY I PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
Impartial Contracted Advisory and Assistance Service Waiver RCS: Exempt	10 U.S.C. §2399	X				As required	Documents that sufficient steps have been taken to ensure the impartiality of the contractor in providing contracted advisory and assistance services to the DoD Director, Operational Test and Evaluation (DOT&E). A description of each waiver granted is included in the DOT&E annual report to Congress.	DoD Director, Operational Test and Evaluation	DoD Director, Operational Test and Evaluation	----

ACQUISITION CATEGORY II, III, AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
ACQUISITION REPORTS										
Defense Enterprise Program (Milestone Authorization) Baseline Description and Request to Obligate Funds RCS: Exempt	10 U.S.C. §2437		X	X	X	As required (Within 90 days of designation of a Defense Enterprise Program for milestone authorization)	Provides Congress an acquisition program baseline description and a request for authority to obligate funds to proceed into or complete the Engineering and Manufacturing Development phase or proceed into or complete the Production phase (Authority will not exceed five years for either phase).	Program Manager	Component Acquisition Executive	Congress Under Secretary of Defense (Acquisition)
•Exception Reports •Program Deviation Report RCS: Exempt	DoDI 5000.2		X	X	X	As required (Immediately upon determination by the Program Manager that a breach has occurred or will occur).	Notifies milestone decision authority of a breach of the acquisition program baseline thresholds. Includes Baseline Change Request if necessary. Deviation thresholds are the cost, schedule or preformance thresholds in the acquisition program baseline.	Program Manager	Program Executive Officer or Intermediate level official as designated by the Component Acquisition Executive	Milestone decision authority

ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
•Defense Enterprise Program (Milestone Authorization) Breach Congressional Notification Letter RCS: Exempt	10 U.S.C. §2437		X	X	X	As required (Within 15 days of receiving a Program Deviation Report).	Notifies Congress of milestone decision authority intention to formally review program and intention to provide a revised baseline coincident with the next President's budget.	Program Manager	Component Acquisition Executive or as delegated by the Component Acquisition Executive	Congress Under Secretary of Defense (Acquisition)
PROCUREMENT	REPORTS									
Acquisition Plan RCS: DD-P&L(AR)1684	Federal Acquisition Regulation (FAR) Subpart 7.1 Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 207.1, paragraph 207.103(g)		X	X	X	Prior to solicitation release	Approves procurement planning relative to acquisition strategy, contract type, and functional procurement requirements for •Development contracts •≧ $2 million for all years and •Production and service contracts •≧ $5 million for any fiscal year or •≧ $15 million for all fiscal years.	Contracting Officer	As determined by Senior Procurement Executive Note: Cannot be approved until after the Acquisition Strategy Report is approved by the milestone decision authority.	As determined by Senior Procurement Executive

ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY				FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		I	II	III	IV					
Justification and Approval RCS: Exempt	FAR Subpart 6.3 DFARS Subpart 206.3 Public Law 101-189, Section 818 (FY-90/91 Authorization Act), November 29, 1989 (10 U.S.C. §2304 (f))		X	X	X	Prior to contract award	Documents justification and approval of procurement using less than full and open competition.	Contracting Officer	•Senior Procurement Executive (For contracts: > $10 million). •Delegable to flag or general officer or Senior Executive Service official within the Senior Procurement Executive's organization - (for contracts: •>$10 million, but •≤ $50 million). •In accordance with Federal Acquisition Regulation/Defense Federal Acquisition Regulation Supplement (for contracts: ≤ $10 million)	-----
Business Clearance RCS: Exempt	FAR Subpart 15.8 DFARS Subpart 215.8, paragraph 215.807(b)		X	X	X	Prior to and after negotiations	Documents Contracting Officer's predetermined negotiating position prior to start of negotiations and actual post-negotiation results.	Contracting Officer	Head of the Contracting Activity or as delegated.	As determined by Senior Procurement Executive

ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
Contract Award Announcement RCS: DD-LA(AR)1279	FAR Subpart 5.3 DFARS Subpart 205.3		X	X	X	Prior to contract award	Announces contract award > $5 million.	Contracting Officer	Component Office of Public Affairs	Congress Secretary of Defense Component Head Under Secretary of Defense (Acquisition) Component Acquisition Executive Assistant Secretary of Defense (Legislative Affairs) Assistant of Defense (Public Affairs) Service Office of Legislative Affairs
Multi-Year Procurement Contract Certification RCS: DD-COMP(AR) 1092	10 U.S.C. §2306(h)		X	X	X	Prior to signing multi-year procurement contract for any fiscal year.	Certifies to Congress that: • Support is fully funded in multi-year procurement contract, • Production is ≥ Minimum Economic Production Rate, • Achieves a 10% savings relative to current negotiated contracts adjusted for changes in quantity and inflation or compared to annual contracts if no recent contract experience exists.	Program Manager	Component Acquisition Executive	Congress

ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY I	II	III	IV	FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
Fixed Price Type Contracting Certification RCS: Exempt	Public Law 101-511, Section 8038 (FY-91 Appropriations Act)		X	X	X	30 calendar days prior to authorization to use a fixed price contract > $25 million (or in excess of $10 million when for the development of a major system or subsystem of a major system and if funded with Fiscal Year 1990-1993 or subsequent year funds if so directed by law).	Certifies to Congress that risk has been decreased to the extent that realistic pricing can occur and that an equitable sharing of risk between the government and contractor exists.	Program Manager Contracting Officer	Under Secretary of Defense (Acquisition)	Congress
Value Engineering Report RCS: DD-P&L(SA)1138	OMB Circular A-131		X	X	X	Annual (90 days after the end of the fiscal year) (DoD Components submit data 45 days after the end of the fiscal year)	Documents the status of value engineering program efforts and identifies areas for program improvement	Deputy Assistant Secretary of Defense (Production & Logistics)(Production Resources)(Industrial Productivity & Quality)	Assistant Secretary of Defense (Production & Logistics)	Office of Management and Budget
<u>CONTRACT COST</u> Contractor Cost Data Reporting Plan	<u>MANAGEMENT REPORTS</u> DoDI 5000.2 DoDI 5000.4		X	X	X	60 days prior to solicitation release for advanced development prototype or Engineering and Manufacturing Development program	Documents the Program Work Breakdown Structure from which contract Work Breakdown Structures will be selected, and designates report requirements and frequency for specific Work Breakdown Structure elements for contractor cost reporting.	Program Manager	<u>Acqn category II</u> Component Independent Cost Activity <u>Acqn category III & IV</u> Program Manager	-----

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ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY: ACQUISITION CATEGORY				FREQUENCY	PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		I	II	III	IV					
Contractor Cost Data Reporting OMB Control No. 0704-0188	DoDI 5000.2		X	X	X	Normally semiannually	Reports contractor nonrecurring and recurring costs by Work Breakdown Structure for a contract; reports functional costs for selected Work Breakdown Structures; and reports unit/lot costs for deliverable equipment, to support the cost estimating data requirements of the Department of Defense.	Contractor	----	Acqn category II Program Manager Component Independent Cost Analysis offices Acqn category III&IV Program Manager
Cost Performance Report or Cost/Schedule Status Report OMB Control No. 0704-0188	DoDI 5010.12L		X	X	X	Normally Monthly	Reports summary contract cost and schedule progress and variance from the contract baseline for making program management decisions.	Contractor	----	Program Manager
Contract Funds Status Report OMB Control No. 0704-0188	DoDI 5010.12L		X	X	X	Quarterly	Reports the amount of funds required for completion of the contract.	Contractor	----	Program Manager

ACQUISITION CATEGORY II, III AND IV PERIODIC REPORTS AND REQUIRED CERTIFICATIONS

REPORT TITLE	SOURCE OF REQUIREMENT	APPLICABILITY					PURPOSE OF REPORT	PREPARED BY	APPROVED BY	SUBMITTED TO
		ACQUISITION CATEGORY				FREQUENCY				
		I	II	III	IV					
TESTING	**REPORTS/ WAIVERS**									
Summary Operational Test and Evaluation Report RCS: DD-OT&E(A)1722	10 U.S.C. §138		X *	X *	X *	Annually	Provides Congress a summary of operational test and evaluation activities of the Department of Defense during the preceding fiscal year. *For those program designated by DoD Director, Operational Test & Evaluation (DOT&E) for DOT&E oversight	DoD Director, Operational Test and Evaluation	DoD Director, Operational Test and Evaluation	Congress
Standardization of Equipment with NATO Members Report RCS: Exempt	10 U.S.C. §2457(d) 10 U.S.C. §2350a.(g)		X	X	X	Annually	Provides Congress information, in the 10 U.S.C.§2457(d) report, under 10 U.S.C.§2350a.(g) on: •the obligation of any funds for "side-by-side" testing during the previous fiscal year; •equipment, munitions, and technologies manufactured and developed by major allies of the United States that were: ••evaluated during the previous fiscal year; ••tested and procured during the previous fiscal year.	Deputy Director, Defense Research & Engineering (Test & Evaluation)	Under Secretary of Defense (Acquisition)	Congress

PART 11

SECTION E

PROGRAM PLANS

1. PURPOSE

These policies and procedures establish the basis for preparation and approval of the program plans required in this Instruction.

2. POLICIES

a. Program plans belong to the Program Manager and are to be used by the Program Manager during execution of each acquisition phase.

b. The approval of program plans shall be delegated by DoD Component Acquisition Executives to the lowest level practicable and in accordance with statute or unless otherwise specified in this Instruction.

c. The scope and formality of program plans shall vary by acquisition category. Plans may be combined to best satisfy the needs of the Program Manager.

3. PROCEDURES

a. The attached list summarizes the requirements for preparation of the program plans contained in this Instruction.

b. Formats for program plans will be specified by each DoD Component in implementing instructions.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

PROGRAM PLANS INCLUDED IN THIS INSTRUCTION

PLAN	REFERENCE
Planning Documents:	
Acquisition Plan	11-D
Configuration Plan	9-A
Computer Resources Life Cycle Management Plan	6-D/7-A
Human Systems Integration Plan	7-B
Integrated Logistics Support Plan	6-F/7-A
Manufacturing Plan	6-O
Program Protection Plan	5-F
Software Development Plan	6-D
Systems Engineering Management Plan	6-A
Technology Assessment and Control Plan	5-F
Test and Evaluation Master Plan	6-F/6-H/6-I/7-B/8
Training Development Plan	7-B
Plans*:	
hardness assurance, maintenance, and surveillance (hams) plans	6-F
risk management plans	3

* these plans do not exist in a single document

PART 12

SPECIAL SITUATIONS

Not all acquisition programs require or benefit from the standard, single DoD Component, traditional acquisition management approach. Other management approaches are available. Further, not all acquisition programs remain under the oversight of one acquisition official during the life of the program.

The material contained in the following sections, organized as indicated below, identifies the key policies and procedures for nontraditional acquisition program management and the key policies for assignment and transfer of program oversight.

SECTION	SUBJECT
A	Defense Enterprise Programs and Milestone Authorization
B	Joint Programs
C	Assignment of Program Oversight

PART 12

SECTION A

DEFENSE ENTERPRISE PROGRAMS AND MILESTONE AUTHORIZATION

References:
(a) Title 10, United States Code, Section 2436, "Defense enterprise programs"
(b) Title 10, United States Code, Section 2437, "Defense enterprise programs: milestone authorization"
(c) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(d) Federal Acquisition Regulation (FAR), current edition
(e) Defense Federal Acquisition Regulation Supplement (DFARS), current edition

1. PURPOSE

a. These policies and procedures establish the basis for:

(1) Designating programs as a Defense Enterprise Program (DEP) under the provisions of Title 10, United States Code, Section 2436, "Defense enterprise programs" (reference (a)); and

(2) Requesting milestone authorization under the provisions of Title 10, United States Code, Section 2437, "Defense enterprise programs: milestone authorization" (reference (b)).

b. The purpose of Defense Enterprise Programs is to streamline the management of defense acquisition programs by reducing the layers through which a Program Manager reports and the number of acquisition regulations with which the Program Manager must comply.

c. The purpose of milestone authorization is to enhance program stability by providing multi-year program authorization (for the period of an acquisition phase, not to exceed 5 years).

2. POLICIES

a. A program within any acquisition category may be proposed as a Defense Enterprise Program and a candidate for milestone authorization.

(1) Initial designation as a Defense Enterprise Program should occur no later than Phase I, Demonstration and Validation.

(2) Candidate programs must have a validated Mission Need Statement, an approved Operational Requirements Document (see Section 4-B), and a stable funding commitment.

(3) Designation of Defense Enterprise Programs and candidates for milestone authorization may only be made by the Secretaries of the Military Departments.

b. Defense Enterprise Programs

(1) Streamlined Chain of Command. The Program Manager of a Defense Enterprise Program shall report directly, without intervening review or approval, to a Program Executive Officer, who shall report directly, without intervening review or approval, to the Service Component Acquisition Executive (who is also the Senior Procurement Executive for the military departments in accordance with DoD Directive 5000.1 "Defense Acquisition" (reference (c))).

(a) The Program Executive Officer to whom a Defense Enterprise Program Manager reports shall evaluate the job performance of the Program Manager on an annual basis.

(b) In conducting the evaluation, the Program Executive Officer shall consider the extent to which the Program Manager has achieved the objectives of the program for which the Program Manager is responsible, including cost, schedule, and performance.

(c) For acquisition category II, III, and IV programs, the Program Executive Officer for the purposes of this paragraph shall be level of review authority above the Program Manager (see paragraph I.b. of Part 1 of DoD Directive 5000.1, "Defense Acquisition" (reference (c))).

(2) Dedicated Program Manager Staff. The Program Manager of a Defense Enterprise Program shall be authorized staff positions for a technical staff, including experts in business management, contracting, auditing, law, engineering, testing, and logistics.

(3) Rules and Regulations. Except as reimposed by the Service Component Acquisition Executive (who is also the Senior Procurement Executive for the military departments)(and as agreed to by the Under Secretary of Defense for Acquisition for acquisition category I programs), a Defense Enterprise Program shall not be subject to any acquisition related regulation, policy, directive, or administrative rule or guideline other than those specified in law, the Federal Acquisition Regulation (reference (d)), and the Defense Federal Acquisition Regulation Supplement (reference (e)).

(4) Management by Exception. Defense Enterprise Programs shall be managed in accordance with the principles of management by exception. These principles include limited reporting and review requirements and intervention by senior management only at milestone intervals, at a Program Manager's request, or in

the event that a program encounters substantial problems in meeting established acquisition program baseline thresholds.

c. Milestone Authorization

(1) Selection of Milestone Authorization Candidates. Every two years, in accordance with biennial budgeting, Secretaries of the Military Departments shall submit with their Program Objective Memorandums selected Defense Enterprise Programs as candidates for milestone authorization.

(a) Only Defense Enterprise Programs ready to proceed into Phase II, Engineering and Manufacturing Development, or into Phase III, Production and Deployment, or which are currently in either phase, are eligible for milestone authorization.

(b) The Under Secretary of Defense for Acquisition, assisted by the Assistant Secretary of Defense for Program Analysis and Evaluation and the Comptroller of the Department of Defense, shall review the appropriateness of these milestone authorization candidates and make a final determination.

(c) In the event that no nominations are forthcoming, the Under Secretary of Defense for Acquisition may elect to propose selected Defense Enterprise Programs as milestone authorization candidates.

(2) Designation of Milestone Authorization Candidates. Milestone authorization must be approved by the Committees on Armed Services of the Senate and House of Representatives.

(a) Candidate programs approved by the Under Secretary of Defense for Acquisition for milestone authorization request shall be submitted with the President's Budget, requesting authority to obligate funds in a single amount sufficient to carry out the phase into which the program is about to enter or in which the program currently is operating.

(b) The Committees on Armed Services may milestone authorize any program, including programs not recommended for milestone authorization by Department of Defense.

(c) A program milestone authorized by Congressional action without Department of Defense request shall be considered to have been designated as a Defense Enterprise Program.

3. PROCEDURES

a. Defense Enterprise Programs

(1) Selection of Defense Enterprise Program Candidates. DoD Component Heads may designate any acquisition program under

their jurisdiction as a Defense Enterprise Program. Concurrence of the Under Secretary of Defense for Acquisition is required for designation of acquisition category I programs as Defense Enterprise Programs.

(2) Retention of Defense Enterprise Program Status. A designated program will retain its Defense Enterprise Program status until and unless the designation is removed by subsequent Secretary of a Military Department action.

(3) Establishment of Limited Documentation and Reporting Requirements. As part of the milestone decision process, the documentation and reporting requirements impacting Defense Enterprise Programs will be reviewed so that a unified set of limited documentation and reporting requirements can be decided upon for the succeeding acquisition phase.

(a) This unified set will specify those directives, instructions, regulations, guidelines, policies, procedures, and administrative rules (excluding those specifically created by law, Federal Acquisition Regulation (reference (d)), and Defense Federal Acquisition Regulation Supplement (reference (e))), which will apply to the Defense Enterprise Program.

(b) The Under Secretary of Defense for Acquisition (for acquisition category I programs) or the Service Component Acquisition Executive (for all other acquisition category programs) will be the final approval authority for the application of limited documentation and reporting requirements.

