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MILITARY STANDARD

CONFIGURATION CONTROL-ENGINEERING CHANGES, DEVIATIONS AND WAIVERS

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FOREWORD

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

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document, should be addressed to: Naval Air Engineering Center, Systems Engineering and Standardization Department (Code 53), Lakehurst, NJ 08733-5100, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

3. MIL-STD-480 delineates configuration control requirements and provides instructions for preparing and submitting proposed engineering changes and related information. Such changes require a complete analysis of the impact if the engineering change described by an engineering change proposal were implemented. MIL-STD-480 requires that the data package submitted with an engineering change proposal contain a description of all known interface effects and information concerning changes required in the approved functional/allocated/product configuration identification.

4. It is intended that MIL-STD-480 be imposed on Government activities, contractors, or subcontractors who: (a) have participated or are participating in the engineering or operational development of a system or high level configuration item, or (b) are being supplied with copies of the system specification and development specification(s). Such contractors have the capability of providing to the Government the majority of the information needed to properly evaluate the merits of an engineering change, possibly requiring significant changes to logistics support elements or involving interrelated changes in other configuration items. Normally, configuration control requirements imposed on major contractors shall be passed down to subcontractors.

5. MIL-STD-480 covers requirements for submittal of engineering change proposals, requests for deviations/waivers, notices of revision and specification change notices.

6. For contracts involving either multi-application items not peculiar to specific systems or procurement from a contractor who cannot reasonably be expected to know all of the consequences of an engineering change, MIL-STD-481 may be invoked. Such a contractor is one who is required to fabricate an item to a product configuration identification which they did not prepare, or one who did not participate in engineering development and hence is not familiar with requirements of the system or high level configuration item. When MIL-STD-481 rather than MIL-STD-480 is prescribed, the major portion of the analysis of the impact of an engineering change proposal on associated items is transferred from the contractor to the procuring activity.

7. This military standard implements the configuration control requirements of DoD Directive 5010.19, DoD Configuration Management Program.

CONTENTS

Paragraph			Page
	1.	SCOPE	1
	1.1	Scope	1
	1.2	Purpose	1
	1.3	Intended use	1
	1.4	Application	1
	2.	APPLICABLE DOCUMENTS	2
	2.1	Government documents	2
	2.2	Order of precedence	2
	2.3	Source of documents	3
	3.	DEFINITIONS	4
	3.1	Definitions used	4
	4.	GENERAL REQUIREMENTS	17
	4.1	Purpose of configuration control	17
	4.2	Preparation of ECPs	17
	4.3	Submittal of ECPs	18
	4.4	Review and approval of Class I ECPs	20
	4.5	Class II engineering changes	21
	4.6	Disapproval of ECPs	22
	4.7	Processing by the Government	22
	4.8	Revisions of ECPs	22
	4.9	Amendments to ECPs	22
	4.10	General requirements for deviations	22
	4.11	General requirements for waivers	22
	4.12	General requirements for notices of revision	22
	4.13	General requirements for specification change notices	23
	4.14	Contract data requirements	23
	5.	DETAILED REQUIREMENTS	24
	5.1	Class I engineering changes	24
	5.2	Class II engineering changes	31
	5.3	Requirements for deviations	32
	5.4	Requirements for waivers	34
	5.5	Notices of revision	36
	5.6	Specification Change Notices (SCNs)	37

CONTENTS - Continued

			Page
	6.	INFORMATION FOR GUIDANCE ONLY	40
	6.1	Tailoring guidance	40
	6.2	Consideration of data requirements	40
	6.3	Subject term (key word) listing	40
	6.4	Changes from previous issue	41
	6.5	Concurrence by requiring activities	41
	6.6	Comments on waivers, deviations or engineering change requests (DD Form 1998)	41
		FIGURES	
Figure	1.	Life Cycle Applications of DD Form 1692	42
	2.	DD Form 1692 (ECP page 1)	43
	3.	DD Form 1692-1 (ECP page 2)	44
	4.	DD Form 1692-2 (ECP page 3)	45
	5.	DD Form 1692-3 (ECP page 4)	46
	6.	DD Form 1692-4 (ECP page 5)	47
	7.	DD Form 1692-5 (ECP page 6)	48
	8.	DD Form 1694 (Request for Deviation/Waiver)	49
	9.	DD Form 1695 (Notice of Revision)	50
	10.	DD Form 1696 (Specification Change Notice)	51
	11.	Sample SCN (DD Form 1696)	52
	12.	Message format for an emergency or urgent ECP	53
		APPENDIXES	
Appendix	A.	INSTRUCTIONS FOR PREPARATION OF AN ECP UTILIZING DD FORMS 1692 THROUGH 1692-5	54
Appendix	B.	INSTRUCTIONS FOR THE PREPARATION OF REQUEST FOR DEVIATION UTILIZING DD FORM 1694	71
Appendix	C.	INSTRUCTIONS FOR THE PREPARATION OF REQUEST FOR WAIVER UTILIZING DD FORM 1694	75
Appendix	D.	INSTRUCTIONS FOR PREPARATION OF NOTICE OF REVISION, DD FORM 1695	79
Appendix	E.	INSTRUCTIONS FOR PREPARATION OF SPECIFICATION CHANGE NOTICE, DD FORM 1696	82

CONTENTS - Continued

		Page
Appendix F.	GUIDANCE FOR THE TAILORING OF COMPUTER SOFTWARE ENGINEERING CHANGES - - - - - - - - - - - - - -	86
Appendix G.	GUIDANCE FOR THE TAILORING OF MIL-STD-480B SPECIFIC PROGRAM REQUIREMENTS - - - - - - - -	90
CONCLUDING MATERIAL	- -	97

1. SCOPE

1.1 Scope. This standard establishes the requirements, formats, and procedures to be utilized in the preparation of configuration control documentation. Included are requirements for:

a. maintaining configuration control of configuration items (CIs), both hardware and software;

b. preparing and submitting Engineering Changes Proposals (ECPs), Requests for Deviations/Waivers (RFDs/RFWs), Notices of Revision (NORs), and Specification Change Notices (SCNs); and

c. evaluating, coordinating, and approving or disapproving ECPs, and RFDs/RFWs applicable to the Department of Defense (DoD), commercial or non-developmental items (NDI).

1.2 Purpose. The purpose of this standard is to establish configuration control requirements and procedures applicable to the acquisition and modification of items procured by the DoD.

1.3 Intended use. This standard shall be used by contractors and Government activities to:

a. establish and maintain effective configuration control of the approved configuration identification;

b. (1) propose engineering changes to CIs, both hardware and software which are designed, developed or modified for DoD activities; (2) request deviations or waivers pertaining to such items; (3) prepare NORs; and (4) prepare SCNs; and

c. control the form, fit and function of privately developed items used in CIs, including NDI items.

1.4 Application. Configuration control requirements established by this standard apply only to the functional, allocated or product configuration identification which has been approved by the procuring activity. Contracts which invoke this standard shall specifically identify those documents which establish the applicable baseline(s). The application of this standard may be tailored to avoid premature formal Government control. Class I and Class II are the only authorized classifications for ECPs.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the Department of Defense Index of Specifications and Standards and supplements thereto cited in the solicitation.

STANDARD

MILITARY

MIL-STD-109	-	Quality Assurance Terms and Definitions
MIL-STD-280	-	Definitions of Item Levels, Item Exchangeability, Models and Related Terms
MIL-STD-483	-	Configuration Management Practices for Systems, Equipment, Munitions, and Computer Programs
MIL-STD-490	-	Specification Practices
MIL-STD-882	-	System Safety Program for Systems, Associated Sub-Systems and Equipment
MIL-STD-1388-1	-	Logistics Support Analysis
MIL-STD-1388-2	-	Logistics Support Analysis Data Element Definitions
MIL-STD-1520	-	Corrective Action and Disposition System for Nonconforming Material
MIL-STD-1521	-	Technical Reviews and Audits for Systems, Equipments, and Computer Software
DOD-STD-2167	-	Defense System Software Development

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those in effect on the date of the solicitation.

Cataloging Handbook H4/H8 - Commercial and Government Entity (CAGE)
DoD-4105.61M - Procurement Coding Manual

2.2 Order of precedence. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence. Documents referenced in the above military standards are not invoked by this standard. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.3 Source of documents.

2.3.1 Government specifications, standards, and handbooks. Copies of the referenced federal and military specifications, standards, and handbooks are available from the Department of Defense Single Stock Point, Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120-5099. For specific acquisition functions, these documents should be obtained from the contracting activity or as directed by the contracting officer.

3. DEFINITIONS

3.1 Definitions used. For the purpose of this standard, the following definitions apply:

3.1.1 Allocated Configuration Identification (ACI). Performance-oriented specifications governing the development of CIs, in which each specification:

a. defines the functional characteristics that are allocated from those of the system or higher level CI;

b. establishes the verification required to demonstrate achievement of its allocated functional characteristics;

c. delineates necessary interface requirements with other associated CIs; and

d. establishes design constraints, if any, such as component standardization, use of inventory items, and integrated logistic support requirements.

3.1.2 Administrative Contracting Officer (ACO). A contracting officer normally assigned to a contract administration office, whose primary responsibility is to administer the terms and conditions of assigned contracts to ensure contractor compliance with such terms and conditions, and to serve as a focal point between the contractor and the procuring activity on those matters requiring PCO advisement.

