

DOD-STD-480A

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Superseding

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MILITARY STANDARD

**CONFIGURATION CONTROL-
ENGINEERING CHANGES, DEVIATIONS
AND WAIVERS**



FSC CMAN

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DEPARTMENT OF DEFENSE
Washington, D. C. 20360

Configuration Control - Engineering Changes, Deviations and Waivers
DOD-STD-480A

1. This 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: Engineering Specifications and Standards Department (Code 93), Naval Air Engineering Center, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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FOREWORD

Both DOD-STD-480A and MIL-STD-481 delineate configuration control requirements and provide instructions for preparing and submitting proposed engineering changes and related information. Of the two standards, DOD-STD-480A covers the broader area and requires a more complete analysis of the impact if the engineering change described by an engineering change proposal (ECP) were implemented. DOD-STD-480A requires that the data package submitted with an ECP contain a description of all known interface effects and information concerning changes required in the functional/allocated/product configuration identification (FCI/ACI/PCI). It is intended that DOD-STD-480A be imposed on prime contractors who (1) have participated or are participating in the engineering or operational systems development of a system or high level configuration item (CI), or (2) are being supplied with copies of the system specification and/or development specification(s), or (3) have extensive experience in the preparation of ECPs relative to high level configuration items; such contractors have the capability of providing to the Government the majority of the information needed to properly evaluate the merits of a complex engineering change, possibly involving interrelated changes in other configuration items. DOD-STD-480A also covers requirements for submittal of deviations, waivers and notices of revision (NORs).

MIL-STD-481 is intended for use in 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. An example of such a contractor is one who is required to fabricate an item to a PCI which he did not prepare, or one who did not participate in engineering development and hence is not familiar with requirements of the system or higher level CI. When MIL-STD-481 rather than DOD-STD-480A is prescribed, the major portion of the analysis of the impact of an ECP on associated items is transferred from the contractor to the procuring activity.

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1. SCOPE

1.1 Purpose. This standard provides:

- a. Requirements for maintaining configuration control of configuration items.
- b. Requirements for the preparation and submission of proposed engineering changes, deviations, waivers and notices of revision (NORs).
- c. Requirements for submitting the technical, fiscal and logistic supporting information necessary to define the impact of a proposed engineering change.
- d. Instructions for submitting the information necessary to maintain the configuration identification in a current status.

* 1.2 Application

1.2.1 Configuration control requirements established by this standard apply only to the configuration identification which has been approved by the procuring activity. Figure 1 shows the relationship between the program phases and the engineering change proposal (ECP) data required at each phase of the life cycle. Contracts which invoke this standard shall specifically identify those documents which establish the applicable base line. The application of this standard may be tailored to avoid premature formal government control of changes.

* 1.2.2 It is intended that this standard be used by prime contractors and government activities for (a) proposing engineering changes to configuration items (CIs), which are developed, designed or modified specifically for Department of Defense (DOD) activities, (b) requesting deviations pertaining to such items, (c) requesting waivers, and (d) preparing NORs.

1.2.3 It also is intended that this standard be used to control the form, fit and function of privately developed items used in configuration items.

* 1.2.4 A separate section of this standard states requirements for engineering changes applicable to facilities.

* 1.2.5 The contractor is required to establish and maintain configuration controls and associated documentation necessary to effectively control the approved configuration identification.

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2. REFERENCED DOCUMENTS

* 2.1 Issues of documents. The following documents form a part of this standard to the extent specified herein. Documents which form a part of this standard are to be specifically invoked by the procurement contract.

STANDARDS

MILITARY

- MIL-STD-109 - Quality Assurance Terms and Definitions
- MIL-STD-280 - Definitions of Item Levels, Item Exchangeability, Models and Related Terms
- MIL-STD-490 - Specification Practices

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

* 2.2 Other publications. The following document forms a part of this standard to the extent specified herein. Documents which form a part of this standard are to be specifically invoked by the procurement contract.

Cataloging Handbook H4-1 Federal Supply Code for Manufacturers

(Copies of handbooks should be obtained from the procuring activity or as directed by the contracting officer, from the DOD Single Stock Point, Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120).

3. DEFINITIONS

(For definitions and acronyms, see Appendix E)

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4. REQUIREMENTS FOR ENGINEERING CHANGES

* 4.1 General. The steps in 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, and (g) incorporation of approved (or concurred in) engineering changes in the configuration item and in the data, including when applicable, negotiation into the contract. Parts substitutions specified in, and authorized by, military specifications and standards for nonreparable parts may be made after completion of equipment qualification or first article test without initiation of Class I or Class II engineering changes, deviations (see 7.1), or waivers (see 8.1), provided that the factors of sub-paragraphs 4.2.1.c, d and e, except e(7), are not affected. A list of all part substitutions shall be prepared by the contractor, updated as additions or deletions are made, and maintained for the life of the contract. The parts substitution list shall be a formal controlled document and be made a part of the drawing package and/or specifications. The contractor shall provide the procuring activity with a copy of the initial parts substitution list and all changes as they occur. An annotated parts list may be used in lieu of a separate parts substitution list as mutually agreed between the contractor and the procuring activity.

4.2 Classification. Assuming that its purpose and necessity have been established, each engineering change (and each ECP) shall be assigned the appropriate classification by the originator in accordance with the definition of 4.2.1, 4.2.1.1 and 4.2.2. Disagreements as to classification between intermediate government review activities and the originator may be appealed to the government procuring activity for decision.

* 4.2.1 Class I engineering change. An engineering change shall be classified Class I when one or more of the factors listed (subparagraphs a, b, c, d, or e) below is affected:

- a. The functional or allocated configuration identification (FCI or ACI)
- * b. The product configuration identification (PCI) as contractually specified (or as applied to government activities), excluding referenced drawings, specifications, listings of computer program instructions, and actual data values
- * NOTE: In the above definition of a Class I engineering change, the words "excluding referenced drawings, specifications, listing of computer program instructions, and

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actual data values" in 4.2.1b shall not be interpreted to exclude these items prescribed directly in a contract to define contract line items. Other drawings, specifications, computer program instructions and actual data values, whether referenced in documents or listed on associated lists are excluded from 4.2.1b but included in 4.2.1c, d and e.

c. Technical requirements below contained in the PCI as contracturally specified, including referenced drawings and specifications

- (1) Performance outside stated tolerance
- (2) Reliability, maintainability or survivability outside stated tolerance
- (3) Weight, balance, moment of inertia
- (4) Interface characteristics

d. Non-technical contractual provisions

- (1) Fee
- (2) Incentives
- * (3) Cost to the Government
- (4) Schedules
- (5) Guarantees or deliveries

e. Other factors

- (1) Government furnished equipment (GFE)
- (2) Safety
- (3) Electromagnetic characteristics
- (4) Operational, test or maintenance computer programs
- (5) Compatibility with support equipment, trainers or training devices/equipment
- (6) Configuration to the extent that retrofit action would be taken

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- (7) Delivered operation and maintenance manuals for which adequate change/revision funding is not on existing contracts
- (8) Pre-set adjustments or schedules affecting operating limits or performance to such extent as to require assignment of a new identification number
- (9) Interchangeability, substitutability or replaceability, as applied to CI's, and to all subassemblies and parts of reparable CI's, excluding the pieces and parts of non-reparable subassemblies
- (10) Sources of CI's or reparable items at any level defined by source control drawings
- (11) Skills, manning, training, biomedical factors or human engineering design

4.2.1.1 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 or function of the item. 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.

4.2.2 Class II engineering change. An engineering change shall be classified Class II when it does not fall within the definition of a Class I engineering change in 4.2.1 (or 4.2.1.1, when applicable). Examples of a Class II engineering change are: (a) a change in documentation only (e.g., correction of errors, addition of clarifying notes or views) or (b) a change in hardware (e.g., substitution of an alternative material) which does not affect any factor listed in 4.2.1.

NOTE: 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).

4.3 Engineering change justification

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

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- a. Correct deficiencies, or
- b. Make a significant effectiveness change in operational or logistics support requirements, or
- c. Effect substantial life-cycle cost saving, or
- d. Prevent slippage in an approved production schedule.

4.3.2 Class I ECP justification codes. Codes corresponding with the criteria of 4.3.1 for necessary or beneficial engineering changes are defined in the following subparagraphs. If one or more of these codes is applicable to a Class I engineering change, the one which is the most descriptive or significant shall be assigned to the ECP. If no code is pertinent, the ECP is not desired.

4.3.2.1 Correction of deficiency (Code D). Code D shall be assigned to an engineering change which is required to eliminate a deficiency (see 110.17), unless a more descriptive separate code applies. Such separate codes are used to identify deficiencies of the nature of safety, interface or compatibility.

4.3.2.1.1 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.

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

4.3.2.1.3 Compatibility (Code C). Code C shall be assigned to an engineering change for correction of a deficiency of the following characteristics:

- a. The need for the change has been discovered during the system or item functional checks or during installation and checkout (I&C) and is necessary to make the system or item work, and
- 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, and
- c. Contractual coverage completing the formal documentation of the engineering change will not reflect an increase in contract price.

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4.3.2.2 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 requirements.

4.3.2.3 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.

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

4.3.2.4 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.

4.3.2.5 Record only (Code A). Code A shall be assigned to an engineering change which, because of impact on the CI or on logistics support, is a Class I change, but owing to the contracting method, it is within the scope of the contract and should not be processed for formal change.

4.3.3 Class II initiation. The codes of 4.3.2 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 benefit him or the Government, and will not be detrimental to the Government.

4.4 Class I ECP types. The type of Class I ECP appropriate to the circumstances shall be selected in accordance with the following definitions and guidelines.