(c) Subsequent milestone reviews will incorporate similar procedures for developing a unified set of limited documentation and reporting requirements.

b. Milestone Authorization

(1) Submittal of Baseline Description for Milestone Authorization Candidates. Within 90 days of submission of the President's Budget which designates a program as a candidate for milestone authorization (or upon milestone authorization by Congressional action), the Under Secretary of Defense for Acquisition will submit to the Committees on Armed Services of the House and Senate an acquisition program baseline (see Section 11-A). This acquisition program baseline will be the same acquisition program baseline which was approved by the milestone decision authority and within which the program is currently operating.

(2) Reporting of Baseline Deviations. Baseline deviations of milestone authorization programs require the Program Manager to submit a program deviation report to the Service Component Acquisition Executive (see Section 11-A).

(a) Within 45 days of receipt of the Program Manager's report, the Service Component Acquisition Executive will review the Program Manager's program deviation report and will provide the Under Secretary of Defense for Acquisition the program deviation report and the results of the Service Component Acquisition Executive's review, with recommendations on actions to be taken to bring the program back within thresholds (to include the approval of an acquisition program baseline change).

(b) The Under Secretary of Defense for Acquisition will notify the Committees on Armed Services of the House and Senate of the receipt of the program deviation report within 15 days of receiving the results of the Service Component Acquisition Executive's review.

(c) No funds may be obligated for the breached milestone authorized program beginning 45 days after the Under Secretary of Defense for Acquisition receives the program deviation report unless the Under Secretary notifies Congress that the Under Secretary intends to convene a board to formally review the breached program and intends to submit a revised acquisition program baseline to Congress, along with the recommendations of the board, concurrent with the submission of the next President's Budget.

(3) Potential Suspension of Obligational Authority. The cognizant Secretary of the Military Department may not obligate amounts appropriated or otherwise made available for the fiscal year following the fiscal year during which the program deviation report was received unless such amounts are authorized to be appropriated after the program deviation report was received.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-DE
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	DJ8	J8/SPED

PART 12

SECTION B

JOINT PROGRAMS

References: (a) AMCR 750-10, OPNAVINST 4790.14, MCOP 4790.10A, AFLCR 800-30, AFSCR 800-30, "Logistics Depot Maintenance Inter-Service," June 1, 1988
(b) Title 10, United States Code, Section 2308, "Assignment and delegation of procurement functions and responsibilities"

1. PURPOSE

These policies and procedures establish the basis for initiating and managing joint acquisition programs which involve more than one DoD Component.

2. POLICIES

a. Any Defense acquisition system, subsystem, component, or technology program that involves formal management or funding by more than one DoD Component during any phase of a system's life cycle shall be classified as a joint program. This includes programs where one DoD Component may be acting as acquisition agent for another DoD Component by mutual agreement.

b. Mission needs, operational requirements, and program plans shall be structured to encourage and to provide an opportunity for multi-Component participation.

c. The DoD Components shall periodically review their programs and requirements to determine the potential for cooperation.

d. To the maximum extent possible, joint programs shall be integrated in all aspects of the program ranging from common agreement on priority to common documentation.

3. PROCEDURES

a. Designation of Joint Programs. Individually and collectively, the Joint Staff, the Military Services, and the Defense Agencies will examine each Mission Need Statement (MNS) at Milestone 0, each proposed new start acquisition program at Milestone I, and each on-going acquisition program (Milestones II-IV) for joint Component applicability. This examination will be accomplished using the following procedures:

(1) Each DoD Component will assess the joint potential of their Mission Need Statements as part of the validation process by coordinating the Mission Need Statement with the other DoD Components.

(a) The sponsoring Component will assign a Joint Potential Designator (JPD) to describe the expected level of joint DoD

Component involvement.

1 Independent. No potential for other Component use or systems interface or for joint development or procurement.

2 Joint Interest. Joint program management is inappropriate, but a potential for other Component use or systems interface exists. (This involvement was formerly referred to as "interoperating.")

3 Joint. A potential for joint program management, joint funding, and/or joint development or procurement exists.

(b) The Joint Requirements Oversight Council review process accomplishes the Joint Potential Designator coordination for potential acquisition category I programs. DoD Components accomplish this Joint Potential Designator coordination for acquisition category II, III, and IV programs.

(c) Once the Mission Need Statement is validated, the validation authority will include the assigned Joint Potential Designator in the recommendation to the milestone decision authority.

(2) The milestone decision authority will approve joint program designation as early in the acquisition process as possible and will appoint the lead DoD Component.

(3) These decisions will be based on the recommendation of the Joint Requirements Oversight Council (JROC) for programs that will be reviewed by the Defense Acquisition Board, or of the DoD Component Head (or a designated representative) for all other programs.

(4) Each DoD Component will provide to the Joint Requirements Oversight Council, by the end of January each year, an annual Joint Potential Assessment Report (JPAR) covering the previous calendar year. This report will list all those programs assessed as having joint potential, indicate the Joint Potential Designator assigned, and provide the status of each program.

b. Inter-Component Operating Agreements. The lead DoD Component is responsible for establishing and maintaining current joint program inter-Component operating agreements such as program charters, memoranda of agreement, and joint operating procedures. The milestone decision authority will ensure that operating procedures, charters, memoranda of agreement, etc. are kept current and will resolve disagreements. Requirements and baselines affecting participating Components will not be changed without consulting all Components concerned.

c. Lead Component Milestone Responsibilities. The lead DoD Component for designated joint programs will be responsible for all common milestone documentation (see Section 11-C) including a single Operational Requirements Document and a single acquisition program

baseline which will include the performance, cost, and schedule parameters of all participating DoD Components, and for all periodic reporting (see Section 11-D) including a single Defense Acquisition Executive Summary (DAES) and Selected Acquisition Report (SAR).

(1) Milestone reviews and periodic reporting will only flow through the lead DoD Component acquisition chain, supported by the participating DoD Components.

(2) The participating DoD Components will be responsible for keeping their acquisition chains informed of program progress using the common documentation.

(3) Separate DoD Component reporting and documentation requirements will not be established.

(4) Documentation, including Operational Requirements Documents and acquisition program baselines, and periodic reporting, including Defense Acquisition Executive Summaries and Selected Acquisition Reports, for unique DoD Component requirements will be appended to the common documentation and periodic reports after receiving the approval of the requiring DoD Component.

d. Joint Program Development Funding. Unless directed otherwise by the milestone decision authority, the lead DoD Component will manage the common research, development, test, and evaluation (RDT&E) funds for assigned joint programs. The lead DoD Component will fund research, development, test, and evaluation for all program aspects that satisfy common requirements.

(1) DoD Component-specific requirements, to include DoD Component-specific research, development, test, and evaluation; operations and maintenance (O&M); military construction; and procurement of the required quantities, will be funded by the DoD Component concerned.

(2) Requests for exemption from lead DoD Component funding will be directed to the milestone decision authority for consideration.

* *

e. Joint Program Management. A joint program will have a single quality assurance program, a single change control program, a single integrated test program, and common documentation. The lead DoD Component will be responsible for all test and evaluation coordination. The participating DoD Components will make available DoD Component systems and associated equipment, facilities, and qualified personnel for test and evaluation, as required.

f. Joint Logistics Support. Inter-Component logistics support will be utilized and provided to the maximum extent possible commensurate with effective support to the operational forces and the efficient utilization of DoD resources. No weapon system, subsystem, major end item, component, or support equipment requiring depot level support or depot construction program will be placed in a nonsusceptible for interservicing category without a critical review.

(1) The lead DoD Component will report to the lead Component logistics head (or a designated representative) within 90 days of engineering and manufacturing development contract award on the initiation of an inter-Component logistics support agreement. This agreement will be completed prior to the

Milestone III decision.

(a) A program review, chaired by the logistics head of the lead DoD Component, will be conducted for any joint program that fails to meet the 90 day suspense.

(b) This review will focus on removing impediments to inter-Component logistics support and will establish a time phased action plan for removing those impediments.

(2) The Services will use the "Logistics Depot Maintenance Inter-Servicing" regulations (reference (a)) for additional guidance.

g. Joint Program Termination. DoD Components may not terminate or substantially reduce participation in joint programs without the approval of the Under Secretary of Defense for Acquisition (see Section 2308 of Title 10, United States Code, "Assignment and delegation of procurement functions and responsibilities" (reference (b)))

(1) Substantial reduction is defined as a proposed funding or quantity decrease of 50% or more in the total funding or quantities of the share of the Component seeking to reduce its participation in the latest President's Budget.

(2) Before approving a DoD Component's request to terminate or substantially reduce participation in a joint program, the Under Secretary of Defense for Acquisition will request a review of the proposed termination or reduction by the Joint Requirements Oversight Council.

(3) The Under Secretary of Defense for Acquisition may require a Military Department approved for termination or substantial reduction in participation in a joint acquisition program to continue to provide some or all of the funding necessary for the acquisition program to be continued in an efficient manner (see Section 2308 of Title 10, United States Code, "Assignment and delegation of procurement functions and responsibilities" (reference (b))).

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	DAMO-FDR
Dept of Navy	ASN(RDA)	Dep, APIA
Dept of Air Force	AF/XO	AF/XOX
CJCS (Joint Staff)	VCJCS	J8/SPED
Other DoD Components	USSOCOM	Dir, Acq/SORDAC

PART 12

SECTION C

ASSIGNMENT OF PROGRAM OVERSIGHT

Reference: (a) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991

1. PURPOSE

a. These policies and procedures establish the basis for the assignment of acquisition program oversight to a Program Executive Officer (or a Program Manager directly reporting to a DoD Component Acquisition Executive). It also governs the transition of oversight of a program between a Program Executive Officer and a commander of a systems, logistics, or materiel command.

b. This section implements the policies of Part 1, paragraph D.1.a. and paragraph D.1.c. of DoD Directive 5000.1, "Defense Acquisition" (reference (a)).

2. POLICIES

a. Acquisition oversight responsibilities shall be assigned to a Program Executive Officer (or a direct reporting Program Manager) under the following conditions:

(1) Within 6 months of approval of an acquisition category I program or highly sensitive classified program above the cost thresholds for an acquisition category I program new start:

(2) Within 6 months of the program being designated as an acquisition category I program by the Under Secretary of Defense for Acquisition or being designated as a highly sensitive classified program above the cost thresholds for an acquisition category I program; or

(3) For all other acquisition categories, within 6 months of determination by the DoD Component Head (or a representative) that:

(a) Dedicated acquisition oversight is needed, or

(b) The program is best managed as a part of the program portfolio overseen by a Program Executive Officer.

b. All programs not overseen by a Program Executive Officer (or a direct reporting Program Manager) shall be overseen by a commander of a systems, logistics, or materiel command.

c. In order to be proposed for transition from a Program Executive Officer to a commander of a systems, logistics, or materiel command, a program must meet the following conditions:

(1) The program must have achieved Initial Operating Capability, be in mature, stable production (i.e., post-Milestone III), and be logistically supportable as planned.

(2) The program must not be subject to any major preplanned product improvements or major block upgrades which themselves meet the dollar threshold for an acquisition category I program.

(3) The program must not involve any matters that require dedicated acquisition oversight.

3. PROCEDURES

a. At least annually the Under Secretary of Defense for Acquisition will publish at list of programs designated acquisition category I D and I C. The DoD Component Acquisition Executive will publish a list of programs designated acquisition category II, III, and IV.

b. The Program Executive Officer will initiate the recommendation for transfer of management responsibility if transfer has not been directed by the milestone decision authority.

c. The details for transfer of the program and the required resources to support the program will be reflected in a memorandum of agreement between the Program Executive Officer and the commander of the systems, logistics, or materiel command.

d. The DoD Component Acquisition Executive will review and approve the agreement and will direct the transfer of responsibility.

e. For acquisition category I D programs, the Under Secretary of Defense for Acquisition must concur in the transfer of responsibility.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI ASD(P&L)	DepDir, ASM DASD(PR)
Dept of Army	ASA(RDA)	SARD-RP
Dept of Navy	ASN(RDA)	Dir, RE
Dept of Air Force	ASAF(A)	SAF/AQX

PART 13

DEFENSE ACQUISITION BOARD PROCESS

The Defense Acquisition Board is the primary forum for resolving issues and facilitating Under Secretary of Defense for Acquisition decisions for acquisition category I programs. In support of the Defense Acquisition Board, the appropriate Committee of the Board will conduct a pre-Defense Acquisition Board review. The Office of the Secretary of Defense Cost Analysis Improvement Group and the Joint Requirements Oversight Council also support the Defense Acquisition Board in its review process.

The material contained in the following sections, organized as indicated below, describes the steps in the Defense Acquisition Board, Cost Analysis Improvement Group, and Joint Requirements Oversight Council review processes, and provides standard Committee operating procedures.

SECTION	SUBJECT
A	Defense Acquisition Board Review Procedures
B	Defense Acquisition Board Committee Review Procedures
C	Cost Analysis Improvement Group Review Procedures
D	Joint Requirements Oversight Council Review Procedures

PART 13

SECTION A

DEFENSE ACQUISITION BOARD REVIEW PROCEDURES

References:
(a) Under Secretary of Defense for Acquisition Memorandum, "Structuring DAB Meetings," December 5, 1989 (canceled)
(b) Under Secretary of Defense for Acquisition Memorandum, "Implementation of Pre-DAB Review Streamlining Measures," February 22, 1990 (canceled)
(c) DoD Directive 5000.49, "Defense Acquisition Board", September 11, 1989
(d) DoD Directive 5000.1, "Defense Acquisition," February 23, 1991
(e) DoD Directive 7920.1, "Life-Cycle Management of Automated Information Systems," June 20, 1988
(f) DoD Instruction 7920.2, "Automated Information System (AIS) Life-Cycle Management Review and Milestone Approval Procedures," March 7, 1990
(g) MCM-76-92, "Charter of The Joint Requirements Oversight Council", May 19, 1992 * *
(h) DoD Directive 5000.4, "OSD Cost Analysis Improvement Group," October 30, 1980
(i) Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements"
(j) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

a. This section supersedes Under Secretary of Defense for Acquisition Memorandum, "Structuring DAB Meetings" (reference (a)) and Under Secretary of Defense for Acquisition Memorandum, "Implementation of Pre-DAB Review Streamlining Measures" (reference (b)).

b. These policies and procedures establish the basis for milestone reviews by the Under Secretary of Defense for Acquisition once the Program Manager determines that the program has achieved all the objectives of the current acquisition phase and is ready to proceed into the next acquisition phase.

c. This section implements the policies of Section 11-C for programs to be reviewed by the Defense Acquisition Board.

2. DEFINITIONS

a. Defense Acquisition Board. The Defense Acquisition Board is chaired by the Under Secretary of Defense for Acquisition.

(1) The Vice Chairman of the Joint Chiefs of Staff serves as vice chairman of the Board.

(2) Other members of the Board include the Deputy Under Secretary of Defense for Acquisition; Acquisition Executives of the Army, Navy, and Air Force; the Director of Defense Research and Engineering; the Assistant Secretary of Defense for Program Analysis and Evaluation; the Comptroller of the Department of Defense; and the Director of Operational Test and Evaluation.

(3) The duties and composition of the Defense Acquisition Board are specified in DoD Directive 5000.49, "Defense Acquisition Board" (reference (c)).

b. Defense Acquisition Board Committees. The Defense Acquisition Board is supported by three Committees that are chartered by the Under Secretary of Defense for Acquisition under the authority of DoD Directive 5000.49, "Defense Acquisition Board" (reference (c)) and operate in accordance with DoD Directive 5000.1, "Defense Acquisition" (reference (d)) and this Instruction (see Section 13-B for additional information on Defense Acquisition Board Committee review procedures). The three Committees are:

(1) Strategic Systems Committee (SSC);

(2) Conventional Systems Committee (CSC); and

(3) Command, Control, Communications, and Intelligence Systems Committee (C^3IC).

c. The Major Automated Information System Review Council (MAISRC). The Major Automated Information System Review Council is chartered by the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence under the overall guidance of DoD Directive 5000.1, "Defense Acquisition" (reference (d)) and operates in accordance with "Life Cycle Management of Automated Information DoD Directive 7920.1, Systems" (reference (e)) and DoD Instruction 7920.2, "Automated Information Systems Life-Cycle Management Review and Milestone Approval Procedures" (reference (f)). Automated Information Systems that meet the thresholds for acquisition category I programs will be reviewed by the Defense Acquisition Board.

d. Joint Requirements Oversight Council (JROC). The Joint Requirements Oversight Council is chaired by the Vice Chairman of the Joint Chiefs of Staff. The Vice Chiefs of the Army and Air Force, the Vice Chief of Naval Operations, and the Assistant Commandant of the Marine Corps are members of the Council. The mission of the Joint Requirements Oversight Council is described in MCM-76-92, "Charter of The Joint Requirements Oversight Council" (reference (g)). (See Section 13-D for additional information on Joint Requirements Oversight Council review procedures.)

e. Office of the Secretary of Defense Cost Analysis Improvement Group (CAIG). The Office of the Secretary of Defense Cost Analysis

Improvement Group is chaired by the Deputy Assistant Secretary of Defense for Resource Analysis in the Office of the Assistant Secretary of Defense for Program Analysis and Evaluation. (See Section 13-C for additional information on Office of the Secretary of Defense Cost Analysis Improvement Group review procedures.)

(1) Members of the Office of the Secretary of Defense Cost Analysis Improvement Group include representatives of each Defense Acquisition Board member, each Military Department, and ad hoc members appointed by the Chair for special purposes.

(2) There is also an Executive Group, made up of the Chair and representatives from the Office of the Secretary of Defense and from the Joint Staff.