3.1.3 Baseline. A configuration identification document or a set of such documents formally designated by the Government at a specific time during a CI's life cycle. Baselines, plus approved changes from those baselines, constitute the current approved configuration identification. For configuration management purposes there are three baselines, which are established sequentially, as follows:

3.1.3.1 Functional Baseline (FBL). The initially approved documentation describing a system's or item's functional characteristics and the verification required to demonstrate the achievement of those specified functional characteristics.

3.1.3.2 Allocated Baseline (ABL). The initially approved documentation describing an item's functional and interface characteristics that are allocated from those of a higher level CI, interface requirements with interfacing configuration items, additional design constraints and the verification required to demonstrate the achievement of those specified functional and interface characteristics.

3.1.3.3 Product Baseline (PBL). The initially approved documentation describing all of the necessary functional and physical characteristics of the CI, any required joint and combined operations interoperability characteristics of a CI (including a comprehensive summary of the other service(s) and allied interfacing CIs or systems and equipments), and the selected functional and physical characteristics designated for production acceptance testing and tests necessary for support of the CI.

3.1.4 Code identification numbers. A five digit number listed in Cataloging Handbook H4/H8, Commercial and Government Entity (CAGE) code, which is assigned to activities that manufacture or develop items for the Federal Government. When used with an ECP number, the CAGE designates the contractor or Government agency assigning the ECP number. When used with a drawing number or part number, the CAGE number designates the design activity from whose series the drawing or part number is assigned. The CAGE code was previously called manufacturer's code, code identification number or federal supply code for manufacturers (FSCM) code.

3.1.5 Computer data base. A collection of data in a form capable of being processed by a computer.

3.1.6 Computer program. A series of instructions or statements in a form acceptable to a computer, designed to cause the computer to execute an operation(s).

3.1.7 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.

3.1.8 Computer Software Configuration Item (CSCI). A configuration item for computer software.

3.1.9 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 operating instructions for using or supporting computer software during the software's operational life.

3.1.10 Configuration. The functional and physical characteristics of hardware, firmware, software or a combination thereof as set forth in technical documentation and achieved in a product.

3.1.11 Configuration audit. The verification of a CI's conformance to specifications, drawings and other contract requirements.

3.1.11.1 Functional Configuration Audit (FCA). The formal examination of functional characteristics of a CI, prior to acceptance, to verify that the item has achieved the performance specified in its functional or

allocated configuration identification.

3.1.11.2 Physical Configuration Audit (PCA). The formal examination of the "as-built" configuration of a CI against its technical documentation to establish the CI's initial product configuration identification (PCI).

3.1.12 Configuration control. The systematic proposal, justification, evaluation, coordination, approval or disapproval of proposed changes, and the implementation of all approved changes in the configuration of a CI after formal establishment of its baseline.

3.1.13 Configuration Control Board (CCB). A board composed of technical and administrative representatives who approve or disapprove proposed engineering changes to an approved baseline.

3.1.14 Configuration identification. The selection of the documents to comprise the baseline for the systems and CIs involved, and the numbers and other identifiers affixed to the items and documents. The approved documents that identify and define the item's functional and physical characteristics in the form of specifications, drawings, associated lists, interface control documents, and documents referenced therein. The configuration identification is developed and maintained through three distinct evolutionary increasing levels of detail, each used for establishing a specific baseline. The three levels of configuration identification are as follows:

3.1.14.1 Functional Configuration Identification (FCI). The approved functional baseline plus approved changes. (See 3.1.41.)

3.1.14.2 Allocated Configuration Identification (ACI). The approved allocated baseline plus approved changes. (See 3.1.1.)

3.1.14.3 Product Configuration Identification (PCI). The approved product baseline plus approved changes. (See 3.1.56.)

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

3.1.16 Configuration Management (CM). A discipline applying technical and administrative direction and surveillance to:

a. identify and document the functional and physical characteristics of CIs;

b. audit the CIsto verify conformance to specifications, interface control documents and other contract requirements;

c. control changes to CIs and their related documentation; and

d. record and report information needed to manage CIs effectively, including the status of proposed changes and the implementation status of approved changes.

3.1.17 Configuration Status Accounting (CSA). The recording and reporting of information needed to manage configuration effectively, including:

a. a listing of the approved configuration identification;

b. the status of proposed changes, deviations, and waivers to the configuration;

c. the implementation status of approved changes; and

d. the configuration of all units of the CI in the operational inventory.

3.1.18 Contract. A legal agreement between DoD and industry, or a similar internal agreement wholly within the Government, for the development, production, maintenance or modification of an item.

3.1.19 Contract Administration Office (CAO). The Government office assigned responsibilities related to the administration of contracts at the contractor's plant.

3.1.20 Contractor. An individual, partnership, company, corporation, association or other service having a contract with the procuring activity for the design, development, manufacture, maintenance, modification or supply of items under the terms of a contract. A Government activity performing any or all of the above functions is considered to be a contractor for configuration control purposes.

3.1.21 Cost. The term "cost" means cost to the Government.

3.1.21.1 Non-recurring costs. One time costs which will be incurred if an engineering change is ordered and which are independent of the quantity

of items changed, such as cost of redesign, special tooling or qualification.

3.1.21.2 Recurring costs. Costs which are incurred for each item changed or for each service or document ordered.

3.1.22 Critical item. An item which, because of special engineering, procurement or logistic considerations, requires an approved specification to establish technical or inventory control.

3.1.23 Data. Recorded information, regardless of form or characteristics, including administrative, managerial, financial, scientific, technical, engineering, and logistics data, whether required to be delivered to the Government or retained by the contractor, as well as data developed by the Government.

3.1.24 Data Item Description (DID), DD Form 1664. A completed form that defines the data required of a contractor. The form specifically defines the data content, preparation instructions, format and intended use.

3.1.25 Defect. Any nonconformance from specified requirements.

3.1.25.1 Classification of defects. The enumeration of possible defects of a unit or product, classified according to their seriousness. Defects will normally be grouped into classes of critical, major or minor; however, they may be grouped into other classes, or into subclasses within these classes.

3.1.26 Deficiencies. Deficiencies consist of two types:

a. conditions or characteristics in any hardware or software which are not in compliance with the specified configuration identification; or

b. inadequate (or erroneous) configuration identification which has resulted, or may result, in CIs that do not fulfill approved operational requirements.

3.1.27 Design Change. A Government approved engineering change which modifies, adds to, deletes from or supersedes parts in a CI.

3.1.28 Design Change Notice (DCN). A DCN is a formal document prepared by a contractor or Government activity to notify the provisioning activity of a design change.

3.1.29 Deviation. A specific written authorization, granted prior to the manufacture of an item, to depart from a particular performance or design requirement of a specification, drawing or other document for a specific number of units or a specified period of time. A deviation

differs from an engineering change in that an approved engineering change requires corresponding revision of the documentation defining the affected item, whereas a deviation does not contemplate revision of the applicable specification or drawing.

3.1.30 Engineering change. An alteration in the approved configuration identification of a CI under development, delivered or to be delivered.

3.1.30.1 Class I engineering change. (See paragraph 5.1.)

3.1.30.2 Class II engineering change. (See paragraph 5.2.)

3.1.31 Engineering change justification code. A code which indicates the reason for a Class I engineering change. (See 5.1.3.)

3.1.32 Engineering change priorities. The priority assigned to a Class I engineering change, which determines the methods and resources to be used in review, approval and implementation. The priority will determine the relative speed at which the ECP is to be reviewed, evaluated, ordered and implemented, if approved.

3.1.32.1 Emergency priority. (See paragraph 5.1.5.1.)

3.1.32.2 Urgent priority. (See paragraph 5.1.5.2.)

3.1.32.3 Routine priority. (See paragraph 5.1.5.3.)

3.1.33 Engineering Change Proposal (ECP). A proposed engineering change and the documentation by which the change is described, justified, and submitted to the procuring activity for approval or disapproval.

3.1.34 ECP types. A term covering the subdivision of ECPs on the basis of the completeness of the available information delineating and defining the engineering change. They will be identified as preliminary or formal.

3.1.34.1 Preliminary ECP. (See paragraph 5.1.4.1.)

3.1.34.2 Formal ECP. (See paragraph 5.1.4.2.)

3.1.35 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.

3.1.36 Fit. The ability of an item to physically interface or interconnect with or become an integral part of another item.

3.1.37 Form. The defined configuration of an item including the geometrically measured configuration, density, and weight or other visual

parameters which uniquely characterize an item, component or assembly. For software, form denotes the language, language level and media.

3.1.38 Function. The action or actions which an item is designed to perform.

3.1.39 Functional area. A distinct group of system performance requirements which, together with all other such groupings, forms the next lower level breakdown of the system on the basis of function.

3.1.40 Functional characteristics. Quantitative performance parameters and constraints, including operational and logistic parameters and their respective tolerances. Functional characteristics include all performance parameters, such as range, speed, lethality, reliability, maintainability, and safety.

3.1.41 Functional Configuration Identification (FCI). The initial approved technical documentation for a CI which prescribes:

a. all necessary functional characteristics;

b. the verification required to demonstrate achievement of specified functional characteristics;

c. the necessary interface characteristics with associated CIs;

d. CI key functional characteristics and lower level CIs, if any; and

e. design constraints, such as envelope dimensions, component standardization, use of inventory items and integrated logistics support policies.

3.1.42 Hardware. Articles made of material, such as tools, fittings, machine parts, weapons, vehicles, but not including computer programs or technical documentation.