4.4.1 Definitions of the two types of Class I ECPs.

4.4.1.1 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.

4.4.1.2 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.

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4.4.2 Use of preliminary ECP's. 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, and (2) a determination regarding the desirability of continuing expenditures required to further develop the proposal.
- b. To permit a choice of one of various alternative proposals.
- c. To supplement a message relative to an emergency or urgent priority ECP when it is impracticable to submit a formal ECP within 30 days.

4.5 Class I engineering change priorities. A priority shall be assigned to each Class I ECP based upon a selection from the following definitions. The priority will determine the relative speed at which the ECP is reviewed and evaluated, and at which the engineering change is 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 processing rate.

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

- a. To effect a change in operational characteristics which, if not accomplished without delay, may seriously compromise the national security.
- 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.

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

- a. To effect a change in operational characteristics which, if not accomplished expeditiously, may seriously compromise the mission effectiveness of deployed equipment.
- 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

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compromises safety and embodies risk, but within reasonable limits, permitting continued use of the affected equipment provided the operator has been informed of the hazard and appropriate precautions have been defined and distributed to the user.

- c. To meet significant contractual requirements (e.g., when lead time will necessitate slipping approved production, activation or construction schedules if the change were not incorporated).
- d. To effect an interface change which, if delayed, would cause a schedule slippage or increase cost.
- e. To effect, through value engineering or other cost reduction efforts, net life cycle savings to the Government of a total of more than one hundred thousand dollars, where expedited processing of the change will be a major factor in realizing these lower costs.

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

4.6 Format

4.6.1 Class I engineering changes. DD Form 1692 shall be used for proposing all Class I engineering changes (other than the initial communication or written message of 4.8.9). Local reproduction of the form is authorized. Page usage is described by figure 1 and the following subparagraphs.

* 4.6.1.1 Class I engineering changes during demonstration and validation. Page 1 (DD Form 1692) shall be used as a cover sheet to summarize the engineering change. Page 2 (DD Form 1692-1) shall be used to describe proposed changes in the mission, performance and other requirements of the specification governing demonstration and validation.

* 4.6.1.2 Class I engineering changes during full scale engineering development.

- 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 of such existent or subsequent prototype models shall be described on Page 3 (or on enclosures referenced thereon).

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- b. Page 2 of the ECP form shall be used to describe changes from the functional configuration identification (FCI) or allocated configuration identification (ACI) defined by the system specification and each pertinent item specification. As required by 4.8.7.1, 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.

* 4.6.1.3 Class I engineering changes during production and deployment

- a. Page 1 of the ECP form shall be used as the cover sheet to summarize the engineering change.
- b. Page 3 of the ECP form (DD Form 1692-2) shall be used to describe the effects of the proposed change in the PCI (data not summarized on Page 1). The changes in the parts and/or assemblies of the item shall be described on Page 3 (or on enclosures referenced thereon).
- c. Page 4 of the ECP form (DD Form 1692-3) 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.
- d. Page 5 of the ECP form (DD Form 1692-4) is applicable either when there are related ECPs as described by 4.8.3 and 4.8.4 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 integrated logistics support (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.
- e. Page 6 of the ECP form (DD Form 1692-5) is required if there is a revision in the scheduled 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 in hardware and associated up-dating of documentation.

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f. Page 2 of the ECP form is applicable to engineering changes during the production or deployment periods only when

- (1) Changes in the system specification(s) are associated with the engineering change, or
- (2) Two part item specifications are used and the engineering change must be accompanied by a change (revision) in Part 1 of the item specification to retain consistency. These changes to the FCI or ACI shall be described as required by 4.6.1.2, or
- (3) A product fabrication specification is a part of the PCI, a development specification constitutes the applicable FCI or ACI, and the development specification requires up-dating for consistency with the ECP.

NOTE: If separate specifications (rather than two-part item specifications) are used for development and production and if the product function specification contains a complete statement of all performance requirements, changes in the development specification need not be processed and only changes in the system specification need be described on page 2 of the ECP form (or on enclosures referenced thereon). Changes in Part II of the item specification or in the separate product function specification shall be described on page 3 of the ECP form (or on enclosures referenced there on. See 4.8.7.1).

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

a. Page 1 (DD Form 1692) or the contractor's own form where the change is submitted to the Government for concurrence in classification only, which is the normal procedure under this standard. The contractor's change form shall include as a minimum, the following:

- (1) Part number and name of item affected.
- (2) Part number and type designation, if known, of next higher assembly (first use only).
- (3) Description of the engineering change.

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(4) Reason for making the engineering change.

(5) Government contract number.

- b. Page 1 (DD Form 1692) when the contract provisions require that each Class II engineering change be approved by the Government as covered by 4.9.2.2 or 4.9.2.3.

4.7 Preparation. DD Form 1692 shall be prepared in accordance with instructions delineated in Appendix A for all Class I engineering changes, and (page 1 only) for Class II engineering changes applicable to contracts which require Government approval of Class II changes prior to implementation by the contractor.

4.8 Submittal

* 4.8.1 General. The contractor shall submit to the procuring activity and/or its designated representative, as stipulated in the contract requirements, for approval/concurrence in classification of each engineering change (Class I or Class II). The contractor is responsible for the proper classification of changes originated by his subcontractors and vendors.

4.8.2 Unrelated engineering changes. A single ECP under a single ECP number shall not cover unrelated engineering changes; rather, a separate ECP shall be submitted for each engineering change which has its own distinct objective.

4.8.3 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 ECPs. The basic ECP number (see 10.6) 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. For example, assume that the number of the basic ECP applicable to an aircraft is 1234; then the number of related ECPs applicable to other items could be 1234-1 for the ECP covering the necessary changes to support equipment, its repair parts and manuals; 1234-2 for the maintenance trainer, its spares and manuals; 1234-3 for the operational trainer, its spares and manuals, etc. In such cases, the pages of the basic ECP, including the cost impact analysis shall identify and summarize the related ECPs, but shall not repeat any of the detail. Each related ECP shall be complete

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in itself as a separate package. Insofar as practicable, the basic ECP and all related ECPs shall be submitted together. When this is not practicable, the basic ECP shall include (a) identification of all related changes, (b) the schedule for their submittal, and (c) a "best estimate" of their schedule, cost and program impact in a form suitable for planning purposes. (Note: Related ECPs may be submitted as preliminary ECPs).

4.8.4 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 of the basic ECP to the Government. The coordinated basic ECP shall include data showing the extent and results of such coordination, the agreed upon effect on the item(s) involved, and cross-reference, 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. In those cases in which the same prime is responsible for two or more of the group of related ECPs, the ECPs of such prime shall be numbered as in 4.8.3 and all such ECPs shall be included in the coordination action.

4.8.5 Same engineering change - dual contracts. Prime contractors to the Government who also hold a subcontract for the same item shall coordinate the ECP with the other prime contractor prior to submission. The ECP shall include data on the extent and results of such coordination.

4.8.6 Same engineering change - several prime 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.

4.8.7 Supporting data. Formal ECPs shall be supported by all drawings and other data required to justify and describe the change and to determine its total impact. Each engineering change ultimately should be evaluated by appropriate testing. The results of such testing as has been completed by date of ECP preparation should be presented in the supporting data, since such test data may be vital to the decision regarding acceptance of the change.

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4.8.7.1 Documentation for system or configuration item specification changes

* 4.8.7.1.1 Specifications identified by ECP originator's name and number. For each such specification affected by the ECP, the originator of the ECP shall submit therewith a proposed specification change notice (SCN), prepared in accordance with MIL-STD-490, covering the proposed changes in the text of the specification.

* 4.8.7.1.2 Specifications not identified by ECP originator's name and number. For each such specification (e.g., military specification, government procuring activity specification, or another contractors specification) which would require revision or change in order to retain agreement with the configuration item as modified by implementation of the ECP, the originator of the ECP shall submit a NOR, DD Form 1695 (see figure 4) as an enclosure to the ECP. The exact changes proposed in the text of the specification to which the NOR relates shall be stated in block 8 of the NOR form.

4.8.8 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.

4.8.9 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 teletype, telephone, personal contact 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 5 within 24 hours, and followed by a formal ECP within 30 days after the first communication. 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 formal or preliminary 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
- c. Source of resultant contractual direction, if any

4.8.10 Number of copies. The number of copies of the ECP to be supplied shall be as stated in the contract. When the contract does not distinguish between the ECP proper and the supporting data, and when the number of copies of the ECP to be supplied exceeds 4, the number of copies of such supporting data (see 4.8.7) may be limited to 4.

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4.9 Approval and Review

* 4.9.1 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 the change. 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. Approval of the ECP and authorization of the change granted by the Government will include reference to the ECP by number, revision and correction (if applicable), and date.

* 4.9.1.1 Class I compatibility engineering change. Corrective action in a Class I compatibility ECP may be implemented by the contractor without prior procuring activity approval, but only for the specific item(s) situated in the location at which the deficiency was discovered. All aspects of the compatibility definition (see 4.3.2.1.3) must apply. 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. In addition, the contractor shall prepare and submit Class I compatibility ECPs to the procuring activity within 30 days after initial notification. Where further action is necessary due to "lead time" considerations, the contractor shall initiate procurement or manufacturing action and shall advise the procuring activity accordingly with a change message, figure 5, 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.

4.9.2 Class II engineering changes

4.9.2.1 Unless otherwise specified by the procuring activity, or unless 4.9.2.3 applies, the only Government review of Class II changes will be for concurrence in classification. When a form describing a Class II change is submitted for concurrence in classification, such submittal to the procuring activity, or its designated representative, shall be concurrent with, or prior to, release of the Class II engineering change within the contractor's own plant.