(3) The Office of the Secretary of Defense Cost Analysis Improvement Group operates in accordance with DoD Directive 5000.4, "Office of the Secretary of Defense Cost Analysis Improvement Group" (reference (h)).

3. POLICIES

a. The Defense Acquisition Board shall meet at each milestone.

(1) At Milestone 0 the Board shall meet to review and make recommendations to the Under Secretary of Defense for Acquisition on the initiation of concept studies for Mission Need Statements forwarded by the Joint Requirements Oversight Council that could result in the initiation of new acquisition category I programs.

(2) At Milestone I the Board shall meet to make recommendations to the Under Secretary of Defense for Acquisition and to the Deputy Secretary of Defense on the initiation of new acquisition category I programs at Milestone I.

(3) At Milestones II, III, and IV (if required) the Board shall meet to review acquisition category I D program progress and to recommend to the Under Secretary of Defense for Acquisition the readiness of the program to proceed into the next acquisition phase.

b. The Under Secretary of Defense for Acquisition may hold special program reviews between milestone reviews when warranted.

(1) Topics to be covered in a special program review shall, to the extent possible, be identified at least 30 calendar days prior to the scheduled review, unless a shorter period of time is authorized by the Under Secretary for the specific review in question.

(2) Documentation required for the program review and preparatory meetings and/or reviews shall be tailored to the specific requirements of the program review, but shall in no case exceed

the requirements for a milestone review without specific authorization of the Under Secretary.

c. The purposes of Defense Acquisition Board Committee reviews are to:

(1) Verify that exit criteria and the minimum required accomplishments of the phase preceding the milestone have been completed;

(2) Provide an independent assessment of the program which, together with the Component's Integrated Program Summary (see Section 11-C), is the basis for the Defense Acquisition Board review; and

(3) Make recommendations on cost-schedule-performance trade-offs proposed by the Program Manager for decision by the Under Secretary of Defense for Acquisition.

d. With the approval of the Under Secretary of Defense for Acquisition, other Committee reviews may be held for special purposes, such as to develop recommendations for the Under Secretary on decisions other than milestone or program reviews (e.g., release of withheld funds, baseline changes, acquisition strategy changes).

e. Briefings by Program Managers during the process leading to the Defense Acquisition Board review shall be limited to those that are essential to the process. In this regard:

(1) Within the Office of the Secretary of Defense, Program Managers shall give no more than 3 briefings. These briefings are at the documentation review, the Defense Acquisition Board Committee review, and the Defense Acquisition Board review.

(2) The Office of the Secretary of Defense Cost Analysis Improvement Group review and the Joint Requirements Oversight Council review are separate working meetings. The Program Manager shall only attend these meetings if the Program Manager's attendance is required by the Chair and the Program Manager's attendance is approved by the Component Acquisition Executive.

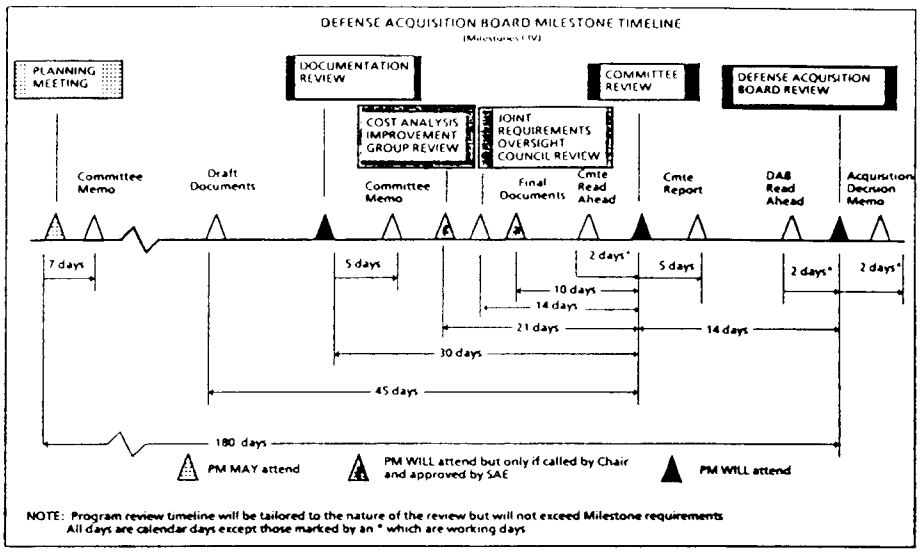
(3) The Program Manager may attend the Planning Meeting held 6 months in advance of a planned Defense Acquisition Board review. However, the Program Manager's attendance is not required and no Program Manager briefing shall be given.

(4) Briefings to the Office of the Secretary of Defense staff in advance of either the Defense Acquisition Board Committee review or the Defense Acquisition Board review SHALL NOT BE GIVEN by the Program Manager or members of the Program Manager's office. These briefings MAY be given by DoD Component representatives at the discretion of the DoD Component.

(5) Within the Components, formal briefings by the Program Manager, once the Program Manager is ready to go to a Defense Acquisition

Board review, SHALL BE LIMITED to 2 briefings. Other preparatory meetings, requiring the presence of the Program Manager shall be kept to a minimum.

(6) The following Defense Acquisition Board milestone timeline shows the Program Manager briefing policy.



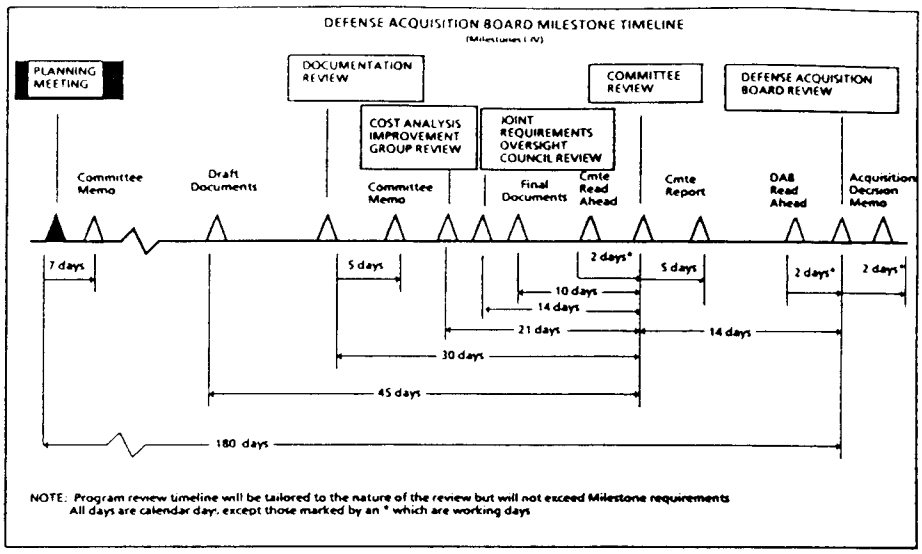
f. Prior to release of the formal solicitation preceding Milestone II and Milestone III (if required), the program acquisition strategy must be approved by the milestone decision authority (see Part 2). If the Under Secretary of Defense for Acquisition determines that a formal review of the acquisition strategy for an acquisition category I D program is required, the review shall take the form of a program review (see paragraph 3.b., above).

4. PROCEDURES

a. Milestone 0 Defense Acquisition Board Review. Milestone 0 reviews will be held to review Mission Need Statements forwarded by the Joint Requirements Oversight Council. Once a Mission Need Statement is received by the Under Secretary of Defense for Acquisition and a funding source is identified, a Defense Acquisition Board Milestone 0 review will be scheduled. The appropriate Defense Acquisition Board Committee will meet prior to the Board meeting to identify possible materiel alternatives and study efforts for the consideration by the Board.

b. Milestone I through IV Defense Acquisition Board Review

(1) Pre-Defense Acquisition Board Activity



(a) Planning Meeting. The Defense Acquisition Board milestone review process will begin with a planning meeting held at least 6 months prior to the Defense Acquisition Board milestone review.

1 The planning meeting will be chaired by the relevant Defense Acquisition Board Committee Chair (or a representative) and will include representatives from each Committee principal and the DoD Component. The Program Manager may attend if desired.

2 The purposes of the milestone planning meeting are to ascertain the readiness of the program for Defense Acquisition Board review, based on progress toward completion of exit criteria and minimum required accomplishments; to assess the plans for key milestone documents such as the cost and operational effectiveness analysis, cost estimate, test evaluation master plan, and acquisition strategy; and to determine the availability of test results.

3 The product of the planning meeting will be a memorandum to the Under Secretary of Defense for Acquisition and to the DoD Component Acquisition Executive from the Committee Chair identifying the results of the assessment of program readiness and a recommendation on whether or not to proceed with the milestone review.

This memorandum will also identify issues pertaining to the exit criteria and minimum required accomplishments that Committee members recommend be addressed in the program documentation for the upcoming milestone. The memorandum will be coordinated with the Defense Acquisition Board principals and will be issued within 7 calendar days of the planning meeting. *

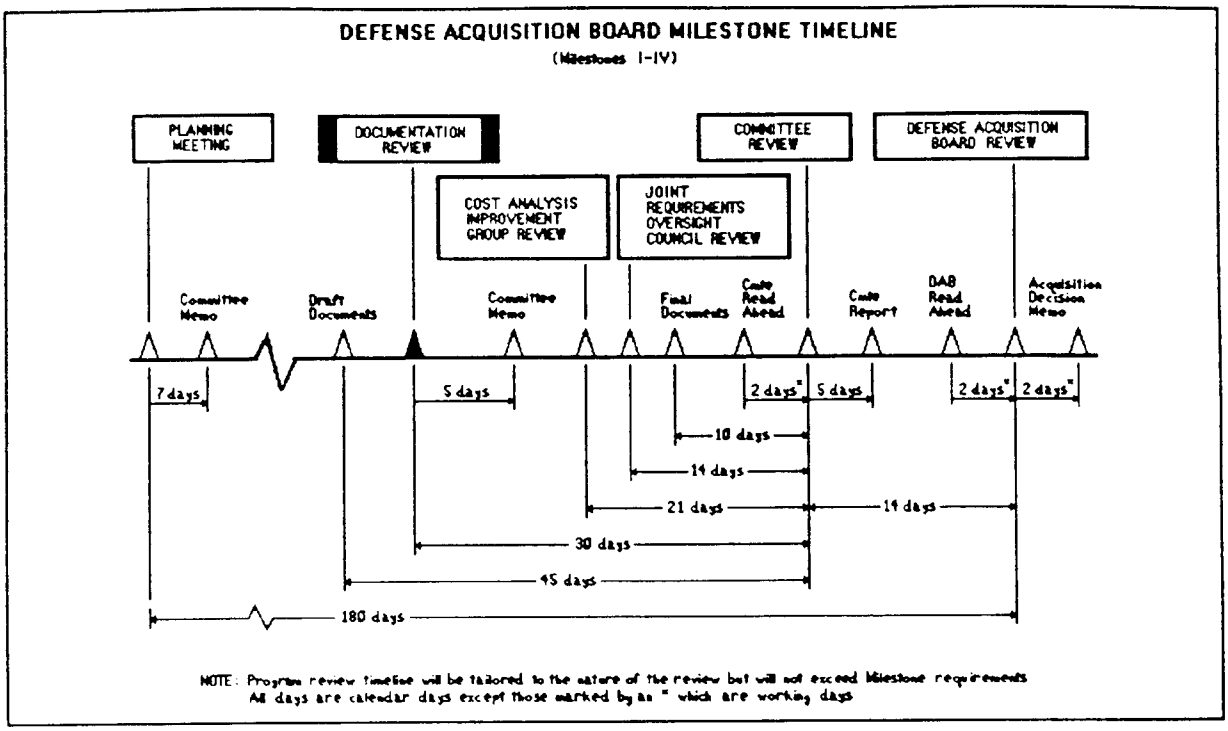
(b) Program Draft Documentation Submission. Draft documentation required for a Defense Acquisition Board milestone review (see Section 11-C), including the Program Manager's life cycle cost estimate and the DoD Component's independent cost estimate, will be provided to the Defense Acquisition Board Executive Secretary no later than 45 calendar days before a scheduled Defense Acquisition Board Committee review.

1 Draft documentation is documentation not yet approved by the DoD Component Acquisition Executive or other appropriate authority specified in Section 11-C.

2 Draft documentation will be provided to the Defense Acquisition Board Executive Secretary over the signature of the Program Executive Officer.

3 Copies of this documentation will be provided to Defense Acquisition Board Committee Chair who will distribute it to the Committee members, the Joint Requirements Oversight Council, and the Office of the Secretary of Defense Cost Analysis Improvement Group within 3 working days after receipt.

4 No Defense Acquisition Board or Defense Acquisition Board Committee meeting date will be finalized on the schedule prior to satisfactory submission of all required draft documentation, unless specifically authorized by the Under Secretary of Defense for Acquisition. The determination of whether or not documentation is satisfactory will be a subject of the Documentation Review (see subparagraph 4.b.(1)(c), below).



(c) Documentation Review. The Office of the Secretary of Defense staff will review the documentation submitted and identify major issues, including the adequacy of the documentation, at a documentation review meeting held no later than 30 calendar days before a Defense Acquisition Board Committee review.

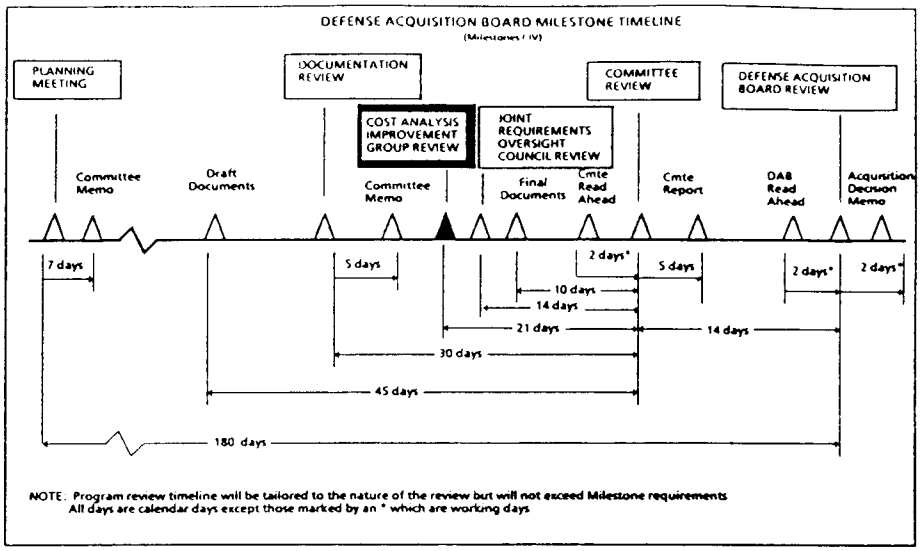
1 This meeting will be chaired by the Defense Acquisition Board Committee Chair (or a representative) and will include representatives of the Committee principals and of the DoD Component.

2 The Program Manager will attend and will begin the meeting with an overview presentation of program technical content and risks, cost-effectiveness, threat, acquisition strategy, supportability and producibility, and test plans and results.

3 The documentation review will serve as the single Office of the Secretary of Defense meeting for identifying and reviewing major questions raised by the draft documentation, and any new program developments since the planning meeting.

4 The product of the documentation review will be a memorandum to the DoD Component Acquisition Executive from the Committee Chair. This memorandum will identify major deficiencies in the draft documentation and major issues resulting from the review for the consideration of the Acquisition Executive. This memorandum will be coordinated with the Defense Acquisition Board

principals and issued within 5 calendar days of the review.



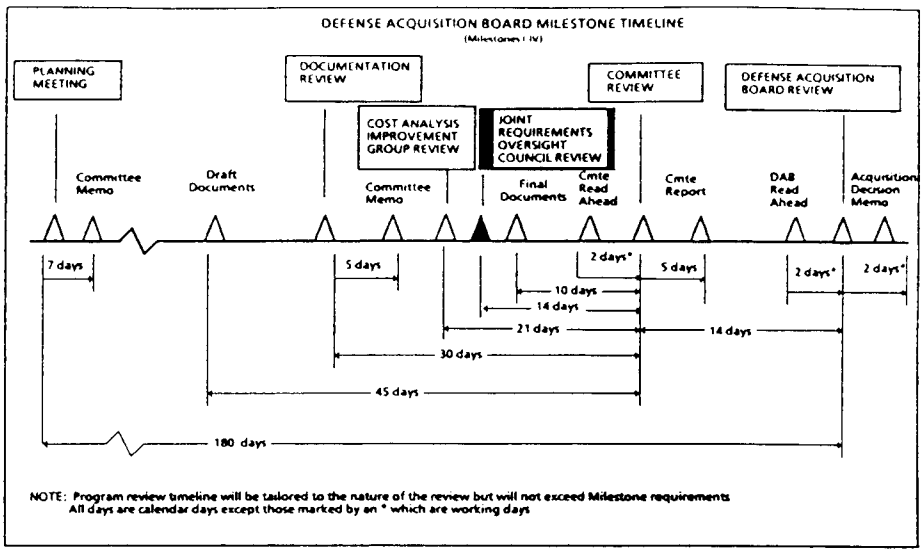
(d) Office of the Secretary of Defense Cost Analysis Improvement Group Review. Following the documentation review, but no later than 21 calendar days before a Defense Acquisition Board Committee review, the Office of the Secretary of Defense Cost Analysis Improvement Group will meet.