3.1.43 Interface control. The process of:

a. identifying all functional and physical characteristics relevant to the interfacing of two or more items provided by one or more organizations; and

b. ensuring that proposed changes to these characteristics are evaluated and approved prior to implementation.

3.1.43.1 Interface Control Working Group (ICWG). For programs which encompass a system/CI/CSCI design cycle, an ICWG normally is established to control interface activity between the procuring activity, contractors

or other agencies, including resolution of interface problems and documentation of interface agreements. (See MIL-STD-483.)

3.1.44 Integrated Logistics Support (ILS). A disciplined, unified and iterative approach to management and technical activities necessary to:

a. integrate support considerations into system and equipment design;

b. develop support requirements that are related consistently to design, readiness objectives and to each other;

c. acquire required support; and

d. provide required support during the operational phase at minimum cost.

3.1.45 Item exchangeability. (See MIL-STD-280.)

3.1.45.1 Interchangeable item. An item, which:

a. possesses functional and physical characteristics equivalent in performance, reliability, and maintainability to another item of similar or identical purposes; and

b. is capable of being exchanged for the other item without alteration of the item or of adjoining items, except for adjustment or calibration.

3.1.45.2 Replacement item. An item which is replaceable with another item, but which may differ physically from the original item in that the installation of the replacement item requires operations such as drilling, reaming, cutting, filing, shimming, etc., in addition to the normal application and methods of attachment.

3.1.45.3 Substitute item. An item which possesses such functional and physical characteristics as to be capable of being exchanged for another only under specified conditions in particular applications, or from a list of approved substitute parts without alteration of the item or of adjoining items.

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

3.1.47 Item. A non-specific term used to denote any product, including systems, subsystems, assemblies, subassemblies, units, sets, accessories, computer programs, computer software or parts.

3.1.48 Life-cycle cost. The sum total of the direct, indirect, non-recurring, recurring, and other related costs incurred, or estimated to be incurred, in the design, development, production (including manufacture and fabrication), acquisition, test and evaluation, acceptance, operation, maintenance, modernization, deactivation and support of a configuration item over its anticipated life span.

3.1.49 Manufacturer's code. See paragraph 3.1.4 of this standard.

3.1.50 Materiel. A generic term covering systems, equipment, stores, supplies and spares, including related documentation, manuals, computer hardware and software.

3.1.51 Nonconformance. The failure of a unit or product to conform to specified requirements.

3.1.52 Non-Developmental Item (NDI). Non-developmental items are existing developed and available hardware or software that are capable of fulfilling DoD requirements, thereby minimizing or eliminating the need for costly, Government-sponsored research and development (R&D) programs. An NDI is usually an off-the-shelf or commercial-type product, but may also include hardware or software already developed by or for the DoD, or other military services or foreign military forces.

3.1.53 Notice of Revision (NOR). A document (DD Form 1695) used to propose revisions to drawings, associated lists, or other referenced documents which require revision after ECP approval. (See 5.5.)

3.1.54 Physical characteristics. Quantitative and qualitative expressions of materiel features, such as composition, dimensions, finishes, form, fit, and their respective tolerances.

3.1.55 Privately Developed Item (PDI). An item developed at private expense and offered to the Government, with Government control of the article's configuration normally limited to its form, fit and function.

3.1.56 Product Configuration Identification (PCI). The current approved technical documentation which defines the configuration of a CI during the production phase of its life cycle, and which prescribes:

a. all necessary physical or form, fit and function characteristics of a CI;

b. the selected functional characteristics designated for production acceptance testing; and

c. the production acceptance test requirements.

3.1.57 Procuring Contracting Officer (PCO). An individual authorized to enter into contracts and agreements on behalf of the Government, including the issuance of contract modifications that authorize approved configuration changes.

3.1.58 Repair. A procedure which reduces but does not completely eliminate a nonconformance resulting from production, and which has been reviewed and concurred in by the Material Review Board (MRB) and approved for use by the Government. The purpose of repair is to reduce the effect of the nonconformance. Repair is distinguished from rework in that the characteristic after repair still does not completely conform to the applicable specifications, drawings or contract requirements.

3.1.59 Repair parts. Nonreparable support items provided to replace equivalent items that are an integral part of an end item or system.

3.1.60 Retrofit. The incorporation of an engineering change (at any level) into Government accepted or in-service items.

3.1.61 Rework. A procedure applied to a nonconformance that will completely eliminate the nonconformance and result in a characteristic that conforms completely to the specifications, drawings or contract requirements.

3.1.62 Spares. Spares are units or assemblies used for maintenance replacement purposes in end items of equipment.

3.1.63 Specification. A document intended primarily for use in procurement, which describes the essential technical requirements for items, materiels or services including the procedures for determining whether or not the requirements have been met.

3.1.64 Specification Change Notice (SCN). A document (DD Form 1696) used to propose, transmit and record changes to a specification. In proposed form, prior to approval of a Class 1 change, the SCN supplies proposed changes in the text of each page affected. In final approved form, the SCN summarizes the approved changes to the text of each page affected. (See 5.6.)

3.1.65 Subcontractor. A person or business that contracts to provide some service or materiel necessary for the performance of another's contract.

3.1.66 Support equipment. Equipment required to operate and maintain an item, system, or facility in its intended environment. This includes:

a. all equipment required to maintain, test and operate the item, system or facility; and

b. computer programs related thereto.

3.1.67 Survivability. The capability of a system to avoid or withstand a hostile environment without suffering an abortive impairment of its ability to accomplish its designated mission. Survivability includes nuclear survivability.

3.1.68 System. A composite of equipment, skills, and techniques capable of performing or supporting an operational role, or both. A complete system includes all equipment, related facilities, material, software, services and personnel required for its operation and support to the degree that it can be considered a self-sufficient item in its intended operational environment.

3.1.69 Technical data. Recorded information, regardless of form or characteristics, of a technical nature. It may, for example, document research, experimental, developmental, or engineering work or be used to define a design or process or to procure, produce, support, maintain, or operate materiel. The data may be graphic or pictorial delineations in media such as drawings or photographs, text in specifications or related performance or design type documents, or computer printouts. Examples of technical data include research and engineering data, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications and related information, and computer software documentation. Technical data does not include computer software or financial, administrative, cost and pricing, and management data, or other information incidental to contract administration.

3.1.70 Technical reviews. A series of system engineering activities by which the technical progress on a project is assessed relative to its technical or contractual requirements. The reviews are conducted at logical transition points in the development effort to identify and correct problems resulting from the work completed thus far before the problems can disrupt or delay the technical progress. The reviews provide a method for the contractor and procuring activity to determine that the development of a CI and its identification have met contract requirements. (See MIL-STD-1521 and DoD-STD-2167.)

3.1.71 Training equipment. All types of maintenance and operator training hardware, devices, audio-visual training aids and related software which are:

a. used to train maintenance and operator personnel by depicting, simulating or portraying the operational or maintenance characteristics of an item, system or facility; and

b. must, by their nature, be kept consistent in design,

construction and configuration with such items in order to provide required training capability.

3.1.72 Unit. An assembly or any combination of parts, subassemblies and assemblies mounted together which are normally capable of independent operation in a variety of situations. (Examples are: hydraulic jack, electric motor, electronic power supply, internal combustion engine, electric generator, and radio receiver.) This term replaces the term "component".

3.1.73 Vendor. A manufacturer or supplier of an item.

3.1.74 Waiver. A written authorization to accept an item which, during manufacture or after having been submitted for inspection, is found to depart from specified requirements, but nevertheless is considered suitable for use "as is" or after repair by an approved method.

3.1.75 Work Breakdown Structure (WBS). A product-oriented listing, in family tree order, of the hardware, software, services and other work tasks which completely defines a product or program. The listing results from project engineering during the development and production of a defense materiel item. A WBS relates the elements of work to each other and to the end product.

3.2 Abbreviations/Acronyms

ACI	Allocated configuration identification
ACO	Administrative contracting officer
CAO	Contract Administration Office
CCB	Configuration control board
CD	Classification of defect
CDRL	Contract data requirements list
CFE	Contractor furnished equipment
CI	Configuration item
CM	Configuration management
CSA	Configuration status accounting
CSC	Computer software component
CSU	Computer software unit
CSCI	Computer software configuration item
DCN	Design change notice
DID	Data item description
ECP	Engineering change proposal
FCA	Functional configuration audit
FCI	Functional configuration identification
GFE	Government furnished equipment
GFM	Government furnished materiel
GFP	Government furnished property
ILS	Integrated logistics support
MIPR	Military interdepartmental purchase request

MRB	Materiel review board
MWO	Maintenance work order
NDI	Non-developmental item
NOR	Notice of revision
NSN	National stock number
PCA	Physical configuration audit
PCO	Procuring contracting officer
PSCN	Proposed specification change notice
RFD	Request for deviation
RFW	Request for waiver
SC	Service change
SCN	Specification change notice
SE	Support equipment
TCTO	Time compliance technical order
TD	Technical directive
VECP	Value engineering change proposal
WBS	Work breakdown structure

4. GENERAL REQUIREMENTS

4.1 Purpose of configuration control. The purpose of configuration control is to manage changes to CIs and their related approved configuration identification documentation to maintain or enhance reliability, performance, interoperability, supportability or operational readiness. (Configuration control begins at contract award using the functional, allocated or product configuration identification prescribed by the Government and continues throughout the life of the CI.)