4.9.2.2 When the procuring activity has required by contract provisions that each Class II change be approved by the Government, the contractor shall not implement the change until receipt of a copy of DD Form 1692 (page 1) showing such approval.

4.9.2.3 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

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engineering change is subject to approval by the Government prior to implementation.

4.9.3 Disapproval. When the Government disapproves an ECP, the contractor will be so notified in writing and will be given the reasons for the disapproval.

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

* 4.9.5 Target for decision on Class 1 ECPs. The target for decision and contractual authorization on Class 1 ECPs assigned the various priorities will be not later than the following time periods after proposal receipt:

Emergency	24 hours
Urgent	15 Calendar days

NOTE: The criticality of the need for decision will dictate the actual processing time for emergency and urgent ECPs. Emergency and Urgent ECPs should be proposed based upon the above targets unless otherwise agreed to between the contractor and the procuring activity.

Routine	See Note below
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NOTE: Processing targets for routine ECPs will be tailored to maximize cost effectiveness, recognizing the program, system and ECP complexity.

4.10 Revision of ECPs. An ECP shall be revised when (a) major alterations or changes to the initial ECP (or to an earlier version of the ECP) are necessary in order to describe the proposed change, and (b) the Government concurs in the additional engineering effort involved. A revision to an ECP shall consist of a self-sufficient document which completely supersedes the previous submittal. The information which differs from the original ECP shall be identified so as to be readily discerned. The first revision to an ECP type shall be identified by the entry of an "R1" in the revision block of the ECP form. Further revisions of the same ECP type shall be identified by the entry of "R2", "R3"...etc., in this block. The date of the ECP shall be changed from that on the previous submittal. Revisions to ECPs are not required after ECP approval unless there are significant modifications in the change which affect contractual considerations.

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4.11 Correction of ECPs. An ECP may be corrected to effect minor editorial changes. A correction to an ECP shall consist of a cover sheet and either the corrected page(s) or a sheet on which minor editorial changes or other corrections are tabulated. The first correction to an ECP type, or to a specific revision, shall be identified by the entry of a "C1" in the correction block of the ECP form. Further corrections to the ECP, or to the same revision, shall be identified by the entry of "C2", "C3",...etc., in the correction block. Thus, the first correction to the first revision would be labeled "R1-C1", the second correction to the first revision "R1-C2", and the first correction to the second revision "R2-C1". The date of the ECP shall not be changed. Corrections to ECPs are not required after ECP approval unless there are significant modifications in the change which affect contractual considerations.

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5. REQUIREMENTS FOR NOTICES OF REVISION

5.1 Applicability. The additional requirements of Section 5 covering 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 has been prescribed in the contract, or
- b. In order to agree with an approved ECP, a specification not identified by the name and number of the originator of the ECP requires revision or change (see 4.8.7.1.2).

5.1.1 Intended application. Primarily NORs are intended for use 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 obviously cannot revise the documents when the ECP is ordered and when he is not permitted to document the redesign. NORs permit the ECP reviewing and/or approving activity to direct the custodian of each document to make specific revisions in affected documents.

5.2 Preparation of NORs. A separate NOR, DD Form 1695 (see figure 4), 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. (Proposed changes in the text of system or item specifications which are to be submitted as SCN's under the provisions of 4.8.7.1.1 shall not be described by means of NORs). The description of the revision shall consist of a detailed statement covering each required correction, addition or deletion. A marked copy of the documents may be used to supplement the NOR. Local reproduction of DD Form 1695 is authorized.

5.3 Submittal. When submittal of NORs is a contract requirement, unless otherwise specified, the number of copies of each NOR to be furnished shall agree with the specified quantities of the affected supporting data.

5.4 Action by Government. The procuring activity, or the activity specifically delegated review or approval authority, will execute the DD Form 1695 and take the necessary action either to direct amendment or revision of the master documents or to initiate the preparation of new documents incorporating the change.

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6. ADDITIONAL REQUIREMENTS FOR FACILITY CONSTRUCTION CONTRACTS

6.1 General. In addition to the requirements of Section 4, the following requirements of Section 6 apply to facility construction contracts.

6.2 Application. Application of the procedures contained in this standard start at the beginning of the construction period and shall be based on the original construction contract drawings and specifications for each operational site.

- a. Facility changes may occur during any one of the following periods for each operational site. These periods are defined below and are parallel in nature to the period for changing ground and airborne operational weapons, systems, and equipments.
 - (1) The construction period or production of the operational site: The period from the start to completion of the construction task by the construction contractor or government construction agency.
 - (2) Installation and checkout (I&C) period or fitting out period: The period from construction completion or initial joint occupancy of the facility by the I&C contractor or agency and the construction contractor agency until turnover for operational use.
 - (3) Service period: The period of use starting at site turnover to the using agency.

6.3 Responsibilities for initiating Class I engineering changes

- a. The facility contractor (construction or architect-engineer) or government construction agency shall be responsible for initiating ECPs for proposed Class I changes prior to change cutoff date or attainment of product configuration identification (PCI) status.
- b. The I&C contractor or government construction agency shall be responsible for initiating ECPs for all proposed Class I changes after the facility has reached PCI status. The construction contractor continues to have the responsibility for (1) providing to the I&C contractor such information in regard to the facility as may be required to complete the I&C ECPs, and (2) preparing ECPs for changes which may be necessary for sites still under construction.

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NOTE 1: To permit the completion of construction and ensure a smooth transition of work between the construction and I&C periods, the following control point, known as the PCI status or change cutoff date, is established. A facility has reached PCI status when the government or a government designated program director declares that additional changes to the facility contracts can no longer be accepted for an operational site. The configuration of the facility when it reaches PCI status shall be defined by the construction specifications, construction drawings, and subcontractor drawings in force at the time the PCI status is invoked. The establishment of PCI status shall be invoked on a site-by-site basis.

NOTE 2: PCI status formerly was known as end item description (EID) status.

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7. REQUIREMENTS FOR DEVIATIONS

* 7.1 General. Prior to manufacture of an item, if a contractor considers it necessary that he be authorized to depart temporarily from the mandatory requirements of the documentation (configuration identification) he may request that a deviation be authorized. As an example, a deviation relating to an alternative material or process may be requested when it is claimed that the delivery schedule cannot be met unless the deviation is granted, a deviation being chosen in lieu of an ECP because the documented design is regarded as superior to the alternative. A proposed design change (ECP) may be converted to a temporary authorized departure (deviation) at the option of the Government or vice versa. Items shall not be delivered incorporating a known departure from documentation unless a request for a deviation or waiver has been processed in accordance with the requirements of this standard, or unless otherwise permitted by contractually authorized procedure. For parts substitutions which do not require requests for deviations see 4.1.

7.2 Designation as minor, major or critical. Each request for a deviation shall be designated as minor, major or critical in accordance with 7.2.1, 7.2.2 or 7.2.3.

7.2.1 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 7.2.2b or 7.2.3b.

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

- a. A classification of defects (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 or maintainability of the item or its repair parts, (4) effective use or operation, (5) weight or (6) appearance (when a factor).

7.2.3 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

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- b. The deviation consists of a departure involving safety.

7.3 Combination of deviations and changes. Some proposals or requests involve deviations from specifications combined with either deviations from drawings or revisions of drawings. The combinations should be processed as follows:

- a. For deviations from specifications accompanied by revision of end product drawings to agree with the proposal, process as a Class I ECP if Class I criteria apply; otherwise, submit a request for deviation from the specification and process Class II change forms for the drawings.
- b. For deviations from end product drawings (revision not intended), whether or not a deviation from the specification is involved, process as a request for deviation.

7.3.1 Restriction on deviations. Unless unusual circumstances exist, critical deviations shall not be submitted. Suggested deviations which would affect service operation 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 effects, if approved, should be covered by appropriate revisions in drawings and technical manuals, hence they should be proposed and processed as Class I ECPs. (As stated in 7.3a, such an ECP may involve a deviation from a specification.)

7.4 Format. The contractor may use any of the following forms for requesting a deviation: (a) DD Form 1694 (see figure 3), (b) a form of his own design, or (c) a letter. Regardless of the form used, each request for a deviation shall contain the following information:

- a. Name and address of contractor,
- b. Contract number,
- c. Name of item,
- d. Identifying number of item,
- e. Number of the specification, drawing(s) or document(s) from which a deviation is requested,
- f. Description of the proposed deviation, including designation as minor, major or critical,
- g. Quantity of items involved,

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- h. Effect on contract delivery schedule,
- i. Whether a request for a recurring deviation is involved and if so, reference to the previous correspondence,
- j. Effect on logistic support materials, including publications, and
- k. Effect on contract cost.

7.5 Preparation. If DD Form 1694 is used for a request for deviation, the form shall be prepared in accordance with Appendix B.

7.6 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.

7.7 Approval and review

7.7.1 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.

7.7.2 Critical and major deviations. Unless otherwise specified by the procuring activity, critical and major deviations can be granted only by a government contracting officer. 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 MIPR, the concurrence of the requiring department) shall be obtained prior to contractual action on critical or major deviations.

7.7.3 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 practices of the manufacturer are questionable. A determination should be made concerning a means of eliminating the need for a recurring deviation prior to its submittal and/or authorization.

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8. REQUIREMENTS FOR WAIVERS

* 8.1 General. An item which through error during manufacture does not conform to the configuration identification shall not be delivered to the Government unless a waiver has been processed and granted in accordance with this standard. 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 and shall be used in lieu of the following paragraphs insofar as minor waivers are concerned. For parts substitutions which do not require processing of waivers see 4.1.