1 The purposes of the meeting will be to review independently (as required by Title 10 United States Code, Section 2434, "Independent cost estimates; operational manpower requirements" (reference (i))) the program costs estimated by the Program Manager and the DoD Component independent cost analysis team; to validate the methodology used to make the cost estimates provided; to determine whether additional analysis, which the Cost Analysis Improvement Group may undertake itself, is required; and to be given an explanation of the DoD Component cost position.

2 The Program Manager will attend the review only if requested by the Cost Analysis Improvement Group Chair and approved by the DoD Component Acquisition Executive.

3 The product of the review will be a Cost Analysis Improvement Group independent cost position for the

program under review. This cost position will be presented to the Defense Acquisition Board Committee and included as part of the Committee's report.



(e) Joint Requirements Oversight Council Review. No later than 14 calendar days before a Defense Acquisition Board Committee review, the Joint Requirements Oversight Council will hold a review with representatives of the DoD Component.

1 The purpose of the Joint Requirements Oversight Council Review is to confirm that the proposed performance objectives and thresholds in the acquisition program baseline provide an operational capability that will satisfy the validated Mission Need Statement.

2 The Program Manager will attend only if requested by the Joint Requirements Oversight Council Chair and approved by the DoD Component Acquisition Executive.

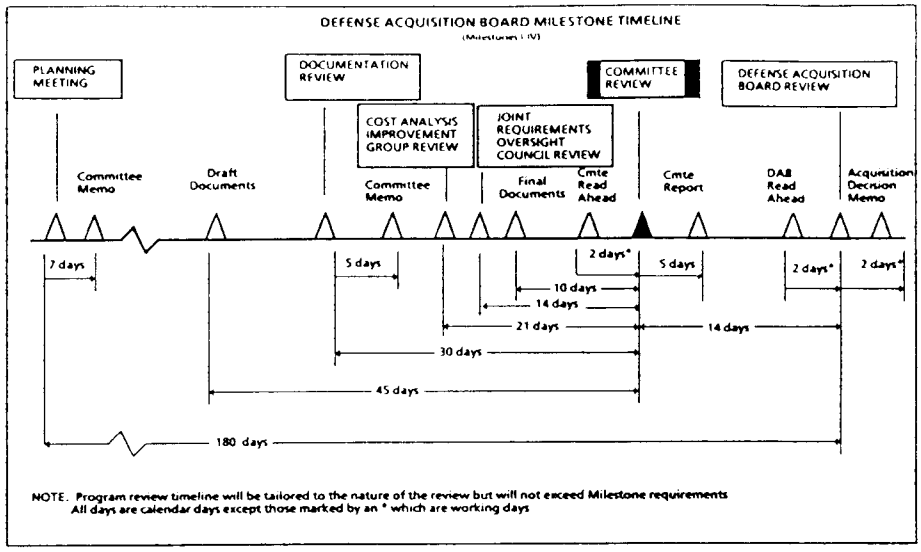
3 The product of the review will be an assessment of the proposed performance objectives and thresholds for the program under review. This assessment will be submitted to the Defense Acquisition Board Executive Secretary and provided by the Executive Secretary to the Defense Acquisition Board Committee.

(f) Final Documentation Submission. No later than 10 calendar days prior to the scheduled Defense Acquisition Board Committee milestone review, the DoD Component will submit

final documentation (see Section 11-C) to the Defense Acquisition Board Executive Secretary.

1 The final documentation will be forwarded under the signature of the DoD Component Acquisition Executive.

2 The final documentation will incorporate changes resulting from deficiencies and issues identified during the documentation review that the DoD Component Acquisition Executive agrees to accept.



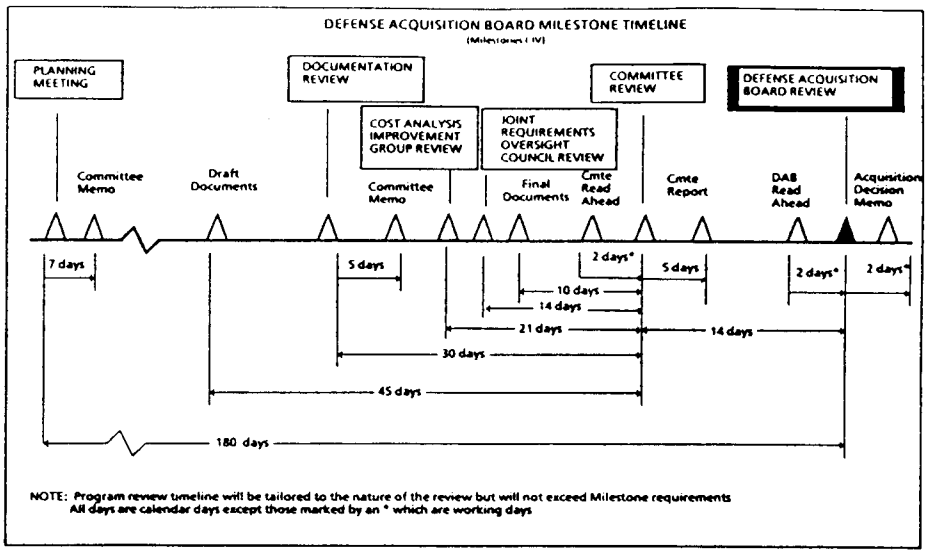
(g) Defense Acquisition Board Committee Review. The cognizant Defense Acquisition Board Committee Chair will convene a meeting to review the status of a program at least 14 calendar days prior to the scheduled Defense Acquisition Board milestone review, unless a shorter period of time is specifically authorized by the Under Secretary of Defense for Acquisition.

1 The purposes of this review are to ensure that all exit criteria and minimum required accomplishments are complete; and to provide the basis for the Committee Chair to prepare the Integrated Program Assessment of the program for presentation to the Defense Acquisition Board.

2 The Committee Executive Secretary will provide a read-ahead to all Committee members at least 2 working days in advance of the Committee review identifying the issues to be discussed at the review.

3 During the Committee review, the Program Manager will brief the Committee on the areas addressed in the Integrated Program Summary and on proposed cost-schedule-performance trade-offs. The Committee members will then present an assessment of the program in their functional areas, based on a review of the documentation, and focusing on risk, risk management, affordability, and proposed trade-offs.

4 Within 5 calendar days after the Committee review, the Committee Chair will prepare a Committee report, in the form of an Integrated Program Assessment following the format of the Integrated Program Summary (see Section 11-C and Part 4 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (j))). The Integrated Program Assessment will include recommendations to the Defense Acquisition Board on the merits of proceeding with the program, proposed cost-schedule-performance trade-offs, and proposed exit criteria for the next acquisition phase.



(2) Defense Acquisition Board Milestone Review. Defense Acquisition Board milestone review meetings will focus on four questions

pertinent to granting approval to proceed into the next acquisition phase.

(a) The four pertinent questions are as follows:

1 Where are we (versus where should we be)?

2 Where are we going (and how will we get there)?

3 What risks exist (and how will we manage those risks)?

4 Is what we plan to do affordable?

(b) The basis for answering the four questions will be the Integrated Program Summary prepared by the DoD Component and the Integrated Program Assessment prepared by the Defense Acquisition Board Committee Chair.

(c) The Defense Acquisition Board Executive Secretary will provide a read-ahead to all Defense Acquisition Board principals no later than 2 working days in advance of the Defense Acquisition Board review. The read-ahead will include the Integrated Program Summary and the Integrated Program Assessment, and will identify the issues to be discussed arising from the Integrated Program Summary and the Integrated Program Assessment.

(d) The Defense Acquisition Board review will be conducted using the model agenda defined in Section 11-C. The Program Manager will highlight the overall status of the program (not to exceed 30 minutes). The Defense Acquisition Board Committee Chair will then summarize the Committee assessment and recommendations (not to exceed 45 minutes). Following a full discussion of the issues, trade-offs, and proposed exit criteria, the Under Secretary will determine the actions to be taken.

(e) The Defense Acquisition Board Executive Secretary will prepare a proposed Acquisition Decision Memorandum within 24 hours of the Defense Acquisition Board review, provide the Board principals 24 hours to review the proposed Memorandum for accuracy, and have the final proposed Acquisition Decision Memorandum to the Under Secretary for signature within 48 hours (2 working days) of the Defense Acquisition Board meeting.

5. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	Dir, AP&PI	DepDir, ASM
Dept of Army	ASA(RDA)	SARD-ZBA
Dept of Navy	ASN(RDA)	Dir, RE
Dept of Air Force	ASAF(A)	SAF/AQX
CJCS (Joint Staff)	VCJCS	J8/SPED

PART 13

SECTION B

DEFENSE ACQUISITION BOARD COMMITTEE REVIEW PROCEDURES

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

a. Preparing for a Defense Acquisition Board Committee and Defense Acquisition Board milestone review is a continuous process. However, there are specific events which must take place in order to have a successful review.

b. This section defines those specific events. These events will occur over at least a 200-day period.

(1) The events in this section are keyed using either a "C-", "C+", "D-", or "D+".

(2) "C" refers to the Committee review.

(3) "D" refers to the Defense Acquisition Board review.

(4) The number indicates the minimum number of days before (-) or maximum number of days after (+) the Committee or Defense Acquisition Board review an event is scheduled to occur; e.g., C-187 means that the event is to occur no later than 187 days prior to a Committee review.

(5) All days are in calendar days unless specified otherwise.

c. The events described are broken into six phases as shown below:

Phase I	Committee Preparation
Phase II	Committee Review
Phase III	Post-Committee Events
Phase IV	Defense Acquisition Board Preparation
Phase V	Defense Acquisition Board Meeting
Phase VI	Post-Defense Acquisition Board Events

2. POLICIES

Defense Acquisition Board Committee Chairs shall not issue supplementing or implementing procedures beyond those contained in this section.

3. PROCEDURES

a. PHASE I: COMMITTEE PREPARATION

The process of planning for a Committee review is initiated by informal discussions between the Office of the Under Secretary of Defense for Acquisition and DoD Component personnel and by reference to the long-range schedule published by the Defense Acquisition Board Executive Secretary. This schedule identifies the requirement to conduct a Defense Acquisition Board review based on a program's schedule, as modified by actual events.

EVENT #1: (C-187) ANNOUNCEMENT OF THE PLANNING MEETING

(1) The Committee staff Director will send a memorandum to staff specialists in Committee member organizations announcing the specifics associated with the planning meeting (purpose of meeting, time, location, date, etc.).

(2) This correspondence will also indicate the approximate timeframe for the coming Committee and Defense Acquisition Board reviews and establish a target Defense Acquisition Board review date.

EVENT #2: (C-166) CONDUCT OF THE PLANNING MEETING

(1) This meeting is the responsibility of the cognizant Committee Chair. Attendance by the Program Manager is not required for this meeting.

(2) The purpose of the meeting is to assess program progress towards satisfying exit criteria and minimum required accomplishments and the readiness of the program to proceed into the next acquisition phase. Documentation requirements will be confirmed, documentation plans will be assessed, and a detailed schedule of preparations set.

(3) Issues pertaining to the exit criteria and minimum required accomplishments arising from the assessment of program progress and documentation plans will be identified.

EVENT #3: (C-159) ISSUANCE OF THE COMMITTEE MEMORANDUM

(1) As a result of the planning meeting, the Committee staff specialist will prepare for the Committee Chair's signature a memorandum to the Under Secretary of Defense for Acquisition and to the cognizant DoD Component Acquisition Executive. This memorandum will highlight the results of the assessment of program progress and contain a recommendation as to whether or not the milestone review should be held as planned.

(2) This memorandum must be coordinated with Defense Acquisition Board Committee principals within 7 days of the planning meeting. Any major objections as to its content will be elevated to the Under Secretary of Defense for Acquisition for resolution.

EVENT #4: (C-159) DISTRIBUTION OF THE MASTER PLANNING CALENDAR

(1) The Committee staff specialist will prepare a master planning calendar which can be used as a management tool throughout the Committee and Defense Acquisition Board preparation process.

(2) This calendar will be distributed initially with the Committee Memorandum and will be updated and redistributed to Office of the Secretary of Defense and DoD Component personnel throughout the process. A sample of such a calendar is at attachment 1.

EVENT #5: (C-45) SUBMITTAL OF THE DRAFT DOCUMENTATION

(1) The documentation required varies with each milestone review. Section 11-C, lists the required documentation by milestone.

(2) The Committee staff specialist will coordinate with the DoD Component to ensure delivery of the required numbers of copies each document. The cover memorandum from the Program Executive Officer should be addressed to the Defense Acquisition Board Executive Secretary. One copy of the documentation should go to the Executive Secretary with the remaining copies to the Committee staff specialist.

(3) The Committee staff specialist will prepare a cover memorandum and distribute the documentation to appropriate Committee members within 3 working days of documentation receipt asking them for written comments not later than C-33.

(4) Once draft documentation is received, the Committee staff specialist will work with the Committee Executive Secretary to finalize scheduling of the Committee review. The Committee Executive Secretary will work with the Defense Acquisition Board Executive Secretary to finalize the Defense Acquisition Board review.

(5) In the event draft documentation is not received 45 days in advance, the Committee review, and the subsequent Defense Acquisition Board review, will be postponed on a day-for-day basis, unless specifically waived by the Under Secretary of Defense for Acquisition.

EVENT #6: (C-30) DOCUMENTATION REVIEW

(1) This meeting will be chaired by the cognizant Committee Chair (or a representative). The Program Manager will attend and will brief the status of the program.

(2) The purposes of the review are to identify questions regarding the draft documentation (Event #5) in preparation for making independent staff assessments; and to reassess the readiness for Committee and Defense Acquisition Board reviews.

EVENT #7: (C-25) ISSUANCE OF COMMITTEE MEMORANDUM

(1) Following the documentation review meeting, the Committee staff specialist will prepare a memorandum for Committee Chair signature to the DoD Component Acquisition Executive. This memorandum delineates major questions not answered at the review and identifies any major documentation deficiencies and issues associated with the draft documentation for the consideration of the DoD Component Acquisition Executive.

(2) This memorandum will be coordinated with the Defense Acquisition Board principals and transmitted to the DoD Component Acquisition Executive within 5 days of the meeting.

EVENT #8: (C-10 through C-30) OTHER MEETINGS AND BRIEFINGS

(1) A separate OSD Cost Analysis Improvement Group working meeting to review program cost estimates will take place, as will a separate Joint Requirements Oversight Council meeting to review performance objectives and thresholds. Neither meeting will necessarily involve the Program Manager, unless the Program Manager's attendance is requested by the Group or Council chair and approved by the DoD Component Acquisition Executive.

(2) Beyond the meetings specified above, additional pre-briefs, IF REQUIRED AT ALL, will be handled by DoD Component representatives outside the program office.

EVENT #9: (C-10) SUBMITTAL OF THE FINAL DOCUMENTATION

(1) Final documentation, forwarded by a cover memorandum signed by the DoD Component Acquisition Executive, will be submitted to the Defense Acquisition Board Executive Secretary with copies to the Committee staff specialist.

(2) The final documentation will incorporate any deficiencies or changes identified during the documentation review, if agreed to by the DoD Component Acquisition Executive.

(3) The Committee staff specialist will expeditiously distribute final documentation to appropriate Committee Members.

EVENT #10: (C-2 working days) DISTRIBUTION OF COMMITTEE BLUE BOOKS

(1) The Committee Blue Book includes inputs from the DoD Component and Office of the Secretary of Defense offices that will assist Committee principals to prepare for their meeting.

(2) A list of the required Blue Book entries for each milestone review is provided at attachment 2.

EVENT #11: (C-1 working day) PRE-BRIEF FOR COMMITTEE CHAIR

The Committee staff specialist and Director will pre-brief the Committee Chair on any unresolved documentation issues, summarize areas of concern from initial staff functional assessments, and identify cost-schedule-performance tradeoffs and proposed exit criteria.

b. PHASE II: COMMITTEE REVIEW

EVENT #12: (C-DAY) COMMITTEE REVIEW

Although the purpose and scope of Committee reviews will vary, meetings will normally be structured as follows, with exact times associated with each presentation established by the Committee staff Director.

(1) INTRODUCTION: Committee Staff Specialist

The Committee staff specialist will bring the meeting to order, state its purpose, and set the context for the milestone decision. (nominally 10 minutes)

(2) COMPONENT PRESENTATION: Program Manager (nominally 60 minutes)

The presentation will focus on the following. It will not dwell on the criticality of the need, operational concepts, doctrine or tactics, detailed technical descriptions, or other information not relevant to the decision milestone.

(a) Decision requested.
(b) Program execution status.
(c) Threat highlights and existing system shortfalls.
(d) Alternatives assessed and results.
(e) Most promising alternative and rationale.
(f) Acquisition strategy.
(g) Cost drivers and major trade-offs.
(h) Risk assessment and plans to reduce risk.
(i) Affordability of selected alternative
(j) Recommendations.

(3) OSD REPORTS: Committee Staff Director (nominally 60 minutes)

The Director will review the primary considerations that are necessary to make a recommendation. The Director will discuss issues in these areas and summarize the initial functional assessments of the Office of the Secretary of Defense staff offices and their recommendations. Proposed exit criteria, tradeoffs, and risk management will also be discussed by the Director.

(4) SUMMARY DISCUSSION: Committee Chair (nominally 50 minutes)

The Chair will lead a discussion resulting in the development of a recommendation to the Defense Acquisition Board.

c. PHASE III: POST-COMMITTEE EVENTS

EVENT #13: (C+5) FORWARDING THE COMMITTEE CHAIRMAN'S REPORT TO THE DEFENSE ACQUISITION BOARD CHAIRMAN

(1) Upon the conclusion of the Committee review, the Committee staff specialist will prepare the Integrated Program Assessment (which is the Committee Chair's report), and a forwarding memorandum to the Defense Acquisition Board Chair.