4.1.1 Procedures. The steps for preparing and processing an engineering change consist of the following:

a. determination of a need for the change;

b. establishment by the originator of a classification of the engineering change as Class I or Class II;

c. preparation of an ECP;

d. submittal to the Government;

e. review;

f. approval/disapproval or concurrence/nonconcurrence in classification;

g. incorporation of approved (or concurred in) engineering changes in the CI and in the data, including, when applicable, negotiation into the contract;

h. status accounting;

i. verification of change accomplishment; and

j. distribution of documentation change.

Note: Similar steps apply to requests for deviations and waivers.

4.1.2 Classification. An engineering change shall be classified as Class I or Class II and a RFD/RFW shall be designated as minor, major, or critical by the originator in accordance with the definitions within this standard. Disagreements as to classification may be appealed to the Government procuring activity for decision.

4.2 Preparation of ECPs. DD Form 1692 shall be prepared in accordance with instructions delineated in Appendix A for Class I and Class II engineering changes. Only page 1 of DD Form 1692 is prepared for Class II

engineering changes applicable to contracts which require Government approval of Class II changes prior to implementation by the contractor. Contractors may use their own forms for other Class II changes unless otherwise specified in the contract.

4.3 Submittal of ECPs. To facilitate preparation and submittal of ECPs (DD Form 1692), and other formats under this standard, contractors may use automated processing techniques provided all essential and applicable data elements are addressed sequentially by block number. Where facilities exist, electronic transfer should be considered to expedite processing.

4.3.1 Contractor submittal. The contractor shall submit to the procuring activity or its designated representative Class I ECPs for approval and Class II changes for concurrence in classification or approval as required in the contract. For out-of-production items, the cognizant military depot, cognizant software support activity or field activity where officially designated, is considered to be the contractor.

4.3.2 Unrelated engineering changes. A separate ECP shall be submitted for each engineering change which has its own distinct objective.

4.3.3 Related engineering changes - single prime. A desired engineering change in one item (the basic engineering change) may require related engineering changes in other items in order to retain (or attain) either an interface match or compatibility of associated items. When such an engineering change is proposed and when the basic item and other items affected by related engineering changes are the responsibility of a single prime contractor, the ECP package submitted shall include both the basic and all such related engineering changes.

4.3.3.1 Related engineering changes - single prime - multiple procuring activities. The basic ECP number shall be assigned to the ECP applicable to the item which is the immediate objective of the desired ECP. Each related ECP shall be identified by the basic number plus a separate dash number.

4.3.4 Related engineering changes - separate primes. When a desired engineering change in one item (the basic engineering change) requires related engineering changes in other items which are the responsibility of other prime contractors who are participating in a specific item development or production program, the basic ECP and its impact on other items shall be coordinated as required prior to submission to the Government. The coordinated basic ECP shall include data showing the extent and results of such coordination, when applicable and available, to the related ECPs of other contractors. Likewise, each related ECP, when submitted by its separate prime, shall cross-reference the basic and other related ECPs to the extent the identifying numbers of such ECPs are available.

4.3.5 Same engineering change - dual contractors. Prime contractors to the Government who have subcontracted for the same item shall coordinate the ECP with the other contractor prior to submission. The ECP shall include data on the extent and results of such coordination.

4.3.6 Same engineering change - several contractors. Unless otherwise specified, when a procuring activity has contracts with two or more prime contractors for the same item, the procuring activity will conduct such coordination of ECPs as it deems necessary.

4.3.7 Parts substitutions. Unless otherwise specified by contract, substitution of a non-reparable part identified as an authorized substitute or superseding part in a military specification or standard, for a non-reparable part identified in the PCI, shall not require a Class I engineering change or a request for deviation or waiver, except that such substitution is not allowed until completion of equipment qualification and reliability demonstration tests. The contractor having PCI custody shall add the authorized substitute part to the parts list via Class II change if that part is preferred over the original. The contractor may also maintain a list, in contractor format, of authorized substitutions. If this option is chosen, the contractor shall reference such list on engineering drawings or parts lists as an associated document. All other parts substitutions shall be subject to 5.1, 5.2, 5.3 or 5.4 herein, as applicable.

4.3.8 Supporting data. Formal ECPs shall be supported by drawings and other data (e.g. SCNs and NORs) if required by the contracting activity to justify and describe the change and to determine its total impact including assessments of changes to system operational employment characteristics. Supporting data shall not be required to exceed the task requirements of the statement of work. Any testing done by the contractor to validate concepts or new technology to be employed in the proposed engineering change should be presented in the supporting data if such test data is vital to the decision regarding acceptance of the change.

4.3.8.1 Documentation for system or CI specification changes.

4.3.8.1.1 Specifications identified by ECP originator's name and number. For each specification cited in the contract affected by the ECP, the originator of the ECP shall submit therewith an SCN, prepared in accordance with Appendix E of this standard, covering the proposed changes in the text of the specification.

4.3.8.1.2 Specifications, drawings, associated lists or other documents not identified by ECP originator's name and number. For each document affected by the ECP (e.g., military specification, Government procuring activity specification, or another contractor's document) which would require revision or change in order to retain interface agreement with the CI as modified by implementation of the ECP, the originator of the ECP

shall submit a NOR, DD Form 1695 (see Figure 9) as an enclosure to the ECP, except where the associate contractor will submit his own SCN with an ECP prepared pursuant to an associate contractor agreement and coordinated per 4.3.4.

4.3.9 Classified data. When practicable, the ECP should be unclassified. Classified data essential to the evaluation and disposition of an ECP shall be submitted separately in accordance with the approved security procedures and referenced in the unclassified portion of the ECP. DD Form 254 of DoD Contract Security Classification Specification applies.

4.3.10 Expediting Class I engineering changes with priority of emergency or urgent. ECPs carrying a priority of emergency shall, and ECPs carrying a priority of urgent may, be reported to the Government by telephone, message, personal contact, telecopier or other expeditious means. All communications shall be identified by the ECP number. If the initial communication regarding a proposed change was by other than written message, it shall be confirmed by written message in a format essentially similar to Figure 12 within 24 hours, and followed by a formal ECP within 30 days after the first communication, unless otherwise specified by the procuring activity. However, if it is impracticable to complete a formal ECP within 30 days due to the necessity for extensive development, a preliminary ECP may be submitted within the 30 day period, followed by a formal ECP at a specified interval thereafter. The preliminary or formal ECP shall carry the same ECP number as the written message and shall include reference to:

a. method and date of the original communication;

b. individuals contacted; and,

c. source of resultant contractual direction, if any.

4.3.11 Number of copies. The number of copies of the ECP to be supplied shall be as stated in the contract.

4.4 Review and approval of Class I ECPs.

4.4.1 Class I engineering changes. Unless otherwise specified by the procuring activity, receipt of contractual approval shall constitute the sole authority for the contractor to effect a Class I change. Approval of the ECP and authorization of the change granted by the Government will include reference to the ECP by number, amendment or revision (if applicable), and date.

4.4.1.1 Class I compatibility engineering changes. This category of change is intended to allow expeditious corrective action when the need for a change has been discovered during system or item functional checks

or during installation and checkout. The contractor shall notify the procuring activity by written message within 24 hours after determining that a compatibility change is necessary, giving reasons for the change and identifying factors that will be impacted, including estimated costs and schedules. Unless otherwise prohibited by the contract, corrective action may then be implemented immediately by the contractor to resolve such incompatibilities only for the specific item(s) situated in the location at which the deficiency was originally discovered. All aspects of the compatibility definition (see 5.1.3.3) must apply. In addition, the contractor shall prepare and submit a Class I compatibility ECP to the procuring activity within 30 days after initial notification. Where further action is necessary due to "lead time" considerations, the contractor may initiate procurement or manufacturing action and shall advise the procuring activity accordingly with a change message, Figure 12, referencing the serial number(s) and locations of additional items involved. The contractor assumes total risk for implementation of such a change prior to Government authorization, except in those cases where the Government caused the incompatibility.

4.4.2 Target for decision on Class I ECPs. The criticality of the need for decision will dictate the actual processing time for ECPs. Emergency and Urgent ECPs should be proposed based upon the targets below unless otherwise agreed to between the contractor and the procuring activity. Processing targets for routine ECPs will be tailored to maximize cost effectiveness, recognizing the program, system and ECP complexity. The target for decision and contractual authorization on Class I ECPs assigned the various priorities will be the following:

a.	Emergency	48 hours
b.	Urgent	30 calendar days
c.	Routine	90 calendar days

4.5 Class II engineering changes.

4.5.1 Government review. Unless otherwise specified by the procuring activity, or unless 4.5.2 applies, Government review of Class II changes during production will consist of a technical evaluation of the change and of materiel substitutions to support concurrence in classification recommendations. Such changes shall be submitted to the procuring activity or its designated representative, prior to or concurrent with, the release of the Class II change into production. The contractor assumes total risk for implementation of changes incorporated prior to Government concurrence except in those cases where Government caused the needed change. Reviews of Class II changes shall normally be accomplished within three (3) work days after receipt by the Government.

4.5.2 Contract provisions for Class II changes. When the procuring activity has required by contract that each Class II change be approved by the Government, the contractor shall not implement the change until it is

approved by the Government.

4.5.3 Non-custody of the master drawings. When the contractor or his subcontractors do not have custody of the master (original) drawings delineating the detail design, and when compliance with such drawings is a contract requirement, each Class II engineering change is subject to approval by the Government prior to implementation.