8.2 Designation as minor, major or critical. Each request for a waiver shall be designated as minor, major or critical in accordance with 8.2.1, 8.2.2 or 8.2.3.

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

- a. An acceptable quality level (AQL) is specified in the contract specification, and the waiver consists of acceptance of a lot of items having a number of minor defects in the sample equaling or exceeding the number that requires rejection of the lot, or
- b. A classification of defects 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 non-conformance with contract or configuration identification requirements which does not involve any of the factors listed in 8.2.2c or 8.2.3b.

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

- a. An AQL is specified in the contract specification, and the waiver consists of acceptance of a lot of items having a number of major defects in the sample equaling or exceeding the number that requires rejection of the lot, or
- b. A classification of defects 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 non-conformance with contract or configuration identification requirements involving (1) health, (2) performance, (3) interchangeability, reliability or maintainability of the item or its repair parts, (4) effective use or operation, (5) weight or (6) appearance (when a factor).

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

- a. A classification of defects 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 non-conformance with contract or configuration identification requirements involving safety.

8.3 Format. Except for MRB procedures for minor waivers, the contractor may use any of the following forms for requesting a waiver:

- a. DD Form 1694, (see figure 3),
- b. A form of his own design, or
- c. A letter.

8.3.1 Form or letter content. Except for MRB procedures for minor waivers, regardless of the form used, each request for a waiver shall contain the following information:

- a. Name and address of contractor,
- b. Contract number,
- c. Name of item,
- d. Identifying number of item,
- e. Name(s) of affected part(s),
- f. Identifying number of part(s),
- g. Number of specification, drawing(s) or document(s) to which a waiver is requested,
- h. Description of the defect or non-conformance, including designation as minor, major or critical,
- i. Quantity of items involved,
- j. Effect on contract delivery schedule,
- k. Identifying number of the inspection or test plan, and of the classification of defects (or characteristics), if any. Defect number and classification of the characteristic(s) to which a waiver is requested,

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l. Effect on logistic support materials, including publications.

m. Corrective action required, if any, and

n. An estimate of commensurate reduction in contract cost if material is accepted either as is or with repair.

8.4 Preparation. If DD Form 1694 is used to request a waiver, the form shall be prepared in accordance with Appendix C.

8.5 Submittal. Unless unusual circumstances exist, requests for critical waivers shall not be submitted. Unless otherwise specified in the contract, requests for waivers shall be submitted to the local MRB when such a board is properly constituted. 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.

8.6 Approval and review

8.6.1 Minor waivers. Unless otherwise specified by the procuring activity minor waivers shall be granted (or disapproved) by the local MRB when such a board is properly constituted, or in the absence of such MRB by the Government Contract Administration Office.

8.6.2 Critical and major waivers. Unless otherwise specified by the procuring activity, critical and major waivers can be granted only by a government contracting officer. If the procuring office or purchasing office is not the military activity responsible for technical requirements, the concurrence of such military activity (or in the case of a MIPR, the concurrence of the requiring department) shall be obtained prior to contractual action on critical or major waivers.

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9. DATA

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

NOTE: The margins of this standard are marked with an asterik to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Users are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Lead service activity:

Navy - NM

Preparing activity:

Navy - AS

Custodians:

Army - AR

Navy - AS

Air Force - 10

Review activities:

Army - AR, MI, EL,

Navy - AS, EC, OS, SH, YD, CG

Air Force - 10, 11, 26

Marine Corps - MC

DLA - DH

DOD - NS, DC, DS

Project Number:

CMAN-OB23

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DD FORM		LIFE CYCLE PHASES			
No. and Page	Usage	Program Initiation (Conceptual)	Demonstration and Validation	Full Scale Engineering Development	Production/Deployment and Operational
1692-1 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 & appropriate item specifications	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
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: Describe changes to hardware	REQUIRED USED to: Describe effects of change in product configuration identification & changes in parts and/or assemblies
1692-3 Page 4	Estimated Net Total Cost Impact (one item)	NOT REQUIRED	NOT REQUIRED	NOT REQUIRED	REQUIRED USED to: Tabulate cost impact
1692-4 Page 5	Estimated Cost/Savings Summary Related ECPs	NOT REQUIRED	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
1692-5 Page 6	Milestone Chart	NOT REQUIRED	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

FIGURE 1. Life Cycle Applications of DD Form 1692.

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ENGINEERING CHANGE PROPOSAL, PAGE 1
 (SEE MIL-STD-480 FOR INSTRUCTIONS)

DATE PREPARED

PROCURING ACTIVITY NO.

1. ORIGINATOR NAME AND ADDRESS					2. CLASS OF ECP		3. JUST CODE	4. PRIORITY
5. ECP DESIGNATION					6. BASELINE AFFECTED <input type="checkbox"/> FUNCTIONAL <input type="checkbox"/> ALLOCATED <input type="checkbox"/> PRODUCT			
a. MODEL/TYPE	b. MFR. CODE	c. SYS. DESIG.	d. ECP NO.	e. TYPE	f. REV.	7. OTHER SYS./CONFIG. ITEMS AFFECTED <input type="checkbox"/> YES <input type="checkbox"/> NO		
8. SPECIFICATIONS AFFECTED - TEST PLAN					9. DRAWINGS AFFECTED			
a. SYSTEM	MFR CODE	SPEC./DOC. NO.	SCH	MFR CODE	NUMBER	REV.	NOR NO.	
b. ITEM								
c. TEST PLAN								
10. TITLE OF CHANGE							11. CONTRACT NO. & LINE ITEM	
12. CONFIGURATION ITEM NOMENCLATURE							13. IN PRODUCTION <input type="checkbox"/> YES <input type="checkbox"/> NO	
14. NAME OF PART OR LOWEST ASSEMBLY AFFECTED						15. PART NO. OR TYPE DESIGNATION		
16. DESCRIPTION OF CHANGE								
17. NEED FOR CHANGE								
18. PRODUCTION EFFECTIVITY BY SERIAL NUMBER					19. EFFECT ON PRODUCTION DELIVERY SCHEDULE			
20. RETROFIT					c. SHIP/VEHICLE CLASS AFFECTED			
a. RECOMMENDED ITEM EFFECTIVITY					d. LOCATIONS OR SHIP/VEHICLE NUMBERS AFFECTED			
b. ESTIMATED KIT DELIVERY SCHEDULE					22. ESTIMATED NET TOTAL COSTS			
21. ESTIMATED COSTS/SAVINGS UNDER CONTRACT					23. SUBMITTING ACTIVITY AUTHORIZING SIGNATURE			
24. APPROVAL/DISAPPROVAL					TITLE			
a. CLASS 1 <input type="checkbox"/> APPROVAL RECOMMENDED					b. CLASS 2 <input type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED <input type="checkbox"/> CONCUR IN CLASSIFICATION OF CHANGE <input type="checkbox"/> DO NOT CONCUR IN CLASSIFICATION OF CHANGE			
c. GOVERNMENT ACTIVITY					SIGNATURE DATE			

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FIGURE 2A. ECP page 1 (DD Form 1692).

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ENGINEERING CHANGE PROPOSAL, PAGE 2
(SEE MIL-STD-480 FOR INSTRUCTIONS)

PROCURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS

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 SPECIFICATIONS

29. EFFECTS ON EMPLOYMENT, INTEGRATED LOGISTIC SUPPORT, TRAINING, OPERATIONAL EFFECTIVENESS, ETC.

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

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FIGURE 2B. ECP page 2 (DD Form 1692-1).

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ENGINEERING CHANGE PROPOSAL, PAGE 3
(SEE MIL-STD-480 FOR INSTRUCTIONS)

PROCURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS

CLP NUMBER

EFFECTS ON PRODUCT CONFIGURATION IDENTIFICATION, OPERATION AND LOGISTICS							
(BT)	FUNCTION	ENCL.	PAGE	(BT)	FUNCTION	ENCL.	PAGE
24	EFFECT ON PRODUCT CONFIGURATION IDENTIFICATION OR CONTROL						
	PERFORMANCE				26. EFFECT ON OPERATIONAL EQUIPMENT		
	WEIGHT-BALANCE-STABILITY (AIRCRAFT)				SAFETY		
	WEIGHT-BALANCE-STABILITY (OTHER)				SUPPLYABILITY		
	WEIGHT-BALANCE-STABILITY (OTHER)				RELIABILITY		
	WEIGHT-BALANCE-STABILITY (OTHER)				Maintainability		
	WEIGHT-BALANCE-STABILITY (OTHER)				SERVICE LIFE		
25	EFFECT ON INTEGRATED LOGISTIC SUPPORT (LIFE) ELEMENTS				OPERATING PROCEDURES		
	PLANS				ELECTROMAGNETIC INTERFERENCE		
	MAINTENANCE CONCEPT AND PLANS				ACTIVATION SCHEDULE		
	MAINTENANCE PROCEDURES				OPERATING INSTALLATIONS		
	INTERIM SUPPORT PROGRAM						
	SPARE AND REPAIR PARTS				27. OTHER CONSIDERATIONS		
	TECH. MANUALS/PROGRAMMING TAPES				INTERFACE		
	FACILITIES				OTHER AFFECTED EQUIPMENT/SEC		
	SUPPORT EQUIPMENT				PHYSICAL CONSTRAINT		
	OPERATOR TRAINING				OPERATIONAL COMPUTER PROGRAMS		
	OPERATOR TRAINING EQUIPMENT				REPAIR OF OTHER EQUIPMENT		
	MAINTENANCE TRAINING				SYSTEM TEST PROCEDURES		
	MAINTENANCE TRAINING EQUIPMENT						
	PERSONNEL						
	CONTRACT ENGINEERING TECH. SVCS						
	VERIFICATION AND DEMONSTRATION PLANS						
28. ALTERNATIVE SOLUTIONS							
29. DEVELOPMENTAL STATUS							
30. RECOMMENDATIONS FOR RETROFIT							
31. MAN-HOURS PER UNIT TO INSTALL DETECTED CHG. A. ORIGINATOR B. INTERMEDIATE C. DEMO D. OTHER				32. MAN-HOURS TO CONDUCT SYSTEM TESTS AFTER RETROFIT			
33. THIS CHANGE MUST BE ACCOMPLISHED <input type="checkbox"/> BEFORE <input type="checkbox"/> WITH <input type="checkbox"/> AFTER THE FOLLOWING CHANGES:				34. IS CONTRACTOR FIELD SERVICE ENG. REQUIRED? <input type="checkbox"/> YES <input type="checkbox"/> NO		35. OUT OF SERVICE TIME	
36. EFFECT OF THIS ECP AND PREVIOUSLY APPROVED ECP'S ON IPB				37. DATE CONTRACTUAL AUTHORITY NEEDED FOR: PRODUCTION _____ SLS _____			

DD FORM 1692-2

FIGURE 2C. ECP page 3 (DD Form 1692-2).