(2) Coordination of this document with Committee principals will be accomplished within 2 working days.

(3) The Integrated Program Assessment will be in the Integrated Program Summary Executive Summary format (see Section 4-A of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a))).

d. PHASE IV: DEFENSE ACQUISITION BOARD PREPARATION

EVENT #14: (D-3 working days) PRE-BRIEF FOR THE DEFENSE ACQUISITION BOARD CHAIR

The Committee staff specialist will prepare the Committee Chair's pre-brief to the Defense Acquisition Board Chair in accordance with the following format:

(1) Purpose of the Defense Acquisition Board.

(2) Program highlights and/or background.

(3) Results of the Integrated Program Assessment.

(4) Issues and trade-offs.

(5) Recommendations.

EVENT #15: (D-2 working days) DISTRIBUTION OF DEFENSE ACQUISITION BOARD BLUE BOOKS

(1) The Defense Acquisition Board Blue Book includes the DoD Component's Integrated Program Summary Executive Summary, the Committee Chair's Integrated Program Assessment, and a summary of outstanding issues.

(2) The Defense Acquisition Board Executive Secretary is responsible for Blue Book preparation and delivery to Defense Acquisition Board principals. The Office of the Under Secretary of Defense

for Acquisition Defense Acquisition Board Committee staff specialist will provide assistance regarding Blue Book content.

e. PHASE V: DEFENSE ACQUISITION BOARD REVIEW

EVENT #16: (D-DAY) DEFENSE ACQUISITION BOARD MEETING

The Defense Acquisition Board review will be structured as follows:

(1) INTRODUCTION: Committee Chair (nominally 10 minutes)

The Committee Chair will bring the meeting to order and set the context for the milestone decision, and report issues.

(2) COMPONENT PRESENTATION: Program Manager (nominally 30 minutes)

The presentation will focus on the following:

(a) Decision requested.
(b) Program execution status.
(c) Threat highlights and existing system shortfalls.
(d) Alternatives assessed and results.
(e) Most promising alternative and rationale.
(f) Acquisition strategy.
(g) Cost drivers and major trade-offs.
(h) Risk assessment and plans to reduce risk.
(i) Affordability of selected alternative.
(j) Recommendations.

(3) COMMITTEE ASSESSMENT: Committee Chair (nominally 30 minutes)

The presentation will focus on the issues identified by the Committee Chair as well as proposed exit criteria.

(4) SUMMARY DISCUSSION: Defense Acquisition Board Chair

The Chair will lead a discussion to facilitate a decision.

f. PHASE VI: POST-DEFENSE ACQUISITION BOARD EVENTS

EVENT #17: (D+2) SIGNING OF THE ACQUISITION DECISION MEMORANDUM

(1) Immediately after the Defense Acquisition Board review, the Committee staff specialist assists the Defense Acquisition Board Executive Secretary in preparing and staffing the Acquisition Decision Memorandum.

(2) The Under Secretary of Defense for Acquisition will sign the Acquisition Decision Memorandum within 48 hours (2 working days) after the Defense Acquisition Board review.

4. NON-MILESTONE COMMITTEE REVIEWS

a. The Committee will convene periodically for special reviews apart from the Defense Acquisition Board milestone review process as approved by the Under Secretary of Defense for Acquisition. The Committee meeting announcement will identify those Committee members requested to attend; participation by other members will be welcomed.

b. In general, the procedures described in this section will apply.

(1) However, with the approval of the Committee Chair, specific requirements will be tailored to meet schedule constraints or special review considerations (e.g., preparation timelines, number of meetings, documentation required or meeting format).

(2) In no case will requirements exceed those normally required for a milestone review unless agreed to by the Under Secretary of Defense for Acquisition.

(3) As a minimum, a planning meeting will be conducted to discuss plans and set requirements for the Committee review.

(a) This meeting will be chaired by the cognizant Committee staff Director or the Director's staff specialist and attended by a representative of each Committee principal.

(b) Within a week of this meeting, a Committee Memorandum will be released by the Committee Chair. This memorandum will state clearly the purpose of the special review, establish the timeline of events, identify the documentation required, and describe the review issues, agenda, and responsibilities.

(4) Minutes will be prepared by the appropriate Committee staff specialist to document the findings of each Committee review.

5. HIGHLY SENSITIVE CLASSIFIED PROGRAMS

With the exception of special security arrangements, highly sensitive classified programs are handled administratively in the same manner as other programs. The Director of Special Programs will be the Defense Acquisition Board Executive Secretary for all reviews of highly sensitive classified programs.

6. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of these offices may be found in Part 14 of this Instruction.

DoD Component		Points of Contact	
		General	Specific
OSD	DAB	Dir, AP&PI	DepDir, ASM
	CSC	DUSD(A)	Dir, TS
	SSC	DUSD(A)	Dir, S&SS
	C3IC	ASD(C3I)	DASD(C3)
Dept of Army		ASA(RDA)	SARD-ZBA
Dept of Navy		ASN(RDA)	Dir, RE
Dept of Air Force		ASAF(A)	SAF/AQX

Attachments - 2

1. Master Planning Calendar
2. Committee Blue Book Requirements

MASTER PLANNING CALENDAR
PROGRAM XXX (MSII))

January 1 New Years Day	2 Draft Documents	3	4	5
8	9	10	11	12
15 Martin Luther King Day	16	17 Document Review	18	19
22	23 Committee Memo	24	25	26 CAIG Review
29	30	31	February 1	2 JROC Review
5	6 Final Documents	7	8	9
12	13	14 Committee Blue Book	15	16 Committee Review
19 Presidents Day	20	21 Committee Report	22	23
26	27	28 DAB Blue Book	March 1	2 DAB Review
5	6 ADM signed	7	8	9

COMMITTEE BLUE BOOK REQUIREMENTS

	MS0	MSI	MSII	MSIII	MSIV
Mission Need Statement	X				
Integrated Program Summary Ex Sum		X	X	X	X
Acquisition Program Baseline		X	X	X	X
DoD(C) Financial Status Assessment		X	X	X	X
DIA Intelligence Report	X	X	X	X	X
* USD(A)/AP&PI & PA&E Affordability * Assessment		X	X	X	X
PA&E COEA Assessment		X	X	X	X
PA&E CAIG Assessment		X	X	X	X
JROC Assessment (if available)		X	X	X	X
DT&E Assessment		X	X	X	X
OT&E Assessment		X	X	X	X
DUSD(IP) Cooperative Opp Assessment		X	X	X	X
FM&P HSI Assessment		X	X	X	X
P&L Producibility and Industrial Base Assessment		X	X	X	X
P&L Supportability Assessment		X	X	X	X
P&L Environmental Assessment		X	X	X	X

PART 13

SECTION C

COST ANALYSIS IMPROVEMENT GROUP REVIEW PROCEDURES

References: (a) Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements"
(b) DoD Directive 5000.4, "OSD Cost Analysis Improvement Group," October 30, 1980
(c) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

a. This section implements the requirements of Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements" (reference (a)) and Section 10-A and complement the procedures in Section 13-A.

b. These procedures establish the basis for OSD Cost Analysis Improvement Group reviews in support of Defense Acquisition Board or Defense Acquisition Board Committee reviews and in support of DoD Component reviews on acquisition category I C programs.

2. POLICIES

a. The OSD Cost Analysis Improvement Group is established in accordance with DoD Directive 5000.4, "OSD Cost Analysis Improvement Group" (reference (b)).

b. The program office and/or independent cost estimates required as part of an acquisition category I milestone or program review shall be briefed to the OSD Cost Analysis Improvement Group.

c. Consistent with its charter to provide independent cost estimates, the OSD Cost Analysis Improvement Group may initiate, through appropriate acquisition channels, contacts with program offices and contractors. The purposes of such contacts is to gain familiarity with the program and, as is warranted in individual cases, to develop information required to estimate program costs.

3. PROCEDURES

a. Cost Analysis Improvement Group Acquisition Category I D Program Review Procedures

(1) The general plan of the Cost Analysis Improvement Group's work will be discussed with representatives of the cognizant DoD

Component(s) at the Planning Meeting, normally held no later than 180 calendar days in advance of a planned Defense Acquisition Board Committee review (see Section 13-A).

(2) Documentation of draft program office and independent life-cycle cost estimates will be provided to the Defense Acquisition Board Executive Secretary for transmission to the Cost Analysis Improvement Group no later than 45 calendar days in advance of a scheduled Defense Acquisition Board Committee review. The documentation of draft cost estimates will cover at least the most significant parts of the program office and independent life cycle cost estimate to the degree of completeness described in paragraph 2.c. of Part 15 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (c)).

(3) Except as agreed to by the Cost Analysis Improvement Group Chair, the cognizant DoD Component will brief the Cost Analysis Improvement Group at least 21 calendar days in advance of a scheduled Defense Acquisition Board Committee review.

(4) Final program office life cycle cost estimates, independent cost estimates, and Component cost positions will be provided to the Defense Acquisition Board Executive Secretary for transmission to the Cost Analysis Improvement Group no later than 10 calendar days prior to a scheduled Defense Acquisition Board Committee review. The final documentation will cover all parts of the program office and independent life cycle cost estimates to the degree of completeness described in paragraph 2.c. of Part 15 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (c)).

(5) Program Managers need not attend Cost Analysis Improvement Group meetings unless their attendance is requested by the Chair of the Cost Analysis Improvement Group and approved by the DoD Component Acquisition Executive.

b. <u>Cost Analysis Improvement Group Acquisition Category I C Program Review Procedures</u>

(1) Documentation of draft program office and independent life-cycle cost estimates will be provided to the Cost Analysis Improvement Group no later than 45 calendar days in advance of a scheduled DoD Component milestone or program review. The documentation of draft cost estimates will cover at least the most significant parts of the program office and independent life-cycle cost estimate to the degree of completeness described in paragraph 2.c. of Part 15 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (c)).

(2) Except as agreed to by the Cost Analysis Improvement Group Chair, the cognizant DoD Component will brief the Cost Analysis Improvement Group at least 21 calendar days in advance of a scheduled review.

(3) Final program office life-cycle cost estimates, independent cost estimates, and Component cost positions will be provided to the Cost Analysis Improvement Group no later than 10 calendar days prior to a scheduled review. The final documentation will cover all parts of the program office and independent life-cycle cost estimates, to the degree of completeness described in paragraph 2.c. of Part 15 of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (c)).

(4) Program Managers need not attend Cost Analysis Improvement Group meetings unless their attendance is requested by the Chair of the Cost Analysis Improvement Group and approved by the DoD Component Acquisition Executive.

c. Guidelines for Cost Analysis Improvement Group Briefings. There is no fixed format for Cost Analysis Improvement Group briefings. Ordinarily, within general guidelines specified below, the briefing format is worked out by the Cost Analysis Improvement Group action officer, the action officer's counterpart in the program office, and the head of the team preparing the independent cost estimate.

(1) Specific Elements for Cost Analysis Improvement Group Briefings

(a) A description of cost estimating methods. Methods of estimating all elements are to be mentioned, and those related to elements with significant cost risk should be discussed fully.

(b) A tabulation of previous cost estimates (in base year dollars). This cost track should include cost estimates provided to the Defense Acquisition Board Committees or the Defense Acquisition Board and cost estimates prepared in support of annual Program Objective Memoranda or Budget Estimate Submissions.

(c) Summaries in base-year and then-year dollars (using Comptroller of the Department of Defense escalation rates) for estimated research, development, test, and evaluation; procurement; operation and maintenance; and military construction costs.

(d) Characterizations of the extent of cost risk. Statistical methods that provide rational discussions of dispersions, in addition to central tendencies, are desirable. Risk estimates generated by individuals' judgments of percentages by which elements are uncertain are less desirable.

(e) A reconciliation of the program office and independent cost estimates and the DoD Component's cost position. Include explanations of significant variances in major cost elements and by DoD Component for joint programs.

(f) A comparison of the DoD Component cost position with the year-by-year amounts for the program in the President's Budget or the relevant Program Objective Memorandum, whichever is most recent.

(2) General Guidelines for Cost Analysis Improvement Group Briefings

(a) The major life-cycle phases for which costs are to be presented are: concept exploration and definition (only if costs unique to the system approved at Milestone I can be identified); demonstration and validation; engineering and manufacturing development; production and deployment; and operation and support.

(b) The cost elements for the acquisition phases should be summarized by funding appropriation (i.e., research, development, test, and evaluation (RDT&E); procurement; military construction (MILCON); and operation and maintenance (O&M). A DoD Component may present a more detailed funding breakout as long as the detailed breakout may be aggregated readily into the elements identified above.

(c) Cover all parts of the estimate in the elements of the above subparagraph. Focus, however, on the items that are cost drivers and/or elements of high cost risk.

(3) A typical Cost Analysis Improvement Group briefing will last 2 hours, with the time distributed roughly as shown below. Departures from this pattern are not uncommon, and are encouraged to the extent that they foster a better understanding of the cost estimates and the cost issues presented for the system.

(a) Program overview (20 min).

(b) Program office estimate (POE) (45 min).

(c) Independent cost estimate (ICE) (30 min).

(d) Reconciliation of program office estimate and independent cost estimate, and differences with and explanation of the DoD Component cost position (15 min).

(e) Reconciliation with fiscal guidance (10 min).

d. Formats. Formats for elements of cost to be used in life-cycle cost estimates are in DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (c)).

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix below identifies the offices to be contacted for additional information on this section. The full titles of those offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	ASD(PA&E)	Chair, CAIG
Dept of Army	ASA(FM)	SAFM-CA
Dept of Navy	ASN(RDA)	Dir, NCA
Dept of Air Force	ASAF(FM)	SAF/FMC
CJCS (Joint Staff)	DJ8	J8/PBAD

PART 13

SECTION D

JOINT REQUIREMENTS OVERSIGHT COUNCIL REVIEW PROCEDURES

References: (a) Secretary of Defense Report, "Defense Management Report to the President," July 19, 1989
(b) MCM 76-92, "Charter of the Joint Requirements Oversight Council," May 19, 1992
(c) CJCS MOP 77, "Requirements Generation System Policies and Procedures," September 17, 1992
(d) JROCM-050-92, "Joint Requirements Oversight Council Administrative Instruction (JROC Requirements Generation Process)," July 6, 1992
(e) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

1. PURPOSE

a. This section establishes procedures for Joint Requirements Oversight Council reviews to assist the Under Secretary of Defense for Acquisition and the Defense Acquisition Board as directed in the "Defense Management Report to the President" (reference (a)).

b. These procedures complement those functions in MCM 76-92, "Charter of the Joint Requirements Oversight Council" (reference (b)).

c. More detailed policies and procedures are provided in CJCS MOP 77, "Requirements Generation System Policies and Procedures" (reference (c)).

d. Additional administrative procedures are provided in JROCM-050-92, "Joint Requirements Oversight Council Administrative Instruction (JROC Requirements Generation Process)" (reference (d)),

2. POLICIES

a. The Joint Requirements Oversight Council shall review all deficiencies that may necessitate development of major systems prior to any consideration by the Defense Acquisition Board at Milestone 0. The Joint Requirements Oversight Council shall determine the validity of an identified mission need and forward the Mission Need Statement with Joint Requirements Oversight Council recommendations to the Under Secretary of Defense for Acquisition.

b. The Joint Requirements Oversight Council shall participate in the validation of the key parameters found in the performance section of the acquisition program baseline prior to Defense Acquisition Board reviews of major programs (including, unless otherwise directed by the Secretary or Deputy Secretary of Defense, highly sensitive classified programs) prior to all successive milestone reviews.

c. The Joint Requirements Oversight Council reviews acquisition category I D or potential acquisition category I programs to support the Defense Acquisition Board process. Procedures may be modified to meet specific demands of the Defense Acquisition Board program review. The Joint Requirements Oversight Council may address

nonmajor defense acquisition programs to resolve contentious issues, such as designation of lead Component.

3. PROCEDURES

a. Mission Need Statement. The procedures and format for a Mission Need Statement are contained in Part 2 of DoD 5000.2-M "Defense Acquisition Management Documentation and Reports" (reference (e)). The Mission Need Statement is a nonsystem-specific statement of an operational need expressed in broad terms and is limited to five pages. The Mission Need Statement may be prepared by any DoD Component. There is no requirement to update the Mission need Statement for milestone reviews.

(1) JROCM-050-92, "Joint requirements Oversight Council Administrative Instruction (JROC Requirements Generation Process)" (reference (d)) provides guidance for submitting requirements.

(2) The Joint Staff's J-7 Operational Requirements Division (J-7/ORD) serves as the Joint Requirements Oversight Council Secretariat and is the central point of contact for Mission Need Statement submission and review.

(3) After coordination, sponsors will be scheduled to brief the Joint Requirements Oversight Council on the contents of the Mission Need Statement.

(a) There is a Joint Requirements Oversight Council briefing guide which provides structure for this briefing. Briefings should address the basis of the need, the related threat, the assessment of nonmateriel alternatives, and the constraints included in the Mission Need Statement. Briefings will not exceed 20 minutes.