4.6 Disapproval of ECPs. When the Government disapproves an ECP, the originator will be notified in writing within 30 calendar days of the decision and will be given the reason(s) for the disapproval.

4.7 Processing by the Government. The Government will give preference to ECPs having a priority of emergency or urgent. All VECPs coded "V" will be treated as urgent. Routine priority ECPs which are coded "R" will be given preference in processing over other routine ECPs.

4.8 Revisions of ECPs. An ECP shall be revised when major alterations or changes to the initial ECP are necessary in order to describe the proposed change, and the Government concurs in the additional engineering effort involved. A revision is normally a completely new edition of an existing ECP. Unless otherwise directed by the procuring activity, it shall supersede the original ECP or latest revision and all existing amendments. The information which differs from the original ECP shall be identified so as to be readily discerned. The first revision to an ECP shall be identified by the entry of "R1" in the revision block of the ECP form. Further revisions of the same ECP shall be identified by the entry of "R2", "R3", etc. The date of the ECP shall be the submission date of the revision.

4.9 Amendments to ECPs. An amendment clarifies, corrects, adds to, deletes from or makes other minor changes to a submitted or previously amended ECP. Amendments to an ECP shall explicitly state the change to the previous document. Amendments shall be numbered "A1", "A2", etc.

4.10 General requirements for deviations. Prior to manufacture of an item, if a contractor considers it necessary to depart from the mandatory requirements of the specified configuration identification, he may request that a deviation be authorized.

4.11 General requirements for waivers. An item which through error during manufacture does not conform to the configuration identification, shall not be delivered to, or accepted by, the Government unless a waiver has been processed and approved in accordance with this standard. (See Appendix C.)

4.12 General requirements for notices of revision. In cases where documents are not controlled by the ECP preparing activity, the NOR shall be utilized for describing the exact change to be made to each drawing,

associated list or other document which requires revision if the related change is approved. (See paragraph 4.3.8.1.2 and Appendix D.)

4.13 General requirements for specification change notices. In cases where the specifications are controlled by the ECP preparing activity, SCNs shall be utilized for describing the exact changes to be made to the affected CI specification(s) if the related ECP is approved. (See paragraph 5.6 and Appendix E.)

4.14 Contract data requirements. Data generated by this document are not deliverable unless specified in the contract data requirements list (DD Form 1423) in the contract.

5. DETAILED REQUIREMENTS

5.1 Class I engineering change. A proposed engineering change to a CI or a CSCI, or to any combination or discrete portion thereof, shall be determined to be Class I by examining the factors below, as contractually applicable, to determine if they would be impacted as a result of implementing the change. The change shall be Class I if:

a. The FCI or ACI, once established, is affected to the extent that any of the following requirements would be outside specified limits or specified tolerances:

(1) performance;

(2) reliability, maintainability or survivability;

(3) weight, balance, moment of inertia;

(4) interface characteristics;

(5) electromagnetic characteristics; or

(6) other technical requirements specified in the FCI or ACI.

NOTE: Minor clarifications and corrections to FCI and ACI shall be made only as an incidental part of the next Class I ECP and accompanying SCN, unless otherwise directed by the procuring activity.

b. A change to the PCI, once established, will affect the FCI or ACI as described in a. above, or impacts one or more of the following:

(1) GFE;

(2) safety;

(3) deliverable operational, test, or maintenance computer software associated with the CI or CSCI being changed;

(4) compatibility or specified interoperability with interfacing CIs or CSCIs, support equipment/ software, spares, trainers or training devices/equipment/software;

(5) configuration to the extent that retrofit action is required;

(6) delivered operation and maintenance manuals for which adequate change/revision funding is not provided in existing contracts;

(7) preset adjustments or schedules affecting operating limits or performance to such extent as to require assignment of a new identification number;

(8) interchangeability, substitutability, or replaceability as applied to CIs, and to all subassemblies and parts except the pieces and parts of non-reparable subassemblies; or as applied to CSCIs and to all CSCs and CSUs;

(9) sources of CIs or reparable items at any level defined by specification or source control drawings; or

(10) skills, manning, training, biomedical factors or human engineering design.

c. Any of the following contractual factors are affected:

(1) cost to the Government including incentives and fees;

(2) contract guarantees or warrantees;

(3) contractual deliveries; or

(4) scheduled contract milestones.

5.1.1 Class I engineering change to a privately developed item. An engineering change to a privately developed item shall be classified Class I when it affects the contractually specified form, fit, function, or logistics support of an item or factors in 5.1.c. When a greater degree of control is negotiated between the Government and the contractor, effects on other factors may be added to the effects on form, fit or function factors which classify an engineering change as Class I.

5.1.2 Class I engineering change criteria. Class I engineering changes shall be limited to those which are necessary or offer significant benefit to the Government. Such changes are those required to:

a. correct deficiencies;

b. add or modify interface or interoperability requirements;

c. make a significant effectiveness change in operational or logistics support requirements;

d. affect substantial life-cycle costs/savings; or

e. prevent slippage in an approved production schedule.

5.1.3 Class I ECP justification codes. Justification codes corresponding with the criteria necessary for beneficial engineering changes are defined in the following subparagraphs. If one or more of these codes are applicable to a Class I engineering change, the one which is the most descriptive or significant shall be assigned to the ECP.

5.1.3.1 Record only (Code A). Code A shall be assigned to an engineering change which, because of impact on the CI, CSCI or on logistics support, is a Class I change, but owing to the contracting method, it is within the scope of the contract. Code A ECPs normally do not require formal approval of the procuring activity.

5.1.3.2 Interface (Code B). Code B shall be assigned to an engineering change for correction of a deficiency which will eliminate interference or incompatibility at an interface between CIs.

5.1.3.3 Compatibility (Code C). Code C shall be assigned to an engineering change for correction of a deficiency in a CI or CSCI for the following characteristics:

a. the need for the change has been discovered during the system or item functional checks or during installation and checkout and is necessary to make the system or item work; or

b. the originator in assigning the compatibility code is declaring that the effort required to accomplish the change is considered to be within the scope of his existing contract except for changes caused by the Government; or

c. contractual coverage completing the formal documentation of the engineering change will not reflect an increase in contract price for the corrective action in production and to delivered items in-warranty or otherwise stipulated in the contract.

5.1.3.4 Correction of deficiency (Code D). Code D shall be assigned to an engineering change which is required to eliminate a deficiency, unless a more descriptive separate code applies. Such separate codes are used to identify deficiencies of the nature of safety, interface or compatibility.

5.1.3.5 Operational or logistics support (Code O). Code O shall be assigned to an engineering change which will make a significant effectiveness change in operational or logistics support.

5.1.3.6 Production stoppage (Code P). Code P shall be assigned to an engineering change which is required to prevent slippage in an approved production schedule. This code applies when production to the current configuration identification either is impracticable or cannot be accomplished without delay.

5.1.3.7 Cost reduction (Code R). Code R shall be assigned to an engineering change which will provide a net total cost savings to the Government, including not only all effects on cost or price under the immediate contract but also the costs resulting from necessary associated changes in delivered items, logistic support and items produced by others.

5.1.3.8 Safety (Code S). Code S shall be assigned to an engineering change for correction of a deficiency which is required primarily to eliminate a hazardous condition. When this code is assigned, a system safety analysis per MIL-STD-882 shall be included with the ECP.

5.1.3.9 Value engineering (Code V). Code V shall be assigned to an engineering change which will affect a net life cycle cost reduction and which is submitted pursuant to the value engineering clause of the contract.

5.1.4 Class I ECP types. There are two types of Class I ECPs, preliminary and formal. The type of Class I ECP appropriate to the circumstances shall be selected in accordance with the following definitions and guidelines.

5.1.4.1 Preliminary ECP (Type P). A preliminary ECP is the type which may be submitted to the Government for review prior to the availability of the information necessary to support a formal ECP. It shall include a summary of the proposed change, its impact on related areas, and a justification.

5.1.4.1.1 Use of preliminary ECPs. A preliminary ECP may be prepared and submitted for one of the following purposes:

a. to furnish the procuring activity with available information in order to permit;

(1) a preliminary evaluation relative to the merits of the proposed change (e.g. installation of a proposed change for the purpose of evaluation and testing prior to making a final decision to proceed with a proposed change); or,

(2) a determination regarding the desirability of continuing expenditures required to further develop the proposal.

b. to provide alternative proposals; or

c. to supplement a message relative to an emergency or urgent priority ECP when it is impracticable to submit a formal ECP within 30 calendar days; or

d. to propose a software change prior to the development of the actual coding changes and to obtain Government approval to proceed with software engineering development.

5.1.4.2 Formal ECP (Type F). A formal ECP is the type which provides engineering information and other data in sufficient detail to support formal change approval and contractual authorization, and which may follow the submittal of a preliminary ECP.

5.1.5 Class I engineering change priorities. A priority shall be assigned to each Class I ECP based upon a selection from the following definitions. The assigned priority will determine the time frame in which the ECP is to be reviewed, evaluated, ordered and implemented. The proposed priority is assigned by the originator and will stand unless the procuring activity has a valid reason for changing the priority.

5.1.5.1 Emergency. An emergency priority shall be assigned to an engineering change proposed for either of the following reasons:

a. to affect a change in operational characteristics which, if not accomplished without delay, may seriously compromise national security; or

b. to correct a hazardous condition which may result in fatal or serious injury to personnel or in extensive damage or destruction of equipment. (A hazardous condition usually will require withdrawing the item from service temporarily, or suspension of the item operation, or discontinuance of further testing or development pending resolution of the condition.)