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ENGINEERING CHANGE PROPOSAL, PAGE 4
(SEE MIL-STD-480 FOR INSTRUCTIONS)

PROJURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS

E.P. NUMBER

48 ESTIMATED NET TOTAL COST IMPACT (USE MINUS SIGN FOR SAVINGS)

FACTOR	COSTS/SAVINGS UNDER CONTRACT					OTHER COSTS/SAVINGS TO GOVERNMENT	
	NON-RECURRING (1)	RECURRING			TOTAL (5)		
		UNIT (2)	QUANTITY (3)	TOTAL RECURRING (4)			
G. PRODUCTION COSTS/SAVINGS							
CONFIGURATION ITEM							
FACTORY TEST EQUIPMENT							
SPECIAL FACTORY TOOLING							
SCRAP							
ENGINEERING, ENGR DATA REV							
REVISION OF TEST PROCEDURES							
QUALIFICATION OF NEW ITEMS							
SUBTOTAL OF PROD. COSTS/SAVINGS							
H. RETROFIT COSTS							
ENGINEERING, ENGR DATA REV.							
PROTOTYPE TESTING							
RIT PROOF TESTING							
RETOFIT RITS							
PREP. OF MOD/TCFD/SCALY INSTR							
SPECIAL TOOLING FOR RETROFIT							
CONTRACTOR FIELD SERVICE ENGR							
GOVT PERSONNEL INSTALLATION							
TESTING AFTER RETROFIT							
MODIFICATION OF GFE							
QUALIFICATION OF MODIFIED GFE							
SUBTOTAL OF RETROFIT COSTS							
I. INTEGRATED LOGISTIC SUPPORT COSTS/SAVINGS							
SPARES/REPAIRS PARTS DEMO							
NEW SPARES AND REPAIR PARTS							
RETOFIT RITS FOR SPARES							
OPERATOR TRNG COURSES							
MAINTENANCE TRNG. COURSES							
DEV. OF TECH. MAN./PROGRAMMING TAPES							
NEW TECH. MAN./PROGRAMMING TAPES							
PREP. OF MOD/TCFD/SCALY INSTR							
INTERIM SUPPORT							
MAINTENANCE SUPPORT							
SUBTOTAL OF ILS COSTS/SAVINGS							
J. OTHER COSTS/SAVINGS							
SUBTOTAL COSTS/SAVINGS							
SUBTOTAL UNDER CONTRACT							
COORDINATION CHARGES BY OTHER CONTRACTORS							
COORDINATION CHARGES BY GOVERNMENT							
ESTIMATED NET TOTAL COSTS/SAVINGS							

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D-50000

FIGURE 2D. ECP page 4 (DD Form 1692-3).

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ENGINEERING CHANGE PROPOSAL, PAGE 5
(SEE MIL-STD-480 FOR INSTRUCTIONS)

PROCURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS

ECP NUMBER

49. ESTIMATED COSTS/SAVINGS SUMMARY, RELATED ECP'S (USE MINUS SIGN FOR SAVINGS)	MANUFACTURER'S CODE (1)	ECP NUMBER (2)	COSTS/SAVINGS UNDER CONTRACTS (3)	OTHER COSTS/SAVINGS TO GOVERNMENT (4)
a. PRODUCTION COSTS/SAVINGS (Subtotal of Costs/Savings Elements from block 48a applicable to aircraft, ship, tank, vehicle, missile or its subsystem)				
SUB-TOTAL PRODUCTION COSTS/SAVINGS				
b. RETROFIT COSTS (Applicable to aircraft, ship, tank, vehicle, missile or its subsystem)				
SUB-TOTAL RETROFIT COSTS				
c. INTEGRATED LOGISTIC SUPPORT COSTS/SAVINGS				
REVISED REQUIREMENTS				
1. ITEM RETROFIT (If not covered under "b") (Applicable to aircraft, ship, tank, vehicle, missile or its subsystem)				
2. ILS SUBTOTAL (Applicable to aircraft, ship, tank, vehicle, missile or its subsystem)				
3. OPERATOR TRAINER (Net total cost/saving from each ECP covering operator trainer)				
4. MAINTENANCE TRAINER (Net total cost/saving from each ECP covering maintenance trainer)				
5. OTHER TRAINING EQUIPMENT				
6. SUPPORT EQUIPMENT (Net total cost/saving from each ECP on support equipment)				
7. ILS PLANS				
8. MAINTENANCE CONCEPT, PLANS, SYSTEM DOCUMENTS				
9. INTERIM SUPPORT PLAN				
NEW REQUIREMENTS				
10. PROVISIONING DOCUMENTATION				
11. OPER TRAINING DEVICES/EQUIP				
12. MANUALS/PROGRAMMING TAPES, SPARES, REPAIR PARTS (For 12)				
13. MAINTENANCE TRAINING DEVICES/EQUIPMENT				
14. MANUALS/PROGRAMMING TAPES, SPARES, RPR PARTS (For 13)				
15. SUPPORT EQUIPMENT				
16. MANUALS/PRGNG TAPES (For 15)				
17. PRGV. DOCUMENTATION (For 15)				
18. REPAIR PARTS (For 15)				
SUB-TOTAL ILS COSTS/SAVINGS (Sum of c.1 through c.18)				
d. OTHER COSTS/SAVINGS (Total from block 48d of related ECP's)				
TOTAL OTHER COSTS/SAVINGS				
SUB-TOTALS OF COLUMNS				
SUB-TOTAL UNDER CONTRACT				
e. ESTIMATED NET TOTAL COSTS/SAVINGS (a + b + c + d)				

DD FORM 1692-4

FIGURE 2E. ECP page 5 (DD Form 1692-4)

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ENGINEERING CHANGE PROPOSAL, PAGE 6 (MILESTONE CHART) (SEE MIL-STD-480 FOR INSTRUCTIONS)												DATE PREPARED		PROCURING ACTIVITY NO.																																	
ORIGINATOR NAME AND ADDRESS												UFR CODE		ECP NUMBER																																	
CONFIGURATION ITEM NOMENCLATURE												TITLE OF CHANGE																																			
DATE AUTHORIZATION TO PROCEED RECEIVED BY CONTRACTOR												START DELIVERY		COMPLETE DELIVERY		PROGRESS POINT																															
NO. OF MONTHS												1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
PRODUCTION																																															
TECH. MANUALS/ PHOS. TAPES																																															
RETOFIT																																															
WMO, TCTO, SC, ALT																																															
SPARES/REPAIR PARTS																																															
PRODUCTION																																															
TECH. MANUALS/ PHOS. TAPES																																															
RETOFIT																																															
WMO, TCTO, SC, ALT																																															
REPAIR PARTS																																															
OPERATOR																																															
MAINTENANCE																																															
NO. OF MONTHS												1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

DD FORM 1692-5

FIGURE 2F. ECP page 6 (DD Form 1692-5).

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NOTICE OF REVISION (NOR)
(SEE MIL-STD-480 FOR INSTRUCTIONS)

This revision described below has been authorized for the document listed.

1. ORIGINATOR NAME AND ADDRESS		DATE	INFO. CODE	REV. NO.
2. TITLE OF DOCUMENT		1. INFO. CODE	2. DOCUMENT NUMBER	
3. CONFIGURATION ITEM (OR SYSTEM) TO WHICH ECP APPLIES		3. REVISION LETTER (SUBSTITUTION)	4. REV.	5. ECP NO.
6. DESCRIPTION OF REVISION				

9. THIS SECTION FOR GOVERNMENT USE ONLY		
A. CHECK ONE <input type="checkbox"/> EXISTING DOCUMENT SUPPLEMENTED BY THIS AND MAY BE USED BY MANUFACTURER.		
<input type="checkbox"/> REVISED DOCUMENT MUST BE RECEIVED BEFORE MANUFACTURER MAY INCORPORATE THIS CHANGE.		
<input type="checkbox"/> CUSTODIAN OF MASTER DOCUMENT SHALL MAKE ABOVE REVISION AND FURNISH REVISED DOCUMENT TO:		
B. ACTIVITY AUTHORIZED TO APPROVE CHANGE FOR GOVERNMENT	SIGNATURE AND TITLE	DATE
C. ACTIVITY AUTHORIZED TO APPROVE CHANGE FOR GOVERNMENT	REVISION COMPLETED (SIGNATURE)	DATE

DD FORM 1695

FIGURE 4. Notice of revision (DD Form 1695).

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(Address, sender, and standard message transmittal information not shown below)

ECP Number

Government Contract No.