(b) An action officers' briefing will normally precede the briefing to the Joint Requirements Oversight Council by 13 calendar days.

b. Operational Requirements Documents. The Operational Requirements Document provides a bridge that links the Mission Need Statement to the Acquisition program Baseline and ultimately to the contract specifications. The Operational Requirements Document is an evolving document that is updated before each milestone review. In the Operational Requirements Document, system-specific capabilities and characteristics with proposed thresholds and objectives are developed from the broad operational capabilities of the mission need Statement, becoming more detailed at successive milestone decision points. The Joint Requirements Oversight Council normally designates a DoD Component as the validation and approval authority for acquisition category I Operational Requirements Documents. In some cases, the Joint Requirements Oversight Council designates the validation authority, but retains the approval authority for the operational Requirements Document.

c. Acquisition Program Baseline. The acquisition program baseline contains the key cost, schedule, and performance parameters for the program expressed in terms of objectives and thresholds. Operational performance parameters are extracted from the Operational Requirements Document. The milestone decision authority may add

additional performance parameters to the acquisition program baseline (see Section 11-A). The Joint Requirements Oversight Council validates the key operational performance parameters and certain schedule parameters (e.g., initial operational capability) of the acquisition program baseline before milestone decision points starting at Milestone I. Validation of objectives and thresholds in the acquisition program baseline confirms that the proposed capability will satisfy the mission need. Failure to meet Joint Requirements Oversight Council validated thresholds may require a reevaluation of alternative concepts or design approaches and could result in program termination.

(1) The draft acquisition program baseline will be provided to the Secretary of the Joint Requirements Oversight Council by the Executive Secretary of the Defense Acquisition Board no later than 59 calendar day before the schedule Defense Acquisition Board review (see Section 13-A).

(2) The program sponsor must schedule a program briefing for a Joint Requirements Oversight Council milestone review a minimum of 28 calendar days before a scheduled Defense Acquisition Board review (see Section 13-A).

(a) The purpose of the review is to ensure that the key operational parameters expressed as objectives and thresholds found in the performance and/or schedule section of the acquisition program baseline proposed for the program provide a capability that will satisfy the mission need.

(b) There is a Joint Requirements Oversight Council briefing guide which provides structure for the briefing to the Council. Briefings should review the Mission Need Statement, identify (and update as required) the related threat, and describe how the proposed performance objectives and thresholds would satisfy the mission need.

(c) The Council will provide its recommendations to the Defense Acquisition Board in a written assessment (see Section 13-A). Scheduling and specific instructions for these reviews should be obtained through the Service Joint Requirements Oversight Council Points of Contact listed below.

(3) Changes to the Operational Requirements Document as it evolves should be reviewed for required changes to the acquisition program baseline. If acquisition program baseline changes are required, an acquisition program baseline change request must be forwarded to the USD(A) after the revised Operational Requirements Document is approved.

4. RESPONSIBILITIES AND POINTS OF CONTACT

The matrix on the next page identifies the offices to be contacted for additional information on this section. The full titles of those offices may be found in Part 14 of this Instruction.

DoD Component	Points of Contact	
	General	Specific
OSD	USD(A)	DepDir, ASM
Dept of Army	VCSA	DAMO-FDR
Dept of Navy	VCNO ACMC	CNO(N8) HQMC/RPR
Dept of Air Force	VCSAF	AF/XOR
CJCS (Joint Staff)	VCJCS	J7/ORD

PART 14

OFFICE SYMBOLS AND TITLES

Reference: (a) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," February 1991, authorized by this Instruction

In the responsibilities and points of contact paragraph of each section of this Instruction and in each part of DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports" (reference (a)), a list of offices to contact for additional information is provided. The offices are indicated by office symbol or by abbreviated title.

The purpose of this part, organized as shown below, is to identify the office symbol or abbreviated title. Only those offices listed in the responsibilities paragraph of the various sections and parts are given in the sections of this part. The office symbols and abbreviated titles are listed alphabetically.

SECTION	SUBJECT
A	Office of the Secretary of Defense
B	Department of the Army
C	Department of the Navy
D	Department of the Air Force
E	Chairman, Joints Chiefs of Staff and Joint Staff
F	Other DoD Components

PART 14

SECTION A

OFFICE OF THE SECRETARY OF DEFENSE (OSD)

OFFICE SYMBOL	FULL TITLE
ADUSD(P&A)	Assistant Deputy Under Secretary of Defense for Planning and Analysis, Office of the Deputy Under Secretary of Defense for International Programs
ASD(C3I)	Assistant Secretary of Defense for Command, Control, Communications, and Intelligence
ASD(FM&P)	Assistant Secretary of Defense for Force Management and Personnel
ASD(PA&E)	Assistant Secretary of Defense for Program Analysis and Evaluation
ASD(P&L)	Assistant Secretary of Defense for Production and Logistics
ATSD(AE)	Assistant to the Secretary of Defense for Atomic Energy, Office of the Director of Defense Research and Engineering
Chair, CAIG	Chair of the Office of the Secretary of Defense Cost Analysis Improvement Group (Deputy Assistant Secretary of Defense for Resource Analysis, Office of the Assistant Secretary of Defense for Program Analysis and Evaluation)
Comp(P/B)	Deputy Comptroller for Program and Budget, Office of the Comptroller of the Department of Defense
DASD(C3)	Deputy Assistant Secretary of Defense for Command, Control, and Communications, Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence

	DASD(E)	Deputy Assistant Secretary of Defense for Environment, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(E)/EPD	Chief of the Environmental Planning Division, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(FSE&S)	Deputy Assistant Secretary of Defense for Family Support, Education, and Safety, Office of the Assistant Secretary of Defense for Force Management and Personnel
*	DASD(E)/S&OHP	Director of Safety and Occupational Health Policies, Office of the Assistant Secretary of Defense for Production and Logistics *
	DASD(GPP)	Deputy Assistant Secretary of Defense for General Purpose Programs, Office of the Assistant Secretary of Defense for Program Analysis and Evaluation
	DASD(I)	Deputy Assistant Secretary of Defense for Intelligence, Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence
	DASD(L)	Deputy Assistant Secretary of Defense for Logistics, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(L)/TP	Director of Transportation Policy, Office of the Assistant Secretary of Defense for Production and Logistics
*	DASD(PR)/WSIG	Director of the Weapons System Improvement Group, Office of the Assistant Secretary of Defense for Production and Logistics *
*	Dir, DefProc	Director of Defense Procurement, Office of the Under Secretary of Defense for Acquisition *

	Dir, DefProc/DSPS	Deputy Director of Defense Systems Procurement Strategies, Office of the Director of Defense Procurement
	DASD(PR)	Deputy Assistant Secretary of Defense for Production Resources, Office of the Assistant Secretary of Defense for Production and Logistics
	Dir, CALS	Director of Computer Aided Acquisition and Logistics Support, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(PR)/IEQ	Director of Industrial Engineering and Quality, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(PR)/IPQ	Director of Industrial Productivity and Quality, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(PR)/M&IP	Director of Manufacturing and Industrial Programs, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(PR)/MM	Director of Manufacturing Modernization, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(PR)/SDM	Director of Standardization and Data Management, Office of the Assistant Secretary of Defense for Production and Logistics
	DASD(R&R)	Deputy Assistant Secretary of Defense for Requirements and Resources, Office of the Assistant Secretary of Defense for Force Management and Personnel
	DASD(R&R)/TFR	Director of Total Force Requirements, Office of the Assistant Secretary of Defense for Force Management and Personnel

	DASD(SP)	Deputy Assistant Secretary of Defense for Strategic Programs, Office of the Assistant Secretary of Defense for Program Analysis and Evaluation
	DDR&E	Director of Defense Research and Engineering, Office of the Under Secretary of Defense for Acquisition
	DDDR&E(P&R)	Deputy Director of Defense Research and Engineering for Plans and Resources, Office of the Under Secretary of Defense for Acquisition
	DDDR&E(RA&T)	Deputy Director of Defense Research and Engineering for Research and Advance Technology
*	Dir, S&SS	Director of Strategic and Space Systems, Office of the Under Secretary of Defense for Acquisition *
*	Dir, T&E	Director of Test and Evaluation, Office of the Under Secretary of Defense for Acquisition *
*	Dir, TS	Director of Tactical Systems, Office of the Under Secretary of Defense for Acquisition *
	DepDir, ASM	Deputy Director of Acquisition Policy and Program Integration for Acquisition Systems Management, Office of the Under Secretary of Defense for Acquisition
	DepDir, CM	Deputy Director of Acquisition Policy and Program Integration for Cost Management, Office of the Under Secretary of Defense for Acquisition
*	DepDir, AR	Deputy Director of Acquisition Policy and Program Integration for Acquisition Resources, Office of the Under Secretary of Defense for Acquisition *
	DepDir, R&A	Deputy Director of Operational Test and Evaluation for Resources and Administration
*	DepDir, PM	Deputy Director of Acquisition Policy and Program Integration for Performance Management, Office of the Under Secretary of Defense for Acquisition *

Dir, AP&PI	Director of Acquisition Policy and Program Integration, Office of the Under Secretary of Defense for Acquisition	
Dir, S&TC3	Director of Strategic and Theater Nuclear Forces Command, Control, and Communications, Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence	
Dir, T&TC3	Director of Theater and Tactical Command, Control, and Communications, Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence	
DoD (C)	Comptroller of the Department of Defense	
DOT&E	Director of Operational Test and Evaluation	
+ DUSD(A)	Deputy Under Secretary of Defense for Acquisition	* *
DUSD(IP)	Deputy Under Secretary of Defense for International Programs, Office of the Under Secretary of Defense for Acquisition	
DUSD(SP)	Deputy Under Secretary of Defense for Security Policy, Office of the Under Secretary of Defense for Policy	
USD(A)	Under Secretary of Defense for Acquisition	
USD(P)	Under Secretary of Defense for Policy	

PART 14

SECTION B

DEPARTMENT OF THE ARMY

OFFICE SYMBOL	FULL TITLE
ASA(FM)	Assistant Secretary of the Army for Financial Management
ASA(IL&E)	Assistant Secretary of the Army for Installations, Logistics, and Environment
ASA(RDA)	Assistant Secretary of the Army for Research, Development, and Acquisition
DACS-TE	Director, Test and Evaluation Management Agency
DCSI	Deputy Chief of Staff for Intelligence
DCSPER	Deputy Chief of Staff for Personnel
DCSLOG	Deputy Chief of Staff for Logistics
DCSOPS	Deputy Chief of Staff for Operations and Plans
DISC4	Director of Information Systems for Command, Control, Communications, and Computers
DALO-SMS	Chief of the Integrated Logistics Support and Troop Support Division, Supply and Maintenance Directorate, Office of the Deputy Chief of Staff for Logistics
DALO-TSM	Chief of the Strategic Mobility Division, Transportation, Energy, and Troop Support Directorate, Office of the Deputy Chief of Staff for Logistics
DAMI-CI	Chief of Counter Intelligence and Security, Countermeasure Directorate, Office of the Deputy Chief of Staff for Intelligence

DAMI-FIT-TI	Chief of the Threat Intelligence Division, Foreign Intelligence Directorate, Office of the Deputy Chief of Staff for Intelligence
DAMO-FDR	Chief of the Requirements, Programs, and Priorities Division, Force Structure Integration Directorate, Office of the Deputy Chief of Staff for Operations and Plans
DAPE-MR	Director of MANPRINT, Office of the Deputy Chief of Staff for Personnel
DUSA(OR)	Deputy Under Secretary of the Army for Operations Research
SAFM-CA	Deputy for Cost Analysis, Office of the Assistant Secretary of the Army for Financial Management
SAILE-ESO	Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health, Office of the Assistant Secretary of the Army for Installations, Logistics, and Environment
SAILE-LOG	Deputy Assistant Secretary of the Army for Logisitics, Office of the Assistant Secretary of the Army for Installations, Logistics, and Environment
SAIS-AE	Chief of the Analysis and Evaluation Office, Office of the Director of Information Systems for Command, Control, Communications, and Computers
SARD-DE	Assistant Deputy for Program Evaluation, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-DO	Assistant Deputy for Program and Vulnerability Assessment, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition

SARD-RI	Director of Plans and Programs, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-RP	Director of Acquisition and Industrial Base Policy, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-ZBA	Army System Acquisition Review Council Executive Secretary, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-ZBS	Special Assistant for Software, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-ZD	Deputy for International Cooperation, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-ZP	Deputy Assistant Secretary of the Army for Procurement, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
SARD-ZT	Deputy Assistant Secretary of the Army for Research and Technology, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition
VCSA	Vice Chief of Staff of the Army

PART 14

SECTION C

DEPARTMENT OF THE NAVY

OFFICE SYMBOL	FULL TITLE
ACMC	Assistant Commandant of the Marine Corps
ASN(FM)	Assistant Secretary of the Navy for Financial Management
ASN(I&E)	Assistant Secretary of the Navy for Installations and Environment
ASN(MRA)	Assistant Secretary of the Navy for Manpower and Reserve Affairs
ASN(RDA)	Assistant Secretary of the Navy for Research, Development, and Acquisition
DASN(C3I/EW/SPACE)	Deputy Assistant Secretary of the Navy for Command, Control, Communications and Intelligence; Electronic Warfare; and Space Programs, Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition
DASN(Ships)	Deputy Assistant Secretary of the Navy for Ship Programs, Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition
* DCNO (N4) *	Deputy Chief of Naval Operations for Logistics *
* DCNO (N8) *	Deputy Chief of Naval Operations for Resources, Warfare Requirements, and Assessments *
Dep, APIA	Deputy for Acquisition Policy, Integrity, and Accountability, Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition
Dir, NCA	Director, Naval Center for Cost Analysis

	Dir, RE	Director of Resources and Evaluation, Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition	
* * *	CNO (N22)	Director of Intelligence Division, Office of the Director of Naval Intelligence	* * *
	HQMC/C4I2	Assistant Chief of Staff for Command, Control, Communications, Computers, Intelligence, and Interoperability, Headquarters, United States Marine Corps	
	HQMC/C4I2(INT)	Director of Intelligence, Office of the Assistant Chief of Staff for Command, Control, Communications, Computers, Intelligence, and Interoperability, Headquarters, United States Marine Corps	
	HQMC/I&L	Deputy Chief of Staff for Installations and Logistics, Headquarters, United States Marine Corps	
	HQMC/PP&O	Deputy Chief of Staff for Plans, Policy, and Operations, Headquarters, United States Marine Corps	
	HQMC/RPR	Head of the Requirements, Programs and Evaluations Branch, Office of the Deputy Chief of Staff for Requirements and Programs, Headquarters, United States Marine Corps	
	MCRDAC/AWT	Director of Amphibious Warfare Technology, Marine Corps Research, Development, and Acquisition Command	
	MCRDAC/MAGTFC2	Director of Marine Air Group Task Force Command and Control, Marine Corps Research, Development, and Acquisition Command	
* *	CNO (N091)	Director of Test and Evaluation and Technology Requirements	* *
* * *	CNO (N6)	Director of Space and C4 Systems Requirements, Office of the Chief of Naval Operations	* *

NTIC (DA 00-30)	Special Assistant for Threat Support, Naval Technical Intelligence Center
VCNO	Vice Chief of Naval Operations

PART 14

SECTION D

DEPARTMENT OF THE AIR FORCE

OFFICE SYMBOL	FULL TITLE
AF/IN	Assistant Chief of Staff for Intelligence
AFIA/INK	Director of Threat and Technology, Air Force Intelligence Agency
AF/LE	Deputy Chief of Staff for Logistics and Engineering
AF/LE-I	Chief of the Information Systems Division, Office of the Deputy Chief of Staff for Logistics and Engineering
AF/LEY	Director of Maintenance and Supply, Office of the Deputy Chief of Staff for Logistics and Engineering
AF/PR	Deputy Chief of Staff for Productivity and Programs
AF/PRQ	Director of Productivity, Office of the Deputy Chief of Staff for Productivity and Programs
AF/SC	Assistant Chief of Staff for Systems for Command, Control, Communications, and Computers
AF/XO	Deputy Chief of Staff for Plans and Operations
* * * AF/XOR	Director of Operational Requirements, Office of the Deputy Chief of Staff for Plans and Operations * * *
AF/XOX	Director of Plans, Office of the Deputy Chief of Staff for Plans and Operations
ASAF(A)	Assistant Secretary of the Air Force for Acquisition
ASAF(FM)	Assistant Secretary of the Air Force for Financial Management and Comptroller

ASAF(MRAI&E)	Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations, and Environment
SAF/AQC	Director of Contracting and Manufacturing Policy, Office of the Assistant Secretary of the Air Force for Acquisition
SAF/AQK	Deputy Assistant Secretary of the Air Force for Communications, Computers, and Logistics, Office of the Assistant Secretary of the Air Force for Acquisition
SAF/AQT	Director of Technology Programs, Office of the Assistant Secretary of the Air Force for Acquisition
SAF/AQV	Director of Test and Evaluation, Office of the Assistant Secretary of the Air Force for Acquisition
SAF-AQX	Deputy Assistant Secretary of the Air Force for Management, Policy and Program Integration, Office of the Assistant Secretary of the Air Force for Acquisition
SAF/IGS	Deputy Assistant Inspector General for Security
SAF/FMC	Deputy Assistant Secretary of the Air Force for Cost and Economics, Office of the Assistant Secretary of the Air Force for Financial Management and Comptroller
SAF/MIQ	Deputy Assistant Secretary of the Air Force for Environment, Safety, and Occupational Health, Office of the Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations, and Environment
VCSAF	Vice Chief of Staff of the Air Force