5.1.5.2 Urgent. An urgent priority shall be assigned to an engineering change proposed for any of the following reasons:

a. to affect a change which, if not accomplished expeditiously, may seriously compromise the mission effectiveness of deployed equipment or forces; or

b. to correct a potentially hazardous condition, the uncorrected existence of which could result in injury to personnel or damage to equipment. (A potentially hazardous condition compromises safety and embodies risk, but within reasonable limits, permits continued use of the affected

item provided the operator has been informed of the hazard and appropriate precautions have been defined and distributed to the user.); or

c. to meet significant contractual requirements (e.g., when lead time will necessitate slipping approved production, or deployment schedules if the change was not incorporated); or

d. to affect an interface change which, if delayed, would cause a schedule slippage or increase cost; or

e. to affect, net life cycle cost savings to the Government through value engineering, or through other cost reduction efforts where expedited processing of the change will be a major factor in realizing lower costs.

5.1.5.3 Routine. A routine priority shall be assigned to a proposed engineering change when emergency or urgent is not applicable.

5.1.6 Format for Class I engineering changes. DD Forms 1692 (hereafter called the ECP forms, Figures 2 through 7) shall be used for proposing all Class I engineering changes (other than the initial communication or written message, see Figure 12). Local reproduction of the forms is authorized. The various pages of this form shall be submitted as specified in Figure 1, Appendix A and the following subparagraphs. Automated processing may be used in accordance with paragraph 4.3.

5.1.6.1 Class I engineering changes during concept exploration, demonstration and validation. Page 1 (Figure 2) of the ECP form shall be used as a cover sheet to summarize the engineering change. Page 2 (Figure 3) shall be used to describe proposed changes in the mission, performance and other requirements of the specification governing demonstration and validation. SCNs (DD Form 1696, Figure 10) shall be attached to the ECP as required for specification changes.

5.1.6.2 Class I engineering changes during Full Scale Development (FSD).

a. Page 1 of the ECP form shall be used as the cover sheet to summarize the engineering change. If prototypes of items are undergoing operational evaluation or service tests, changes in the hardware or software of such existent or subsequent prototype models shall be described on Page 3 (Figure 4), DD Form 1692-2 (or on enclosures referenced thereon).

b. Page 2 of the ECP form shall be used to describe changes from the FCI or ACI defined by the system specification and

each pertinent item specification. As required, the detailed text of proposed changes in each of these specifications is furnished as enclosures, but blocks on Page 2 of the ECP form shall be completed to summarize significant effects on specifications. SCNs, if applicable, shall be attached to the ECP.

c. Pages 3, 4, 5 and 6 of the ECP forms shall be used as prescribed in 5.1.6.3, when applicable. (See Figure 1.)

5.1.6.3 Class I engineering changes during production.

a. Page 1 of the ECP form shall be used as the cover sheet to summarize the engineering change.

b. Page 2 of the ECP form may be required. If changes are proposed to the current approved FCI or ACI, this page must be submitted.

c. Page 3 of the ECP form, with applicable enclosures, shall be used to identify the effects of the proposed change to the PCI, logistics and operations. Retrofit information shall be included in Blocks 40 through 47.

d. Page 4 (Figure 5) of the ECP form shall be used to tabulate the net life cycle cost impact of the individual ECP. Entries in the column headed "other costs/savings" to the Government need be made only to the extent estimated costs/savings data are available to the contractor.

e. Page 5 (Figure 6) of the ECP form is applicable either when there are related ECPs as described by 4.3.3 and 4.3.4 or when new trainers or support equipment will be required as a result of the ECP. The net total life cycle cost impacts (increase or decrease) of the individual related ECPs shall be summarized on Page 5, together with all related ILS costs which have not been included in the individual ECPs. Entries regarding related ECPs of other prime contractors shall be made by integrating contractors: otherwise, such entries need be made by a prime contractor only to the extent such data are available to the prime.

f. Page 6 (Figure 7) of the ECP form is required if there is a revision in the schedule actions other than delivery of the item which is the subject of the ECP. Page 6 is not required if the revision in the schedule can be fully described either in Block 19 of Page 1 or by reference therein to a revised schedule for the subject item. When required, Page 6 shall be used as a graphic presentation of

the time phasing of major actions involved in all related engineering changes to hardware, software and associated updating of documentation.

5.2 Class II engineering changes. A Class II engineering change identifies a minor change to a CI or its documentation that can be affected entirely by a contractor within the scope of a current contract effort without changing the Government approved configuration identification other than to incorporate the Class II change into the PCI. Class II changes are applicable during production and are normally identified and processed to correct documentation errors or to enhance contractor productivity without detriment to the Government. Class II changes shall not be used to incorporate engineering changes that would affect any factors listed in 5.1 of this standard. Examples of Class II engineering changes are:

a. changes that do not affect interchangeability, substitutability or replaceability of CIs, or when repairable, their subassemblies and parts;

b. substitution of parts or material which do not have a functional, logistic or reliability impact, as specified in 4.3.7; and

c. changes in documentation only (e.g., correction of errors, addition of clarifying notes or views, addition, deletion or correction of non-executable comment lines-of-code to software).

5.2.1 Impact of Class II changes. When two or more contractors are producing items to the same mandatory detail drawings, an engineering change which is Class II to the originator may be Class I in its impact on the other contractor(s). If such is the case, the procuring activity shall provide direction.

5.2.2 Class II engineering change format. The format for submittal of a Class II engineering change shall be one of the following:

a. Use Page 1 of the ECP form, or the contractor's own form where the change is submitted to the Government for concurrence in classification only. The form shall include as a minimum the following:

(1) name and part number of item affected;

(2) name and part number of next higher assembly;

(3) description of the engineering change;

(4) reason for making the engineering change; and

(5) Government contract number(s) or other program identification acceptable to the local ACO.

b. Use Page 1 of the ECP form when the contract provisions require that each Class II engineering change be approved by the Government.

5.2.3 Class II initiation. The justification codes for Class I engineering changes need not be applied to a Class II engineering change, and usually none will be pertinent. A Class II engineering change may be initiated when the originator considers that the change will enhance contractor productivity and will not be detrimental to the Government.

5.3 Requirements for deviations. Prior to manufacture of an item, if a contractor considers it necessary to depart from the mandatory requirements of the specification or drawings, the contractor may request that a deviation be authorized. As an example, a deviation relating to an alternative material or process may be requested. Another example is a request for the postponement of a specific software function to a later version of a CSCI by deviation from the software requirements specification. A deviation may be processed in lieu of an ECP when the documented design is regarded as superior to the proposed deviation. A proposed design change may be converted to an authorized departure at the option of the Government. Conversely a requested deviation may be converted to a Class I change if it is determined that the change should be permanent. Items shall not be delivered incorporating a known departure from documentation unless a request for a deviation or waiver has been approved in accordance with the requirements of this standard, or unless otherwise contractually authorized. For parts substitutions which do not require requests for deviations see 4.3.7.

5.3.1 Designation as minor, major or critical. Each request for a deviation shall be designated as minor, major or critical.

5.3.1.1 Minor. A deviation shall be designated as minor when:

a. a classification of defects (CD) utilizing the definitions of MIL-STD-109 exists, and the deviation consists of departure from a characteristic in the documentation which is classified in the CD as minor; or

b. the deviation consists of a departure which does not involve any of the factors listed in 5.3.1.2 (b) or 5.3.1.3 (b).

5.3.1.2 Major. A deviation shall be designated as major when:

a. a CD utilizing the definitions of MIL-STD-109 exists, and the deviation consists of a departure from a characteristic in the documentation which is classified in the CD as major; or

b. the deviation consists of a departure involving: (1) health; (2) performance; (3) interchangeability; reliability; survivability; maintainability or durability of the item or its repair parts; (4) effective use or operation; (5) weight and size; or (6) appearance (when a factor).

5.3.1.3 Critical. A deviation shall be designated as critical when:

a. a CD utilizing the definitions of MIL-STD-109 exists, and the deviation consists of a departure from a characteristic in the documentation which is classified in the CD as critical; or

b. the deviation consists of a departure involving safety.

5.3.2 Restrictions on deviations. Unless unusual circumstances exist, critical deviations shall not be submitted. Deviations normally do not apply to software code listings; they may be used for software specifications. Suggested deviations which would affect service operation, logistic interoperability or maintenance (e.g., repair parts, operation or maintenance procedures, or compatibility with trainers or test sets) shall not be submitted or authorized as deviations. Such changes, if approved, should be covered by appropriate revisions in drawings and technical manuals, hence they should be proposed and processed as Class I ECPs.

5.3.3 Format. Unless otherwise specified, the contractor may use any of the following forms for requesting a deviation: DD Form 1694, a form of the contractor's own design, or a letter.

5.3.3.1 Form or letter content. Regardless of the form used, each request for a deviation shall contain all information required by Appendix B.

5.3.4 Preparation. If DD Form 1694 (Figure 8) is used for a request for deviation, the form shall be prepared in accordance with Appendix B.

5.3.5 Submittal. Unless otherwise specified by the procuring activity, requests for critical or major deviations shall be submitted through the channels specified in the contract for Class I ECPs and minor deviations through the channels specified for Class II engineering changes. The number of copies of the request for a deviation to be

supplied shall be as stated in the contract.