1. Urgent (or emergency) priority engineering change action affecting (show contract item nomenclature), (part no. or type designation) is required because (state reason for action) (Reference applicable documents).

2. Action required to correct the condition(s) noted by the urgent or emergency condition is

(This paragraph shall provide a description of the proposed engineering change. The phrasing of this paragraph as shown is not mandatory and may be recast to fit the ECP being submitted.)

3. The ECP shall be accomplished on serial numbers
at an estimated cost of
against contracts:
(Show breakout for production, I&C and service action.)

4. Support equipment must be modified (or new support equipment must be delivered) concurrently with this change. (If there is no effect on support equipment, substitute a statement to that effect.)

(Additional information may be included when available. However, reporting and initiating action to correct urgent or emergency conditions shall not be delayed pending the availability of additional information.)

FIGURE 5. Message format for emergency or urgent ECP.

APPENDIX A

INSTRUCTIONS FOR PREPARATION OF ECP
UTILIZING DD FORMS 1692 THROUGH 1692-5

10. General. Local reproduction of DD Forms 1692 through 1692-5 is authorized. Paragraph 4.6 (including sub-paragraphs) and figure 1 explain the situation in which the various pages of the ECP form are to be used. The ECP package shall provide the information required by this appendix. Enclosures (supplemented with necessary exhibits, sketches and drawings) referenced in the blocks on the ECP form shall be used when necessary to enable an understanding of the total impact of the change.

10.1 Engineering change proposal, page 1, figure 2A

Date. Enter the date of submittal of the ECP.

Procuring activity no. To be used by procuring activity for entry of internal processing number if desired.

10.2 Block 1. Enter the name and address of the contractor or government activity, submitting the ECP.

10.3 Block 2. Enter I or II for the applicable ECP class as defined in 4.2.1 or 4.2.2.

10.4 Block 3. Enter the justification code as defined by 4.3.2 which is applicable to the proposed Class I engineering change.

CODES

- D - Deficiency
- S - Safety
- B - Interface
- C - Compatibility
- O - Operational or logistics support
- R - Cost Reduction
- V - Value engineering
- P - Production stoppage
- A - Record only

10.4.1 Value engineering ECP. When the contract contains a value engineering clause, each value engineering ECP shall be identified both by the "V" in block 3 and by the entry of the following notation at the top of page 1 of the ECP form: "VALUE ENGINEERING CHANGE PURSUANT TO CONTRACT CLAUSE."

10.5 Block 4 Priority. The contractor shall recommend a priority to the Government and enter an "E", "U", or "R" (Emergency, Urgent or Routine) as appropriate (see 4.5).

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* 10.6 Block 5. ECP designation

- a. Model/Type. Enter model or type designation of the configuration item for which this proposal is being filled out. For computer programs, enter the computer program configuration item (CPCI) identification number.
- b. Mfr. code. Enter the Federal Supply Code for Manufacturers (FSCM) as shown in DLA cataloging Handbook H4-1 of the activity assigning the ECP number.
- c. System designation. The system or higher level configuration item designation assigned by the Government shall be entered, if known.
- d. ECP number. Once an ECP number is assigned to the first submission of a change proposal, that number shall be retained for all subsequent submissions of that change proposal. Unless otherwise authorized by the government, one of the following methods of assigning ECP numbers shall be used:
 - (1) The numbers shall run consecutively commencing with number 1, for the entire company or corporation, or
 - (2) The numbers shall be assigned in a separate series for each system in which the contractor is participating.
 - (3) When an ECP is split into a basic ECP and related ECPs, the basic ECP shall be identified with the number prescribed above and each related ECP shall be identified by the basic number plus a separate dash number (see 4.8.3). The number of characters in the ECP number, dash, dash number, type, revision identification and correction identification shall not exceed 13.
- e. Type. Enter either a "P" for preliminary, or "F" for formal, in accordance with 4.4.1.1 or 4.4.1.2.
- f. Revision. If an ECP is being revised, enter the proper identification of the revision in accordance with 4.10. (The date shall be changed.)
- g. Correction. If an ECP is being corrected, enter the proper identification of the correction in accordance with 4.11. (The date shall not be changed.)

10.7 Block 6. Base line affected. Place an "X" in one or more of the boxes according to the base line or lines affected.

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10.8 Block 7. Other systems/configuration items affected. Enter an "X" in the "yes" or "no" block, as applicable, to indicate whether there is an interface effect with other systems or configuration items. Supply full details where required by the ECP form.

10.9 Block 8. Specifications affected - Test Plan. If specifications or test plans are affected by the ECP, their identity by FSCM of the design activity, document number, revision letter and applicable SCN or NOR number shall be entered.

10.10 Block 9. Drawings affected. Enter the indicated information relating to the highest level drawing affected. The FSCM to be entered is that of the design activity whose number is assigned to the listed drawing(s). Other significant drawings and all drawings directly referenced in the item specification(s) which are affected by the ECP shall be listed on an enclosure referenced in this block.

10.11 Block 10. Title of change. Enter a brief descriptive title indicating the purpose of the ECP.

10.12 Block 11. Contract no. and items. Enter the number of the prime contract and the item no. in the contract applicable to the configuration item shown in block 12.

10.13. Block 12. Configuration item nomenclature. Enter the government assigned name and type designation, if applicable, or authorized name and number of the configuration item(s) affected by the ECP.

10.14. Block 13. In production. The "yes" box shall be marked if deliveries have not been completed on the contract(s); whereas, the "no" box shall be marked if the deliveries have been completed.

* 10.15 Block 14. Name of part or lowest assembly affected. An appropriate, complete descriptive name of the part(s) shall be given here without resorting to such terms as "Numerous bits and pieces." For CPCI, enter the descriptive names and alphanumeric program identifier for each computer sub-program, computer-program component, or module affected.

* 10.16 Block 15. Part no. or type designation. The number(s) of the part(s) named (in block 14) shall be entered. For CPCI, enter the name of each affected procedure or subroutine for the items listed in block 14.

10.17 Block 16. Description of change. The description of the change which is proposed shall be given in sufficient detail to permit ready identification and evaluation and shall be phrased in definitive language such that, if it is repeated in the contractual document authorizing the change, it will provide the authorization desired. A description as to which part of the item or system is being changed and what

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type of change is being made shall be provided. Where space is not adequate, supplemental drawings and sketches shall be provided to the extent necessary to clearly portray the proposed change. If the proposed change is an interim solution, it shall be so stated.

10.18 Block 17. Need for change. Enter a comprehensive discussion of either the problem the ECP intends to correct, or the new capability the ECP intends to provide. The nature of the defect, failure, incident, malfunction, etc. substantiating the need for the change shall be described in detail. Full utilization shall be made of available failure data. If a new capability is to be provided, improvements in range, speed, performance, endurance, striking power, defensive or offensive capabilities, etc. shall be described in quantitative terms. Correspondence establishing requirements for the change and any testing accomplished prior to the submission shall be identified and summarized.

10.19 Block 18. Production effectivity. Enter the contractor's estimated production effectivity point for the change in terms of the production items, serial numbers, or other item identification as approved by the Government. Partial production installation of a change shall not be accomplished, unless specifically authorized by the Government. In determining the effectivity point for the proposed change, the contractor shall consider, in addition to the time factors, the availability of all support elements affected and the most economic point of incorporating the change consistent with all the salient factors involved. The earliest production incorporation is not the singular or most important factor in the establishment of a proposed change effectivity point. The effectivity point will be based on concurrent availability of all logistics support elements and materials affected by the change to the item.

10.20 Block 19. Effect on production delivery schedule. State the estimated delivery schedule of items incorporating the change, either in terms of days after contractual approval, or by specific dates contingent upon contractual approval by a specified date. If there will be no effect on the delivery schedule, so state.

NOTE: For a complex ECP, or for related ECPs, this delivery date will be repeated on the milestone chart, page 6, together with the schedule for other interrelated actions.

10.21 Block 20. Retrofit

- a. **Recommended item effectivity.** When the contractor recommends that the engineering change be accomplished in accepted items by retrofit (see block 40), the quantities and serial (or lot) numbers of accepted and unaccepted items in which the change will not be incorporated in production shall be entered in

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block 20A, or in a referenced enclosure. Such statement regarding items currently in production shall be based upon the estimated approval date of the ECP.

- b. Estimated kit delivery schedule. State estimated kit delivery schedule by quantity and date. When special tooling for retrofit is required for Government use, reference an enclosure in block 20b on which is specified the dates of availability of tools, jigs and test equipment required in conjunction with the kits to accomplish the change.
- c. Ship/vehicle class (classes) affected. When the delivered configuration item is installed in one or more ship/vehicle classes, enter the identification of such classes.
- d. Locations or ship/vehicle numbers affected. State the location(s) at which retrofit is to be accomplished. If retrofit is to be accomplished in ships (or in vehicles for which the serial numbers are not shown in block 20a), enter the ship hull numbers (or vehicle numbers).

10.22 Block 21. Estimated costs/savings under contract. Enter the total estimated costs/savings impact of the ECP on the contract for the subject configuration item. This figure normally will be the same as that in column 5, line e, of page 4.

10.23 Block 22. Estimated net total costs/savings, related ECPs. Enter the total estimated costs/savings impact of the basic and all related ECPs, including other costs/savings to the Government. This figure normally will be the same as that in column 4, line e, of page 5.

10.24 Block 23. Submitting activity authorized signature. An authorized official of the activity entered in block one shall affix his signature and title in this block. This indicates the ECP has the official sanction of the submitting activity.