PART 14

SECTION E

CHAIRMAN, JOINT CHIEFS OF STAFF AND JOINT STAFF

OFFICE SYMBOL	FULL TITLE
CJCS	Chairman, Joint Chiefs of Staff
DJ4	Director for Logistics
DJ6	Director for Command, Control, and Communications
DJ7	Director for Operational Plans and Interoperability
DJ8	Director for Force Structure, Resource, and Assessment
J4/LPD	Chief of the Logistics Planning Division (J4)
J6I	Deputy Director for Defense-wide Command, Control, and Communication Support (J6)
J6P	Chief of the Planning and Priorities Division (J6)
J7/ORD	Chief of the Operational Requirements Division (J7)
J8/DTO	Deputy Director for Techncial Operations (J8)
J8/PBAD	Chief of the Program Budget and Analysis Division (J8)
J8/SPED	Chief of the System Programs Evaluation Division (J8)
VCJCS	Vice Chairman, Joint Chiefs of Staff

PART 14

SECTION F

OTHER DOD COMPONENTS

OFFICE SYMBOL	FULL TITLE
DARPA	Defense Advanced Research Projects Agency
DIA	Defense Intelligence Agency
DIA/DT-AS	Chief of the Office for Acquisition Support, Defense Intelligence Agency
Dir, Acq/SORDAC	Director of Acquisition, Special Operations Research, Development, and Acquisition Center, United States Special Operations Command
Dir, DARPA	Director of the Defense Advanced Research Projects Agency
Dir, DFPR	Director of Plans, Programs, and Requirements, Defense Nuclear Agency
DLA	Defense Logistics Agency
DLA-SE	Chief of Engineering Division, Technical and Logistics Services Directorate, Defense Logistics Agency
DNA	Defense Nuclear Agency
USSOCOM	United States Special Operations Command

PART 15

DEFINITIONS

1. Acquisition Categories. Categories established to facilitate decentralized decisionmaking and execution and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures.

   a. Acquisition Category I. These are "major defense acquisition programs." They have unique statutorily imposed acquisition strategy, execution, and reporting requirements. Milestone decision authority for these programs is the:

      (1) Under Secretary of Defense for Acquisition -- acquisition category I D -- or, if delegated by the Under Secretary, the

      (2) Cognizant DoD Component Head -- acquisition category I C -- or, if delegated by the Component Head, the Component Acquisition Executive.

   b. Acquisition Category II. Milestone decision authority for these programs is delegated no lower than the DoD Component Acquisition Executive. They have unique statutorily imposed requirements in the test and evaluation area.

   c. Acquisition Category III and IV. The additional distinction of acquisition categories III and IV allow DoD Component Heads to delegate milestone decision authority for these programs to the lowest level deemed appropriate within their respective organizations.

2. Acquisition Decision Memorandum (ADM). A memorandum signed by the milestone decision authority that documents decisions made and the exit criteria established as the result of a milestone decision review or in-process review.

3. Acquisition Plan. A formal written document reflecting the specific actions necessary to execute the approach established in the approved acquisition strategy and guiding contractual implementation. (see Federal Acquisition Regulation Subpart 7.1 and Defense Federal Acquisition Regulation Supplement Subpart 207.1)

4. Acquisition Planning. The process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the need in a timely manner and at a reasonable cost. It is performed throughout the life cycle and includes developing an overall acquisition strategy for managing the acquisition and a written acquisition plan.

5. Acquisition Program. A directed, funded effort that is designed to provide a new or improved materiel capability in response to a validated need.

6. Acquisition Strategy. A business and technical management approach designed to achieve program objectives within the resource constraints imposed. It is the framework for planning, directing, and managing a program. It provides a master schedule for research, development, test, production, fielding, and other activities essential for program success, and, is the basis for formulating functional plans and strategies (e.g., Test and Evaluation Master Plan, Acquisition Plan, competition, prototyping, etc.).

7. Acquisition Strategy Report. Describes the acquisition approach to include streamlining, sources, competition, and contract types throughout the period from the beginning of Phase I, Demonstration and Validation, through the end of production.

8. Acquisition Streamlining. Any effort that results in more efficient and effective use of resources to develop or produce quality systems. This includes ensuring that only necessary and cost-effective requirements are included, at the most appropriate time in the acquisition cycle, in solicitations and resulting contracts for the design, development, and production of new systems, or for modifications to existing systems that involve redesign of systems or subsystems.

9. Affordability. A determination that the life-cycle cost of an acquisition program is in consonance with the long-range investment and force structure plans of the Department of Defense or individual DoD Components.

10. Agency Acquisition Executive. See definition 34 for DoD Component Acquisition Executive.

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

12. Capstone Test and Evaluation Master Plan (Capstone TEMP). A Test and Evaluation Master Plan which address the testing and evaluation of a defense system comprised of a collection of "stand alone" component systems which function collectively to achieve the objectives of the defense system.

13. Component Acquisition Executive. See definition 34 for DoD Component Acquisition Executive.

14. Computer Resources. The totality of computer hardware, firmware, software, personnel, documentation, supplies, services, and support services applied to a given effort.

15. Computer Software (or Software). A combination of associated computer instructions and computer data definitions required to enable the computer hardware to perform computational or control functions.

16. Computer Software Documentation. Technical data or information, including computer listings and printouts, which documents the requirements, design, or details of computer software, explains the capabilities and limitations of the software, or provides operation instructions for using or supporting computer software during the software's operational life.

17. Configuration. A collection of an item's descriptive and governing characteristics, which can be expressed (a) in functional terms (i.e., what performance the item is expected to achieve); and (b) in physical terms (i.e., what the item should look like and consist of when it is built).

18. Configuration Item (CI). An aggregation of hardware, firmware, or computer software or any of their discrete portions, which satisfies an end use function and is designated by the Government for separate configuration management. Configuration items may vary widely in complexity, size, and type, from an aircraft, electronic, or ship system to a test meter or round of ammunition. Any item required for logistic support and designated for separate procurement is a configuration item.

19. Configuration Management. The technical and administrative direction and surveillance actions taken to identify and document the functional and physical characteristics of a configuration item; to control changes to a configuration item and its characteristics; and to record and report change processing and implementation status.

20. Constant Year Dollars. A method of relating dollars in several years by removing the effects of inflation and showing all dollars at the value they would have in a selected base year.

21. Contract Data Requirements List (CDRL). A list of data requirements that are authorized for a specific acquisition and made a part of the contract.

22. Contractual Data Requirement. A requirement, identified in a solicitation and imposed in a contract or order, that addresses any aspect of data (i.e., that portion of contractual tasking requirement associated with the development, generation, preparation, modification, maintenance, storage, retrieval, and/or delivery of data).

23. Cost Effectiveness. A measure of the operational capability added by a system as a function of its life-cycle cost.

24. Cost and Operational Effectiveness Analysis. An analysis of the estimated costs and operational effectiveness of alternative materiel systems to meet a mission need and the associated program for acquiring each alternative.

25. Critical Design Review. A review conducted to determine that the detailed design satisfies the performance and engineering requirements of the development specification; to establish the detailed design compatibility among the item and other items of equipment, facilities, computer programs, and personnel; to assess producibility and risk areas; and to review the preliminary product specifications. Conducted during Phase I, Demonstration and Validation (for prototypes) and Phase II, Engineering and Manufacturing Development.

26. Critical Intelligence Parameter. A threat capability or threshold established by the program, changes to which could critically impact on the effectiveness and survivability of the proposed system.

27. Critical Operational Issue. A key operational effectiveness or operational suitability issue that must be examined in operational test and evaluation to determine the system's capability to perform its mission. A critical operational issue is normally phrased as a question to be answered in evaluating a system's operational effectiveness and/or operational suitability.

28. Defense Acquisition Board (DAB). The senior DoD Acquisition review board chaired by the Under Secretary of Defense for Acquisition. The Vice Chairman of the Joint Chiefs of Staff is the Vice-Chair. Other members of the Board are the Deputy Under Secretary of Defense for Acquisition, Service Acquisition Executives of the Army, Navy, and Air Force; the Director of Defense Research and Engineering; the Assistant Secretary of Defense for Program Analysis and Evaluation; the Comptroller of the Department of Defense; the Director of Operational Test and Evaluation, the appropriate Defense Acquisition Board Committee Chair, and the Defense Acquisition Board Executive Secretary. Other persons may attend at the invitation of the Chair. (see DoD Directive 5000.49, "Defense Acquisition Board")

29. Defense Acquisition Board Committee. Advisory review groups subordinate to the Defense Acquisition Board. The number of Committees is determined by the Under Secretary of Defense for Acquisition. The purpose of the Committee is to review DoD Component programs prior to a Defense Acquisition Board review in order to make an independent assessment and recommendation to the Board regarding the program. (see DoD Directive 5000.49, "Defense Acquisition Board")

30. Defense Planning and Resources Board (DPRB). A board, chaired by the Deputy Secretary of Defense, established to facilitate decisionmaking during all phases of the planning, programming, and budgeting system process. Board members include the Secretaries of the Military Departments, the Chairman of the Joint Chiefs of Staff, the Under Secretaries of Defense for Acquisition and Policy, the Assistant Secretary of Defense for Program Analysis and Evaluation), and the Comptroller of the Department of Defense.

31. Department of Defense Acquisition System. A single uniform system whereby all equipment, facilities, and services are planned, designed, developed, acquired, maintained, and disposed of within the Department of Defense. The system encompasses establishing and enforcing policies

and practices that govern acquisitions, to include documenting mission needs and establishing performance goals and baselines; determining and prioritizing resource requirements for acquisition programs; planning and executing acquisition programs; directing and controlling the acquisition review process; developing and assessing logistics implications; contracting; monitoring the execution status of approved programs; and reporting to Congress. (See DoD Directive 5134.1, "Under Secretary of Defense (Acquisition)")

32. Design Control Activity. A contractor or Government activity having responsibility for the design of a given part and for the preparation and currency of engineering drawings and other technical data for that part.

33. DoD Components. The Office of the Secretary of Defense; the Military Departments; the Chairman, Joint Chiefs of Staff and Joint Staff; the Unified and Specified Commands; the Defense Agencies; and DoD Field Activities.

34. DoD Component Acquisition Executive. A single official within a DoD Component who is responsible for all acquisition functions within that Component. This includes Service Acquisition Executives for the Military Departments and Acquisition Executives in other DoD Components who have acquisition management responsibilities.

35. Early Operational Assessment. An operational assessment conducted prior to, or in support of, Milestone II.

36. Electronic Counter-Countermeasures (ECCM). That division of electronic warfare involving actions taken to insure friendly effective use of the electromagnetic, optical, and acoustic spectra despite the enemy's use of electronic warfare to include high power microwave techniques.

37. Environment. Used as a general reference, environment includes the generic natural environment; e.g., weather, climate, ocean conditions, terrain, vegetation, etc. Modified environment can refer to specific induced environments; e.g., "dirty" battlefield environment, nuclear-chemical-biological environment, etc. Environment includes those conditions observed by the system during operational use, stand-by, maintenance, transportation, and storage.

38. Evaluation Criteria. Standards by which accomplishments of required technical and operational effectiveness and/or suitability characteristics or resolution of operational issues may be assessed.

39. Exit Criteria. Program specific accomplishments that must be satisfactorily demonstrated before an effort or program can progress further in the current acquisition phase or transition to the next acquisition phase. Exit criteria may include such factors as critical test issues, the attainment of projected growth curves and baseline parameters, and the results of risk reduction efforts deemed critical to the decision to proceed further. Exit criteria supplement minimum required accomplishments and are specific to each acquisition phase.

40. Firmware. The combination of a hardware device and computer instructions or computer data that reside as read-only software on the hardware device. The software cannot be readily modified under program control.

41. Follow-On Operational Test and Evaluation. That test and evaluation that is necessary during and after the production period to refine the estimates made during operational test and evaluation, to evaluate changes, and to reevaluate the system to ensure that it continues to meet operational needs and retains its effectiveness in a new environment or against a new threat.

42. Full Operational Capability (FOC). The full attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, which is manned and operated by a trained, equipped, and supported military unit or force.

43. Full Rate Production. Production of economic quantities following stabilization of the system design and prove-out of the production process.

44. Highly Sensitive Classified Program. An acquisition special access program established in accordance with DoD 5200.1-R, "Information Security Program Regulation," and managed in accordance with DoD Directive O-5205.7, "Special Access Program Policy."

45. Human Factors. A body of scientific facts about human characteristics. The term covers all biomedical and psychosocial considerations; it includes, but is not limited to, principles and applications in the areas of human engineering, personnel selection, training, life support, job performance aids, and human performance evaluation.

46. Human Performance. The ability of actual users and maintainers to meet the system's performance standards, including reliability and maintainability, under the conditions in which the system will be employed.

47. Implementation. The publication of directives, instructions, regulations, and related documents that define responsibilities and authorities and establish the internal management processes necessary to implement the policies or procedures of a higher authority.

48. Independent Cost Analysis. An analysis of program cost estimates conducted by an impartial body disassociated from the management of the program. (See Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements")

49. Independent Cost Estimate. A cost estimate prepared by an impartial body outside the chain of authority responsible for acquiring or using the goods or services.

50. Industrial Base. That part of the total privately owned and Government owned industrial production and depot level equipment and maintenance capacity in the United States and its territories and possessions, as

well as capacity located in Canada, that is or shall be made available in an emergency for the manufacture of items required by the U.S. Military Services and selected Allies.

51. Industrial Mobilization. The process of marshaling the industrial sector to provide goods and services, including construction, required to support military operations and the needs of the civil sector during domestic or national emergencies. It includes the mobilization of materials, labor, capital, facilities, and contributory items and services. Mobilization activities may result in some disruption to the national economy.

52. Initial Operational Capability. The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, and which is manned or operated by a trained, equipped, and supported military unit or force.

53. Initial Operational Test and Evaluation (IOT&E). All operational test and evaluation conducted on production or production representative articles, to support the decision to proceed beyond low-rate initial production. It is conducted to provide a valid estimate of expected system operational effectiveness and operational suitability.

54. Integrated Logistics Support. A disciplined, unified, and iterative approach to the management and technical activities necessary to integrate support considerations into system and equipment design; develop support requirements that are related consistently to readiness objectives, to design, and to each other; acquire the required support; and provide the required support during the operational phase at minimum cost.

55. Integrated Logistic Support (ILS) Elements:

a. Maintenance Planning. The process conducted to evolve and establish maintenance concepts and requirements for the lifetime of a materiel system.

b. Manpower and Personnel. The identification and acquisition of military and civilian personnel with the skills and grades required to operate and support a materiel system over its lifetime at peacetime and wartime rates.

c. Supply Support. All management actions, procedures, and techniques used to determine requirements to acquire, catalog, receive, store, transfer, issue, and dispose of secondary items. This includes provisioning for initial support as well as replenishment supply support.

d. Support Equipment. All equipment (mobile or fixed) required to support the operation and maintenance of a materiel system. This includes associated multi-use end items, ground-handling and maintenance equipment, tools, meteorology and calibration equipment, test equipment, and automatic test equipment. It

includes the acquisition of logistics support for the support and test equipment itself.

e. Technical Data. Recorded information regardless of form or character (such as manuals and drawings) of a scientific or technical nature. Computer programs and related software are NOT technical data; documentation of computer programs and related software are. Also excluded are financial data or other information related to contract administration.

f. Training and Training Support. The processes, procedures, techniques, training devices, and equipment used to train civilian and active duty and reserve military personnel to operate and support a materiel system. This includes individual and crew training; new equipment training; initial, formal, and on-the-job training; and logistic support planning for training equipment and training device acquisitions and installations.

g. Computer Resources Support. The facilities, hardware, software, documentation, manpower, and personnel needed to operate and support embedded computer systems.

h. Facilities. The permanent, or semipermanent, or temporary real property assets required to support the materiel system, including conducting studies to define types of facilities or facility improvements, locations, space needs, utilities, environmental requirements, real estate requirements, and equipment.

i. Packaging, Handling, Storage, and Transportation. The resources, processes, procedures, design considerations, and methods to ensure that all system, equipment, and support items are preserved, packaged, handled, and transported properly, including environmental considerations, equipment preservation requirements for short- and long-term storage, and transportability.

j. Design Interface. The relationship of logistics-related design parameters, such as reliability and maintainability, to readiness and support resource requirements. These logistics-related design parameters are expressed in operational terms rather than inherent values and specifically related to system readiness objectives and support costs of the materiel system.

56. Integrated Program Assessment (IPA). A document prepared by the supporting staff or review forum of the milestone decision authority to support Milestone I, II, III, and IV reviews. It provides an independent assessment of a program's status and readiness to proceed into the next phase of the acquisition cycle.

57. Integrated Program Summary (IPS). A DoD Component document prepared and submitted to the milestone decision authority in support of Milestone I, II, III, and IV reviews. It succinctly highlights the status of a program and its readiness to proceed into the next phase of the acquisition cycle.

58. Intelligence Report. A report provided by the appropriate intelligence agency/command to the milestone decision authority prior to each milestone review. For Milestone 0, the report will confirm the validity of the threat contained in the Mission Need Statement. For Milestones I-IV, the report will confirm the validation of the system threat assessment used in support of the program and will address any threat issues or unresolved threat concerns affecting the program.

59. Interoperability. The ability of systems, units, or forces to provide services to or accept services from other systems, units, or forces and to use the services so exchanged to operate effectively together.