5.3.6 Review and approval. Unless otherwise specified in the contract, requests for critical or major deviations should be approved or disapproved within 30 calendar days of receipt by the procuring activity, and minor deviations should be approved or disapproved within 10 work days of receipt by the reviewing activity authorized to approve or disapprove minor deviations.

5.3.6.1 Minor deviations. Unless otherwise specified by the procuring activity, minor deviations shall be authorized (or disapproved) for the Government by the activity authorized to approve or concur in classification of Class II changes.

5.3.6.2 Critical and major deviations. Unless otherwise specified by the procuring activity, critical and major deviations shall only be approved by a Government contracting officer.

5.3.7 Recurring deviations. If a proposed deviation is recurring (a repetition or extension of a previous deviation), it is probable that either the requirements of the documentation are too stringent or the corrective action of the manufacturer was ineffective. A determination should be made concerning a means of eliminating the need for a recurring deviation prior to its submission and authorization.

5.4 Requirements for waivers. During or after manufacture of an item or after having been submitted for inspection, an item is found to depart from specified requirements, but nevertheless is considered suitable for use "as is" or after repair by an approved method, the contractor shall process a request for waiver. If a local material review board (MRB) is properly constituted in accordance with procuring activity requirements, the established practices of the MRB remain in effect for minor waivers. See MIL-STD-1520 for guidance.

5.4.1 Designation as minor, major or critical. Each request for a waiver shall be designated as minor, major or critical as described in the following subparagraphs.

5.4.1.1 Minor. A waiver shall be designated as minor when:

a. an Acceptable Quality Level (AQL) is specified in the contract specification or other contract document, and the waiver consists of acceptance of a lot of items having a number of minor defects in the sample equalling or exceeding the number that requires rejection of the lot; or

b. a CD utilizing the definitions of MIL-STD-109 exists, and the waiver consists of acceptance of an item having a minor defect(s); or

c. the waiver consists of acceptance of an item having a nonconformance with contract or configuration identification requirements which does not involve any of the factors listed in 5.4.1.2 (c) or 5.4.1.3.

5.4.1.2 Major. A waiver shall be designated as major when:

a. an AQL is specified in the contract specification or other contract document, and the waiver consists of acceptance of a lot of items having a number of major defects in the sample equalling or exceeding the number that requires rejection of the lot; or

b. a CD utilizing the definitions of MIL-STD-109 exists, and the waiver consists of acceptance of an item having a major defect; or

c. the waiver consists of acceptance of an item having a nonconformance with contract or configuration identification requirements involving: (1) health, (2) performance, (3) interchangeability, reliability, survivability or maintainability of the item or its repair parts, (4) effective use or operation, (5) weight, or (6) appearance (when a factor).

5.4.1.3 Critical. A waiver shall be designated as critical when:

a. a CD utilizing the definitions of MIL-STD-109 exists, and the waiver consists of acceptance of an item having a critical defect; or

b. the waiver consists of acceptance of an item having a nonconformance with contract or configuration identification requirements involving safety.

5.4.1.4 Format. The contractor may use any of the following forms for requesting a waiver: DD Form 1694, a form of the contractor's own design, or a letter.

5.4.1.5 Form or letter content. Regardless of the form used, each request for a waiver shall contain all information required by Appendix C.

5.4.2 Preparation. If DD Form 1694 (Figure 8) is used to request a waiver, the form shall be prepared in accordance with Appendix C.

5.4.3 Submittal. Except for MRB procedures for "minor" waivers, the number of copies of the request for a waiver to be supplied shall be as stated in the contract. Unless otherwise specified in the contract, requests for "major" or "critical" waivers shall be submitted to the

procuring activity for approval or disapproval.

5.4.4 Review and approval. Unless otherwise specified in the contract, requests for critical or major waivers should be approved or disapproved within 30 calendar days of receipt by the procuring activity, and minor waivers should be approved or disapproved within 10 work days of receipt by the Government.

5.4.4.1 Minor waivers. Unless otherwise specified by the procuring activity, minor waivers shall be dispositioned by the local MRB when such a board is properly constituted, or in the absence of such MRB by the CAO.

5.4.4.2 Critical and major waivers. Unless otherwise specified by the procuring activity, critical and major waivers shall only be approved by a Government contracting officer.

5.4.4.3 Recurring waivers. If a request for waiver is recurring (a repetition or extension of a previous waiver), it is probable that either the requirements of the documentation are too stringent or the corrective action of the manufacturer was ineffective. A determination should be made concerning a means of eliminating the need for a recurring waiver prior to its submission and authorization.

5.5 Notices of revision. The preparation and submittal of notices of revision (NORs) apply only under either one or both of the following conditions:

a. a requirement for submittal of NORs in accordance with this standard is prescribed in the contract; or

b. in order to agree with an approved ECP, documentation (e.g. engineering drawing(s), associated lists, software listing(s) or other documents) not identified by the name and number of the originator of the ECP require revision or change. However, if coordination on companion ECPs are accomplished in accordance with 4.3.4, and the associate contractor agrees to submit an SCN or other applicable change notice as part of their ECP, NORs shall not be required.

5.5.1 Application. NORs are used when the master (original) drawings, lists and other documents comprising the configuration identification for an item are not held by the originator of the ECP. In such cases, the originator is not permitted to revise the documents and therefore cannot comprehensively document the redesign. NORs permit the ECP reviewing and approving activity to direct the custodian of each document, other than the ECP originator, to make specific revisions in affected documents.

5.5.2 Preparation of NORs. A separate NOR, DD Form 1695 (Figure 9), shall be prepared in accordance with Appendix D for each drawing, associated list or other referenced document which requires revision if

the related engineering change is approved. The description of the revision shall consist of a detailed "From" and "To" condition depiction of the exact change to be made to the affected drawing, list, or other document(s).

5.5.3 Submittal. Submission of NORs will be in accordance with contract requirements. NORs will be attached to their related ECPs.

5.5.4 Action by Government. The procuring activity or the designated design activity will direct the revision of all documents affected by approved NORs.

5.6 Specification Change Notices (SCN).

5.6.1 Application. An SCN shall be prepared, rather than a NOR, to propose a change to a specification that is affected by an ECP and the specification is one that is maintained by the ECP originator. Or when authorized, a SCN shall be used to update a specification, unrelated to an ECP or design change. Errors of a minor nature (such as typographical errors, punctuation, etc.) normally shall not be corrected, except as an incidental part of the next technically required ECP and accompanying proposed SCN.

5.6.2 Purpose. The SCN is a document used to propose, transmit, and record changes to a specification. The SCN, DD Form 1696 (Figure 10), is used as a cover sheet and may serve as a letter of transmittal; the page changes associated with that SCN shall be attached and shall constitute an integral part of the SCN.

5.6.2.1 Proposed SCN. A proposed specification change notice (SCN) shall be used to propose to the specification approving activity the exact change in specification paragraphs, figures or other content that will be distributed to users if the ECP is approved. The proposed modification in content submitted with the proposed SCN may be in the form of specification change pages or as an enclosure on which the proposed changes in sentences, paragraphs, figures, tables, etc., are described.

5.6.2.2 Approved SCN. An approved SCN shall be used to transmit the changes after approval by an authorized agent of the Government. It also provides a summary listing of pages affected by all previously approved changes. SCNs are not cumulative insofar as transmittal of change pages from previous changes is concerned, and changes distributed with previous SCNs remain in effect unless changed or cancelled by an SCN of later issue. However, the summary of current changes is a cumulative summary as of the date of approval of the latest SCN.

5.6.2.3 Changed pages. Updated and reissued pages shall be complete reprints of pages suitable for incorporation by removal of old pages and insertion of new pages. All portions affected by the change shall be

indicated by a symbol in the right hand margin adjacent to the change and encompassing all changed portions. When changed pages are issued for specifications with pages printed on both sides of a sheet, and only the page on one side of a sheet is affected by the change, both sides of the sheet shall be reissued. The unchanged side shall be reprinted without change and shall not carry the date of the change or be included in the change summary as being affected by the change.

5.6.2.4 Supersession. When a proposed SCN must be revised and resubmitted, the resubmitted SCN shall retain the same basic SCN number but must be reidentified as a revision to avoid confusion with the original submittal.

5.6.3 Preparation of SCNs. The DD Form 1696 shall be prepared in accordance with Appendix E. An SCN includes a DD Form 1696 (Figure 10) and attachments containing the proposed changes to the specification.

5.6.3.1 SCN cover page. The DD Form 1696 shall serve as a cover page. SCNs for a specification are sequentially numbered beginning with SCN 1; SCNs for a newly revised specification are also sequentially numbered starting again with SCN 1. The SCN number is entered in the appropriate block on the DD Form 1696. The proposed SCN, or any revisions thereto, and the approved SCN shall carry the same number. Once an SCN has been submitted to the Government along with an ECP, its SCN sequence number related to that specific ECP shall not thereafter be changed or assigned to another ECP/SCN package. (SCN numbers associated with disapproved ECPs are not reused.) However, due to differing change processing/approval time periods, SCNs may be approved by the Government out of sequence. If this occurs, the SCN cover sheet (DD Form 1696) would not be changed, but some of the attached change pages might have to be revised to reflect the current wording as of the approval date.