* 10.25 Block 24. Government approval/disapproval. When a government representative recommends approval of a Class I ECP, a check is placed in block 24a and when authorized by the procurement contract to approve Class II changes before they are implemented by the contractor, the Government representative so designated shall record his decision in block 24b with his signature in 24c. When the procurement contract does not require Government approval of Class II changes, but the contractor chooses to use this form, the government representative may indicate his concurrence or nonconcurrence in classification in blocks 24b and 24c.

20. Engineering change proposal, page 2, effects on functional/allocated configuration identification, figure 2B. This page is to be completed only if the proposed change affects the system specification.

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or the item development specification(s). If a separate product function specification is used, effects on such specification of changes proposed after the product base line has been established shall be described either on page 3 (DD Form 1692-2) or on enclosures referenced thereon (see 30.3).

20.1 Originator (name and address). Repeat the entry from block 1 of page 1.

20.2 ECP No. Enter the same ECP number as in block 5d of page 1. If the ECP number is assigned on the basis of the system, the system designation also shall be given.

20.3 Block 25. Other systems affected. List by name and number any other systems affected by the proposed engineering change.

20.4 Block 26. Other contractors/activities affected. Identify the other contractors or government activities which will be affected by this engineering change.

20.5 Block 27. Configuration items affected. Enter the name and number of all configuration items, maintenance and operator training equipment and all support equipment affected.

20.6 Block 28. Effects on performance allocations and interfaces in system specification. Describe in this block the changes in performance allocations, functional interfaces and the configuration item breakdown of the primary functional areas which have been defined in the system specification.

* 20.7 Block 29. Effects on employment, integrated logistic support, training or operational effectiveness. Describe the proposed change in employment, deployment, logistics, and/or personnel and training requirements which have been specified in the approved system specification, including any changes or effects on the operability of the system. In addition, for CPCI identify/provide and explain the following:

- a. Any required changes to the data base parameters or values, or the data base management procedures,
- b. Any estimated effects of the proposed change on program execution time,
- c. An estimate of the net effect of the proposed change on available spare memory and, where pertinent, evaluate the criticality of the spare memory, and
- d. Any other relevant impact of the proposed change on utilization of computer resources.

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20.8 Block 30. Effects on configuration item specifications. The effect of the proposed change on performance shall be described in quantitative terms as it relates to the parameters contained in the configuration item development specifications (part one of two part specifications).

* 20.9 Block 31. Developmental requirements and status. When the proposed engineering change requires a major revision of the development program, the nature of the new development program shall be described in detail, including the status of programs already begun. In addition, for computer software, specific information shall be entered in this block to identify significant requirements for computer program redesign, recoding, repetition of testing, special installation, adaptation, checkout, or live environment testing, and to identify the specific impact of these factors on existing schedules for completion. The impact of the software change on hardware design and input/output (I/O) cabling shall also be detailed.

20.10 Block 32. Trade Offs and alternative solutions. A summary of the various solutions considered shall be included with an analysis showing the reasons for adopting the solution proposed by the ECP.

20.11 Block 33. Date by which contractual authority is needed. Enter the approval date required in order to maintain the established schedule.

30. Engineering change proposal, page 3, effects on product configuration identification, operations and logistics, figure 2C. Certain information required on this form also may have been required on pages 1 or 2. When already supplied, a cross-reference to such information will be adequate.

30.1 Originator (name and address). Repeat the entry from block 1 of page 1.

30.2 ECP No. Enter the same ECP number as in block 5d of page 1. If the number is assigned by system, include the system designation.

30.3 Block 34. Effect on product configuration identification. The effects on configuration item specifications shall be described by reference to the SCNs, NORs or other enclosure(s) which cover such proposed text changes in detail. The effects on performance, weight, moment, etc., which are covered in the enclosure(s), shall be indexed by proper identification adjacent to the factor affected. The effects on drawings, when not completely covered on page 1, shall be described in general terms by means of a referenced enclosure. Such enclosure may consist of a list of NORs if submittal of an NOR for each drawing affected is a requirement of the contract.

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30.4 Block 35. Effect on integrated logistic support elements.
The effects of the engineering change on logistic support of the item shall be indicated by checking the appropriate box. These effects shall be explained in detail on an enclosure indexed by appropriate identification adjacent to the subject under discussion. The information required shall indicate the method to be used to determine the integrated logistic support plans and items which will be required for the support of the new configuration as well as retrofitting previously delivered items to the same configuration. The following shall be covered as applicable:

- a. Effects on time, schedule and content of the ILS plan.
- b. Effect on maintenance concept and plans for the levels of maintenance.
- c. Extension/revision of the interim support plan.
- d. Spares and repair parts that are changed, modified, obsoleted or added.
- e. New operator and maintenance training requirements in terms of training equipment, trainers and training programs for operator and maintenance courses. This information should include identification of specific courses, equipment, technical manuals, personnel, etc. required to set up the course at either the contractor or government facility.
- f. Revised or new technical manual/programming tapes.
- g. Revised or new facilities requirements and site activation plan.
- h. New, revised, obsoleted or additional support equipment, test procedures and tapes. For items of support equipment and trainers which require change, furnish a cross reference to the related ECPs, and for any related ECP not furnished with the basic ECP, furnish a brief description of the proposed change(s) in SE and trainers.
- i. The qualitative and quantitative personnel requirements data shall be included which identify additions or deletions to operator or maintenance manpower in terms of personnel skill levels, knowledges and numbers required to support the configuration item as modified by the change.
- j. Any effect on contract engineering technical services that increases the scope or dollar limitation established in the contract.

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- k. Retrofit kits required for updating the item, its spares and repair parts, trainers, training equipment and support equipment.
- l. Requirements for new or changed verification or demonstration plans related to logistic support elements shall be explained.

30.5 Block 36. Effect on operational employment. The effects of the engineering change on configuration item utilization shall be indicated by checking the appropriate identification adjacent to the factor under discussion. Quantitative values shall be used whenever practicable.

30.6 Block 37. Other considerations. The effects of the proposed engineering change on the following shall be identified in detail on an enclosure indexed by appropriate identification adjacent to the factor affected:

- a. Interfaces having an effect on adjacent or related items, (output, input, size, mating connections, etc.).
- b. Designate contractor furnished equipment (CFE) or government furnished equipment (GFE) changed, modified or obsoleted.
- c. Physical constraints. Removal or repositioning of items, structural rework, increase or decrease in overall dimensions.
- d. Operational computer programs requiring a change to an existing program or addition of a new program.
- e. Other considerations as appropriate.

30.7 Block 38. Alternative solutions. The contractor shall determine if the problem for which the ECP was requested can be resolved by revised operation or maintenance procedures, revised inspection or servicing requirements, revised part replacement schedules, etc. The contractor shall state the advantages and disadvantages inherent in feasible alternative approaches to the problem.

30.8 Block 39. Developmental status. When applicable, the contractor shall make recommendations as to the additional tests, trials, installations, prototyping, fit checks, etc., which will be required to substantiate the proposed engineering change. This recommendation shall include the test objective and test vehicle(s) to be used. The contractor shall indicate the development status of the major items of GFE/CFE and SE which will be used in conjunction with the change. The contractor shall indicate the availability of the equipment in terms of the estimated production incorporation point and retrofit delivery dates.

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30.9 Block 40. Recommendation for retrofit. The contractor's recommendation for retrofit of the engineering change in accepted items with substantiating data and any implications thereto, and brief description of the steps necessary shall be included. Where retrofit is not recommended, an explanation of this determination shall be provided. Reference shall be made to any enclosure required to state recommended retrofit effectivity (see block 20a).

30.10 Block 41. Man hours per unit to install retrofit kit. Complete blocks 41a through 41d to show the amount of work which must be programmed for various activities to install the retrofit kit in the item which the ECP covers.

30.11 Block 42. Man hours to conduct system test after retrofit. Enter the man hours required to test the system or the item following installation of the retrofit kit.

30.12 Block 43. Where previously approved engineering changes must be incorporated in a specific order in relation to the proposed change, such order should be specified.

30.13 Block 44. Check applicable box. If "yes" attach proposed program for contractor participation.

30.14 Block 45. Out of service time. Estimate the total time period from removal of the equipment from operational service until equipment will be returned to operational status after being retrofitted.

30.15 Block 46. Summary of the effect of the proposed and previously approved changes on the item. The contractor shall summarize the cumulative effect upon performance, weight, electrical load, etc., caused by previously approved ECPs when design limitations are being approached or exceeded. Consequences of ECP disapproval may be stated in this block or in a referenced enclosure.

30.16. Block 47. Date by which contractual authority is needed. The contractor shall provide the date by which contractual authority to proceed is needed to maintain the estimated effectiveness specified in the ECP and to provide concurrent integrated logistics support and logistics support item deliveries.

40. Engineering change proposal, page 4, estimated net total cost impact, figure 2D. Page 4 is intended as the summary of the estimated net total cost impact of a single ECP, whereas page 5 is intended as the summary of the estimated net total cost impact of both the package of related ECPs and other associated new requirements which are needed to support the modified items. A few revised requirements for ILS, such as ILS plans (49c7 on page 5) and maintenance concept (49c8 on page 5) do not appear as headings on page 4. When only a single ECP is involved,

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these additional costs of revised ILS plans, etc. should be shown on page 4 under the ILS heading, and page 5 may be omitted. In blocks 48a through d, each cost factor associated with the ECP shall be considered as to whether such cost or portion thereof under the subject contract is recurring or non-recurring. Enter all cost/savings under the subject contract in columns 1 and 4, as applicable, using entries in the "unit" and "quantity" columns when appropriate. Savings shall be preceded by a minus sign. Other costs/savings to the Government resulting from approval of this ECP shall be entered in column 6 to the extent these costs can be determined by the contractor. This estimate of cost impact will be used for planning purposes and, for a cost reduction or value engineering ECP, analysis as to the net saving that would result. If a firm cost proposal is available, it may be submitted on DD Form 633-5, together with the appropriate cost breakdown. If an ECP affects items being delivered to more than one service, a separate page 4 shall be filled out for the quantities to be delivered to each service. Unless otherwise prescribed, costs of special tooling, scrap, redesign, etc. shall be divided between the using services on the basis of the percent of items furnished to each. The cost analysis applicable to each service shall be appropriately labeled at the top of the form. For CPCIs, page 4 shall not be used; however, net total cost estimates shall be based on all impact factors identified in the relevant blocks of DD Forms 1692 and 1692-1 and shall be reported as part of block 21. A separate sheet detailing the CPI's cost estimates and impact factors shall be attached to the DD Form 1692.