60. Joint Requirements Oversight Council (JROC). The Joint Requirements Oversight Council is responsible to the Chairman of the Joint Chiefs of Staff for assessing military requirements in support of the defense acquisition process. The Vice Chairman of the Joint Chiefs of Staff chairs the Council and decides all matters before the Council. The permanent members include the Vice Chiefs of the Army and Air Force, the Vice Chief of Naval Operations, and the Assistant Commandant of the Marine Corps. The Council directly support the Defense Acquisition Board through the review, validation, and approval of military requirements at the start of the acquisition process, prior to each milestone review, or as requested by the Under Secretary of Defense for Acquisition. (See MCM-76-92, "Charter of The Joint Requirements Oversight Council")

61. Joint Program. Any Defense acquisition system, subsystem, component, or technology program that involves formal management or funding by more than one DoD Component during any phase of a system's life-cycle.

62. Life-Cycle Cost. The total cost to the Government of acquisition and ownership of that system over its useful life. It includes the cost of development, acquisition, support and, where applicable, disposal.

63. Logistics Supportability. The degree to which planned logistics support (including test, measurement, and diagnostic equipment; spares and repair parts; technical data; support facilities; transportation requirements; training; manpower; and software support) allow meeting system availability and wartime usage requirements.

64. Logistics Support Analysis. The selective application of scientific and engineering efforts undertaken during the acquisition process, as part of the systems engineering process, to assist in: causing support considerations to influence design; defining support requirements that are related optimally to design and to each other; acquiring the required support; and providing the required support during the operational phase at minimum cost.

65. Low-Rate Initial Production (LRIP). The production of a system in limited quantity to provide articles for operational test and evaluation, to establish an initial production base, and to permit an orderly increase in the production rate sufficient to lead to full-rate production upon successful completion of operational testing.

66. Maintainability. The ability of an item to be retained in or restored to specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair.

67. Major Defense Acquisition Program. An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is:

a. Designated by the Under Secretary of Defense for Acquisition as a major defense acquisition program, or

b. Estimated by the Under Secretary of Defense for Acquisition to require:

(1) An eventual total expenditure for research, development, test, and evaluation of more than $200 million in fiscal year 1980 constant dollars (approximately $300 million in fiscal year 1990 constant dollars), or

(2) An eventual total expenditure for procurement of more than $1 billion in fiscal year 1980 constant dollars (approximately $1.8 billion in fiscal year 1990 constant dollars).

NOTE: This definition is based on the criteria established in Title 10, United States Code, Section 2430 "Major defense acquisition program defined," and reflects authorities delegated in DoD Directive 5134.1, "Under Secretary of Defense for Acquisition."

68. Major Program. A term synonymous with "major defense acquisition program."

69. Major System. A combination of elements that will function together to produce the capabilities required to fulfill a mission need, including hardware, equipment, software, or any combination thereof, but excluding construction or other improvements to real property. A system shall be considered a major system if it is estimated by the Under Secretary of Defense for Acquisition to require:

a. An eventual total expenditure for research, development, test, and evaluation of more than $75,000,000 in fiscal year 1980 constant dollars (approximately $115,000,000 in fiscal year 1990 constant dollars), or

b. An eventual total expenditure for procurement of more than $300,000,000 in fiscal year 1980 constant dollars (approximately $540,000,000 in fiscal year 1990 constant dollars).

NOTE: This definition is based on the criteria established in Title 10, United States Code, Section 2302 "Definitions," Subsection (5)

70. Manufacturing. The process of making an item by hand, or, especially, by machinery, often on a large scale and with division of labor.

71. Metric System of Measurement. As used herein, the term means the International System of Units (or SI from the French "Le Systeme

International d'Unites") as established by the General Conference on Weights and Measures in 1960, and as interpreted or modified for the United States by the Secretary of Commerce. The terms metric, metric system, and metric units are used interchangeably with the term SI.

72. Minimum Acceptable Operational Requirement. The value for a particular parameter that is required to provide a system capability that will satisfy the validated mission need. Also known as the performance threshold.

73. Minimum Required Accomplishments. Necessary tasks that must be completed during an acquisition phase prior to the next milestone decision review. Applies to all acquisition categories and highly sensitive classified programs.

74. Mission Critical System. A system whose operational effectiveness and operational suitability are essential to successful completion or to aggregate residual combat capability. If this system fails, the mission likely will not be completed. Such a system can be an auxiliary or supporting system, as well as a primary mission system.

75. Mission Need. A statement of operational capability required to perform an assigned mission or to correct a deficiency in existing capability to perform the mission.

76. Mission Reliability. The probability that the system will perform mission essential functions for a period of time under the conditions stated in the mission profile.

77. Model. A model is a representation of an actual or conceptual system that involves mathematics, logical expressions, or computer simulations that can be used to predict how the system might perform or survive under various conditions or in a range of hostile environments.

78. Nonmajor Defense Acquisition Program. A program other than a major defense acquisition program or a highly sensitive classified program.

79. Nuclear, Biological, and Chemical Contamination. The deposit and/or absorption of residual radioactive material or biological or chemical agents on or by structures, areas, personnel, or objects.

    a. Nuclear (N) Contamination. Residual radioactive material resulting from fallout or rainout, and residual radiation from a system produced by a nuclear explosion (e.g., nuclear indirect gamma activity (NIGA)), and persisting longer than one minute after burst.

    b. Biological (B) Contamination. Microorganisms and toxins that cause disease in man, plants, or animals or cause the deterioration of materiel.

    c. Chemical (C) Contamination. Chemical substances intended for use in military operations to kill, seriously injure, incapacitate, or

temporarily irritate or disable man through their physiological effects.

80. Nuclear, Biological, and Chemical Contamination Survivability. The capability of a system (and its crew) to withstand a Nuclear, Biological, and Chemical contaminated environment and relevant decontamination without losing the ability to accomplish the assigned mission. A Nuclear, Biological, and Chemical contamination survivable system is hardened against Nuclear, Biological, and Chemical contamination and decontaminants; it can be decontaminated, and is compatible with individual protective equipment.

    a. Hardness. The capability of materiel to withstand the materiel-damaging effects of Nuclear, Biological, and Chemical contamination and relevant decontaminants.

    b. Decontamination. The process of making personnel and materiel safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it.

    c. Compatibility. The capability of a system to be operated, maintained, and resupplied by persons wearing a full complement of individual protective equipment, in all climates for which the system is designed, and for the period specified in the operational requirements document.

81. Negligible Contamination Level. That level of Nuclear, Biological, and Chemical contamination that would not produce militarily significant effects in previously unexposed and unprotected persons operating or maintaining the system.

82. Nondevelopmental Item

    a. Any item of supply that is available in the commercial marketplace;

    b. Any previously developed item of supply that is in use by a department or agency of the United States, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

    c. Any item of supply described in definition 82.a. or b.,above, that requires only minor modification in order to meet the requirements of the procuring agency; or

    d. Any item of supply that is currently being produced that does not meet the requirements of definition 82.a., b., or c., above, solely because of the item is not yet in use or is not yet available in the commercial marketplace.

83. Nuclear Hardness. A quantitative description of the resistance of a system or component to malfunction (temporary and permanent) and/or degraded performance induced by a nuclear weapon environment. Hardness is measured by resistance to physical quantities such as overpressure,

peak velocities, energy absorbed, and electrical stress. Hardness is achieved through adhering to appropriate design specifications and is verified by one or more test and analysis techniques.

84. Nuclear Survivability. The capability of a system to operate during and/or after exposure to a nuclear environment. Survivability may be achieved by a number of methods, including proliferation, redundancy, avoidance, reconstitution, deception, and hardening.

85. Nuclear Survivability Characteristics. A quantitative description of the system features needed to meet its survivability requirements. Such system features include those design, performance, and operational capabilities used to limit or avoid the hostile environment, architectures that minimize the impact of localized damage to the larger wartime mission, as well as physical hardening to environment levels which cannot be mitigated otherwise.

86. Operational Assessment. An evaluation of operational effectiveness and operational suitability made by an independent operational test activity, with user support as required, on other than production systems. The focus of an operational assessment is on significant trends noted in development efforts, programmatic voids, areas of risk, adequacy of requirements, and the ability of the program to support adequate operational testing. Operational assessments may be made at any time using technology demonstrators, prototypes, mockups, engineering development models, or simulations but will not substitute for the independent operational test and evaluation necessary to support full production decisions.

87. Operational Effectiveness. The overall degree of mission accomplishment of a system when used by representative personnel in the environment planned or expected (e.g., natural, electronic, threat etc.) for operational employment of the system considering organization, doctrine, tactics, survivability, vulnerability, and threat (including countermeasures, initial nuclear weapons effects, nuclear, biological, and chemical contamination (NBCC) threats).

88. Operational Reliability and Maintainability Value. Any measure of reliability or maintainability that includes the combined effects of item design, quality, installation, environment, operation, maintenance, and repair.

89. Operational Suitability. The degree to which a system can be placed satisfactorily in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistics supportability, natural environmental effects and impacts, documentation, and training requirements.

90. Performance. Those operational and support characteristics of the system that allow it to effectively and efficiently perform its assigned mission over time. The support characteristics of the system include both supportability aspects of the design and the support elements necessary for system operation.

91. Post-Production Support. Systems management and support activities necessary to ensure continued attainment of system readiness objectives with economical logistic support after cessation of production of the end item (weapon system or equipment).

92. Post-Deployment Software Support (PDSS). Those software support activities that occur during the deployment phase of the system life-cycle.

93. Preliminary Design Review. A review conducted on each configuration item to evaluate the progress, technical adequacy, and risk resolution of the selected design approach; to determine its compatibility with performance and engineering requirements of the development specification; and to establish the existence and compatibility of the physical and functional interfaces among the item and other items of equipment, facilities, computer programs, and personnel. Conducted during Phase I, Demonstration and Validation (for prototypes), and Phase II, Engineering and Manufacturing Development.

94. Prime Contractor. A contractor having responsibility for design control and delivery of a system or equipment such as aircraft, engines, ships, tanks, vehicles, guns and missiles, ground communications and electronic systems, ground support equipment, and test equipment.

95. Producibility. The relative ease of manufacturing an item or system. This relative is ease is governed by the characteristics and features of a design that enable economical fabrication, assembly, inspection, and testing using available manufacturing techniques.

96. Production Planning. The broad range of activities initiated early in the acquisition process, and continued through a production decision, to ensure an orderly transition from development to cost-effective rate production or construction.

97. Production Readiness. The state or condition or preparedness of a system to proceed into production. A system is ready for production when the producibility of the production design and the managerial and physical preparations necessary for initiating and sustaining a viable production effort have progressed to the point where a production commitment can be made without incurring unacceptable risks that will breach thresholds of schedule, performance, cost, or other established criteria.

98. Program Executive Officer (PEO). A military or civilian official who has primary responsibility for directing several acquisition category I programs and for assigned acquisition category II, III, and IV programs. A Program Executive Officer has no other command or staff responsibilities within the Component, and only reports to and receives guidance and direction from the DoD Component Acquisition Executive.

99. Program Manager (PM). A military or civilian officials who is responsible for managing an acquisition program.

100. Reliability. The ability of a system and its parts to perform its mission without failure, degradation, or demand on the support system.

101. Repair Parts. Consumables bits and pieces; that is, individual parts or nonreparable assemblies, required for the repair of spare parts or major end items.

102. Risk. A subjective assessment made regarding the likelihood or probability of not achieving a specific objective by the time established with the resources provided or requested. It also refers to overall program risk.

103. Risk Management. All actions taken to identify, assess, and eliminate or reduce risk to an acceptable level in selected areas (e.g., cost, schedule, technical, producibility, etc.); and the total program.

104. Robust Design. The design of a system such that its performance is insensitive to variations during its manufacturing, or in its operational environment (including maintenance, transportation, and storage), and the system continues to perform acceptably throughout its life-cycle despite component drift or aging.

105. Senior Procurement Executive (SPE). The senior official responsible for management direction of the Service procurement system, including implementation of unique procurement policies, regulations, and standards (see Title 41, United States Code, Section 414, "Executive Agency Responsibilities"). The Senior Procurement Executive for all non-Service DoD Components is the Under Secretary of Defense for Acquisition (see Title 10, United States Code, Section 133, "Under Secretary of Defense for Acquisition").

106. Service Acquisition Executive (SAE). See definition 34 for DoD Component Acquisition Executive.

107. Simulation. A simulation is a method for implementing a model. It is the process of conducting experiments with a model for the purpose of understanding the behavior of the system modeled under selected conditions or of evaluating various strategies for the operation of the system within the limits imposed by developmental or operational criteria. Simulation may include the use of analog or digital devices, laboratory models, or "testbed" sites. Simulations are usually programmed for solution on a computer; however, in the broadest sense, military exercises and wargames are also simulations.

108. Simulator. A generic term used to describe a family of equipment used to represent threat weapon systems in development testing, operational testing, and training. A threat simulator has one or more characteristics which, when detected by human senses or man-made sensors, provide the appearance of an actual threat weapon system with a prescribed degree of fidelity.

109. Software Support. The sum of all activities that take place to ensure that implemented and fielded software continues to fully support the

operational mission of the system. Software support includes pre-deployment software support and post-deployment software support

110. Spare Parts. Repairable components or assemblies used for maintenance replacement purposes in major end items of equipment.

111. Spares. A term used to denote both spare and repair parts.

112. Spares Acquisition Integrated with Production (SAIP). A procedure used to combine procurement of selected spares with procurement of identical items produced for installation on the primary system, subsystem, or equipment.

113. Supplementation. The publication of directives, instructions, regulations, and related documents that add to, restrict, or otherwise modify the policies or procedures of a higher authority.

114. Supportability. The degree to which system design characteristics and planned logistics resources, including manpower, meet system peacetime readiness and wartime utilization requirements.

115. Surge. An increase in the production or repair of defense goods of limited duration.

116. Survivability. The capability of a system to avoid or withstand man-made hostile environments without suffering an abortive impairment of its ability to accomplish its designated mission.

117. Susceptibility. The degree to which a device, equipment, or weapon system is open to effective attack due to one or more inherent weakness. Susceptibility is a function of operational tactics, countermeasures, probability of enemy fielding a threat, etc. Susceptibility is considered a subset of survivability.

118. System Readiness Objective. A criterion for assessing the ability of a system to undertake and sustain a specified set of missions at planned peacetime and wartime utilization rates. System readiness measures take explicit account of the effects of reliability and maintainability system design, the characteristics and performance of the support system, and the quantity and location of support resources. Examples of system readiness measures are combat sortie rate over time, peacetime mission capable rate, operational availability, and asset ready rate.

119. System Reliability and Maintainability Parameter. A measure of reliability or maintainability in which the units of measurement are directly related to operational readiness, mission success, maintenance manpower cost, or logistic support cost.

120. System Safety. The application of engineering and management principles, criteria, and techniques to optimize safety within the constraints of operational effectiveness, time, and cost throughout all phases of the system life-cycle.

121. System Threat Assessment. Describes the threat to be countered and the projected threat environment. The threat information should reference DIA or Service Technical Intelligence Center approved documents.

122. Technical Data. Scientific or technical information recorded in any form or medium (such as manuals and drawings). Computer programs and related software are not technical data; documentation of computer programs and related software are. Also excluded are financial data or other information related to contract administration.

123. Technical Data Package (TDP) A technical description of an item adequate for supporting an acquisition strategy, production, engineering, and logistics support. The description defines the required design configuration and procedures to ensure adequacy of item performance. It consists of all applicable technical data such as drawings, associated lists, specifications, standards, performance requirements, quality assurance provisions, and packaging details.

124. Technical Manual (TM). A publication that contains instructions for the installation, operation, maintenance, training, and support of weapon systems, weapon system components, and support equipment. Technical Manual information may be presented in any form or characteristic, including but not limited to hard copy, audio and visual displays, magnetic tape, discs, and other electronic devices. A Technical Manual normally includes operational and maintenance instructions, parts lists or parts breakdown, and related technical information or procedures exclusive of administrative procedures. Technical Orders (TOs) that meet the criteria of this definition may also be classified as Technical Manuals.

125. Testbed. A system representation consisting partially of actual hardware and/or software and partially of computer models or prototype hardware and/or software.

126. Transportability. The capability of materiel to be moved by towing, self-propulsion, or carrier through any means, such as railways, highways, waterways, pipelines, oceans, and airways. (Full consideration of available and projected transportation assets, mobility plans and schedules, and the impact of system equipment and support items on the strategic mobility of operating military forces is required to achieve this capability.)

127. Vulnerability. The characteristics of a system that cause it to suffer a definite degradation (loss or reduction of capability to perform the designated mission) as a result of having been subjected to a certain (defined) level of effects in an unnatural (man-made) hostile environment. Vulnerability is considered a subset of survivability.

128. Weapon System. Items that can be used directly by the armed forces to carry out combat missions and that cost more than $100,000 or for which the eventual total procurement cost is more than $10,000,000. Such term does not include commercial items sold in substantial quantities to the general public. (See Title 10, United States Code, Section 2403, "Major weapon systems: contractor guarantees")

PART 16

MAJOR SUBJECT INDEX

This Part provides cross-references for major subjects contained in this Instruction and DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports." This Part is not intended to encompass all subjects contained in these documents. When used in concert with the Table of Contents (Part 1) and the cross-references included in each section of this Instruction, there should be sufficient information to locate major subjects of interest. References are to Parts (e.g., 3) and Sections (e.g., 5-A) of this Instruction.

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