5.6.3.2 SCN attachments. The attachments to the DD Form 1696 shall be:

a. for PSCNs, pages containing detailed information about the exact proposed changes to the specification by reference to the sentence, paragraph, page, figure, or table and by citing the words/information to be changed; or

b. replacement new specification pages in format suitable to be substituted for existing pages, identified with the specification number and SCN approval date, numbered with the same numbers of the pages they replace plus a suffix letter where additional pages are needed to replace a page (e.g., new pages 5 and 5a replace old page 5), and all portions affected indicated by symbols (e.g., change bars, asterisks etc.) in the right margin; or

c. a proposed specification revision, where more practical, identified with the same number as the specification to be superseded with a new revision letter, prepared to the same format, and all portions affected identified with symbols in the right margin or containing a note explaining that the changes are too extensive to be identified.

6. INFORMATION FOR GUIDANCE ONLY

(This section contains information of a general or explanatory nature which is helpful, but is not mandatory.)

6.1 Tailoring guidance. Appendix F is directed specifically toward computer software ECPs. Appendix G provides guidance for the tailoring of this standard to specific program requirements.

6.2 Consideration of data requirements. The following data requirements should be considered when this standard is applied on a contract. The applicable Data Item Descriptions (DIDs) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DIDs are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual applications of the data requirements, Contract Data Requirements Lists (DD Form 1423) must be prepared to obtain the data, except where DoD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

Reference Paragraph	DID Number	DID Title
4.2, 4.3.8 and 5.1.6	DI-CMAN-80639	Engineering Change Proposal
5.3.4	DI-CMAN-80640	Request for Deviation
5.4.2	DI-CMAN-80641	Request for Waiver
5.5.2	DI-CMAN-80642	Notice of Revision
5.6.3	DI-CMAN-80643	Specification Change Notice

(Copies of DIDs required by civilian or Government contractors in connection with specific acquisition functions should be obtained from the Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120-5099 or as directed by the contracting officer.)

6.3 Subject term (key word) listing.

Baseline
Configuration
Configuration audit
Configuration control
Configuration identification
Configuration item
Configuration management

Design change notice
Deviation
Engineering change
Engineering change proposal
Integrated logistic support
Material review board
Notice of revision
Specification
Specification change notice
Waiver

6.4 Changes from previous issue. Asterisks or vertical lines are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

6.5 Concurrence by requiring activities. If the procuring activity or purchasing office is not the military activity responsible for technical requirements, the concurrence of such military activity (or in the case of a Military Interdepartmental Purchase Request (MIPR), the concurrence of the requiring department) shall be obtained prior to contractual action.

6.6 Comments on waivers, deviations or engineering change requests (DD Form 1998). DD Form 1998 may be used by the CAO to record routing, comments and recommendations to the procuring activity when the reviewing activity does not have approval or disapproval authority.

DD FORM		LIFE CYCLE PHASES			
NO. AND PAGE	USAGE	Program Initiation (Conceptual)	Demonstration and Validation	Full Scale Development	Production/ Deployment and Operational
1692 Page 1	Cover Sheet	REQUIRED Only when functional characteristics are to be controlled	REQUIRED Cover sheet summarizes the ECP	REQUIRED Cover sheet summarizes the ECP	REQUIRED Cover sheet summarizes the ECP
1692-1 Page 2	Effects on Functional Allocated Configuration Identification	NOT REQUIRED	REQUIRED USED to: Describe proposed changes in functional configuration identification	REQUIRED USED to: Describe proposed changes in functional or allocated configuration identification as defined by system and appropriate item specification	REQUIRED if: (a) System specification change is associated with design change (b) Two part specification method used & part I specification needs to be changed (c) Development & product fabrication specifications used and development specification needs to be changed (d) Other Systems or Configuration Items are affected
1692-2 Page 3	Effects on Product Configuration Identification Operations and Logistics	NOT REQUIRED	NOT REQUIRED	REQUIRED when: Prototypes are undergoing operational or service testing USED to: Provide an index to impacts of the change	REQUIRED USED to: Describe effects of change in product configuration identification & changes in parts or assemblies
1692-3 Page 4	Estimated Net Total Cost Impact (one item)	NOT REQUIRED	NOT REQUIRED	REQUIRED when: (a) ECP requires change to contract cost (b) Future production cost is a consideration in evaluating desireability of effecting the proposed change	REQUIRED USED to: Tabulate cost impact
1692-4 Page 5	Estimated Cost/Savings Summary Related ECPs	NOT REQUIRED	NOT REQUIRED	REQUIRED if: (a) There are related ECPs applying to two or more items (b) New trainers or items of support equipment are required USED to: Summarize cost impact of all related ECPs	REQUIRED if: (a) There are related ECPs applying to two or more items (b) New trainers or items of support equipment are required USED to: Summarize cost impact of all related ECPs
1692-5 Page 6	Milestone Chart	NOT REQUIRED	NOT REQUIRED	REQUIRED if: There is a schedule change in more than delivery date for item USED to: Show-inter-relationships in schedules	REQUIRED if: There is a schedule change in more than delivery date for item USED to: Show-inter-relationships in schedules

JUL 1988

FIGURE 1. Life Cycle Applications of DD Form 1692.

ENGINEERING CHANGE PROPOSAL, PAGE 1

(See MIL-STD-480 for instructions)

DATE *(YYMMDD)*

Form Approved OMB No 0704-0188

Public reporting burden for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503

PROCURING ACTIVITY NO.

1. ORIGINATOR NAME AND ADDRESS

2. CLASS OF ECP

3. JUST. CODE

4. PRIORITY

5. ECP DESIGNATION

a. MODEL / TYPE	b. CAGE CODE	c. SYSTEM DESIGNATION	d. ECP NO	e. TYPE	f. REV	g. AMEND

6. BASELINE AFFECTED

☐ FUNCTIONAL ☐ ALLOCATED ☐ PRODUCT

7. OTHER SYS. / CONFIG. ITEMS AFFECTED

☐ YES ☐ NO

8. SPECIFICATIONS AFFECTED - TEST PLAN

9. DRAWINGS AFFECTED

	CAGE CODE	SPEC/DOC NO	REV	SCN	CAGE CODE	NUMBER	REV	NOR
a. SYSTEM								
b. ITEM								
c. TEST PLAN								

10. TITLE OF CHANGE

10.a. WEAPON SYSTEM CODE OR DESIGNATION

11. CONTRACT NO. AND LINE ITEM

12. PROCURING CONTRACTING OFFICER

CODE TEL

13. CONFIGURATION ITEM NOMENCLATURE

14. IN PRODUCTION

☐ YES ☐ NO

15. LOWEST ASSEMBLY AFFECTED

NOMENCLATURE	PART NO	NSN

16. DESCRIPTION OF CHANGE

17. NEED FOR CHANGE

18. PRODUCTION EFFECTIVITY BY SERIAL NUMBER

19. EFFECT ON PRODUCTION DELIVERY SCHEDULE

20. RETROFIT

a. RECOMMENDED ITEM EFFECTIVITY

c. SHIP / VEHICLE CLASS AFFECTED

b. ESTIMATED KIT DELIVERY SCHEDULE

d. LOCATIONS OR SHIP / VEHICLE NUMBERS AFFECTED

21. ESTIMATED COSTS / SAVINGS UNDER CONTRACT

22. ESTIMATED NET TOTAL COSTS / SAVINGS

23. SUBMITTING ACTIVITY AUTHORIZED SIGNATURE

23.a. TITLE

24. APPROVAL / DISAPPROVAL

a. CLASS I	b. CLASS II	c. CLASS II
☐ APPROVAL RECOMMENDED ☐ DISAPPROVAL RECOMMENDED	☐ APPROVED ☐ DISAPPROVED	☐ CONCUR IN CLASSIFICATION OF CHANGE ☐ DO NOT CONCUR IN CLASSIFICATION OF CHANGE

d. GOVERNMENT ACTIVITY	SIGNATURE	DATE *(YYMMDD)*

e. APPROVAL	f. GOVERNMENT ACTIVITY	SIGNATURE	DATE *(YYMMDD)*
☐ APPROVED ☐ DISAPPROVED			

DD Form 1692, JUL 88 *Previous editions are obsolete*

FIGURE 2. ECP Page 1 (DD Form 1692).

ENGINEERING CHANGE PROPOSAL, PAGE 2 *(See MIL-STD-480 for instructions)*	*Form Approved* *OMB No. 0704-0188*

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ORIGINATOR NAME AND ADDRESS	PROCURING ACTIVITY NUMBER
	ECP NUMBER

EFFECTS ON FUNCTIONAL / ALLOCATED CONFIGURATION IDENTIFICATION

25. OTHER SYSTEMS AFFECTED	26. OTHER CONTRACTORS / ACTIVITIES AFFECTED

27. CONFIGURATION ITEMS AFFECTED

28. EFFECTS ON PERFORMANCE ALLOCATIONS AND INTERFACES IN SYSTEM SPECIFICATION

29. EFFECTS ON EMPLOYMENT, INTEGRATED LOGISTICS SUPPORT, TRAINING, OPERATIONAL EFFECTIVENESS OR SOFTWARE

30. EFFECTS ON CONFIGURATION ITEM SPECIFICATIONS

31. DEVELOPMENTAL REQUIREMENTS AND STATUS

32. TRADE-OFFS AND ALTERNATIVE SOLUTIONS

33. DATE BY WHICH CONTRACTUAL AUTHORITY IS NEEDED

DD Form 1692-1, JUL 88 *Previous editions are obsolete.* 176221

FIGURE 3. ECP Page 2 (DD Form 1692-1).