40.1 Originator (name and address). Repeat the entry from block 1 of page 1.

40.2 ECP No. Enter the same ECP number as in block 5d of page 1. If the number is assigned by system, include system designation.

40.3 Block 48a. Production costs. Enter the estimate of costs/savings applicable to production of the configuration item resulting from incorporation of the change. Show redesign costs for the configuration item on the line titled "engineering, engineering data revisions" when the item is in production. Enter the subtotal of production costs (both non-recurring and recurring) in the fifth column.

40.4 Block 48b. Retrofit costs. Enter the estimate of costs applicable to retrofit of the item, including installation and testing costs. Show design costs of the retrofit kit and data revision costs strictly related to retrofit when the configuration item is in production; show all redesign and data revision costs when the item is not in production. Costs of modifications required to existing GFE and subsequent testing also shall be shown. Enter the subtotal of retrofit costs in the fifth column.

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40.5 Block 48c. Integrated logistic support costs. Enter the estimated cost of the various elements of integrated logistic support (ILS) applicable to the item covered by the ECP. On the line titled "Interim support," estimated costs shall be entered based upon the period of time between initial installation/operation of the item (aircraft, tank, etc.) as modified by the ECP and Government attainment of support capability. Such "interim support" costs shall include costs estimates of contractor recommended/provided spares and repair parts, special support equipment, training equipment and personnel training programs. On the line titled "maintenance manpower" shall be entered the estimated costs/savings in maintenance personnel during a stipulated period (such as one year). Other ILS costs/savings associated with ILS elements for which appropriate titles do not appear in block 48c shall be entered in the blank lines of the form unless such costs are covered on page 5 (see paragraph 40) or in related ECPs. Enter the subtotal of ILS costs/savings in column 5.

40.6 Block 48d. Other costs. If there are other costs under the contract which do not fall under the production, retrofit or ILS headings, enter the total of such costs in block 48d, column 5. If there are other costs to the Government which do not fall under the production, retrofit or ILS headings for the subject item, or under block 48g (coordination changes by the Government), enter the total of such costs in block 48d, column 6.

40.7 Block 48e. Subtotal costs/savings. Enter the subtotals of columns 1, 4, 5 and 6 on this line. The subtotal in column 5 shall be the sum of columns 1 and 4. This subtotal under the contract then shall be entered on the line so titled in column 6.

40.8 Block 48f. Coordination changes by other contractors. This term applies to interface changes to items other than GFE, changes to GFE being covered under 48b. If such coordination changes are covered by related ECP's and summarized on page 5, the estimated costs thereof, shall not be entered in block 48f. However, if page 5 is not required, or if costs of certain coordination changes are not tabulated on page 5, an estimate of such costs shall be entered when available.

40.9 Block 48g. Coordination changes by Government. Enter in this block an estimate of the cost to the Government of interface changes which must be accomplished in delivered items (aircraft, ships, facilities, etc.) to the extent such costs are not covered in block 48b or on page 5.

40.10 Net total costs/savings. Enter the sum of the preceding four lines of column 6.

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50. Engineering change proposal, page 5, costs/savings summary, related ECPs, figure 2E.

50.1 Responsibility for preparation

- a. Prime contractor. The prime contractor shall summarize the costs/savings of all related ECPs which are his responsibility on page 5. If there is no system integrating contractor, the prime contractor submitting the basic ECP (see 4.8.4) also shall include the costs of related ECPs being submitted by other affected contractors to the extent such information is available.
- b. System integrating contractor. When a system integrating contractor (or coordinating contractor) has contractual responsibility for coordination of ECPs, such system integrating contractor shall summarize the costs of related ECPs of the several primes involved in an interface or interrelated ECP on page 5 (DD Form 1692-4) and shall attach this page to the ECP package.

50.2 Summarization techniques. The costs of certain related ECPs are entirely ILS costs. Thus costs of ECPs for trainers, other training equipment and support equipment shall be listed in toto under the "ILS costs" heading. Other ECPs (applicable to weapons, aircraft, tanks, subsystems thereof, etc.) shall be split into the four subtotals of "production," "retrofit," "ILS," and "other costs" for entry on page 5. The sum of the four subtotals attributed on page 5, column 3, to an individual ECP should agree with the subtotal of costs/savings under contract, line e, column 5 of page 4 of that ECP. Cost breakdowns should be arranged in such manner that costs/savings are neither included more than once on the summary nor omitted. The purpose of the grouping on the cost summary is to arrive at a total ILS cost, as well as a net total cost of all actions, for the complete group of related ECPs.

50.3 Originator (name and address). Enter information pertinent to the contractor or activity preparing this page.

50.4 ECP No. Enter the number of the basic ECP.

50.5 Block 49a. Production costs. Enter the ECP number and in columns 3 and 4 the production subtotals from columns 5 and 6 respectively, of block 48a of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc. (Note that total costs of ECPs on trainers, training equipment and support equipment are entered in block 49c.)

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50.6 Block 49b. Retrofit costs. Retrofit costs may be charged by the Government to production funds or maintenance funds or may be split between the two. The type of funds used depends upon the period in the item's life cycle and the organizational responsibility. If the practice of the procuring activity in this regard is known to the originator of page 5, retrofit costs shall be entered in, or split between, blocks 49b and 49cl, as appropriate. If such practice is unknown, enter in block 49b the ECP number and the retrofit subtotals from the columns 5 and 6 of block 48b of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc.

50.7 Block 49c. ILS costs. Enter retrofit costs in block 49cl, if appropriate (see 50.6). Enter in block 49c2 the ILS subtotals from columns 5 and 6 of block 48c of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc. As stated in 50.2, enter costs of ECPs for ILS items in toto in blocks 49c3, 4, 5 and 6. Enter costs of revision or preparation of ILS plans for the configuration item or complete system in block 49c7. Enter in block 49c9 costs of revision of the interim support plan to the extent such costs have not already been covered under block 48c of page 4 of the applicable ECPs. Enter in blocks 49cl0 through 49cl8 the costs of all new requirements for ILS not covered by ECPs, such costs being broken down into nonrecurring and recurring costs, as appropriate, and totalled in column 3.

50.8 Block 49d. Other costs. Enter in block 49d the sum of the "other costs" totals from columns 5 and 6 of block 48d of each ECP applicable to weapons aircraft, tanks, subsystems thereof, etc.

50.9 Subtotals of columns. Enter the subtotals of columns 3 and 4 on this line. The subtotal under contract(s) shall then be entered on the line so titled in column 4.

50.10 Estimated net total costs/savings. Enter the sum of the preceding two lines of column 4.

* 60. Engineering change proposal, page 6, milestone chart, figure 2F. See paragraphs 4.6.1.3 and 10.20 and figure 1 for information as to when page 6 is or is not required. An equivalent format may be substituted for page 6 (DD Form 1692-5) if an improved milestone chart for the particular application can be presented by use of the equivalent form. Milestone charts are required for CPCIs. Scheduling information associated with computer program changes shall replace the five categories under "Configuration Item." CPCI schedule items to be reported are: redesign, coding, debugging and preliminary qualification testing (PQT) and formal qualification testing (FQT).

60.1 Enter the originator's name and address, date, item name, title of change in the same manner as specified for the same information in Section 10.

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60.2 ECP No. Enter the number of the basic and related ECPs.

60.3 Enter symbols on the chart in the manner illustrated by figure 6 to show the time phasing of the various deliveries of items, support equipment, training equipment and documentation incorporating the basic and related ECPs. Enter other symbols and notations to show the initiation or termination of significant actions. All dates are based upon months after contractual approval of the basic ECP.

70. Facility ECPs

70.1 The word "FACILITY" shall be placed above the words "ENGINEERING CHANGE PROPOSAL" on the ECP form.

70.2 The following item on the noted block shall be deleted for a facility ECP:

a. Block 5 (a) - Model/type

70.3 The following additional clarifying instruction shall apply:

* 70.3.1 Block 5(b). Manufacturer's code. Enter the FSCM (see DLA Cataloging Handbook 114-1) of the facility contractor.

70.3.2 Block 12. Configuration item nomenclature. Each site shall be considered as a complete item. Insert the organizational designation, e.g., "567", "548", "OSTF #1".

70.3.3 Block 14. Name of part or lowest assembly affected. The appropriate name of the facility subsystem shall be entered. In production - Interpret as "sites under construction." Sites which have been turned over to the I&C contractor shall be considered sites to be retrofitted.

70.3.4 Block 18. Production effectivity by serial no. The organizational designation ("566", "548", "OSTF #1) where the change can be made during construction shall be inserted.

* 70.3.5 Block 20a. Recommended item effectivity. The organizational designation of sites affected where the change will require I&C or service action shall also be identified.

70.3.6 Block 31. Developmental requirements and status. In this portion of the ECP, the contractor shall specify whether architectural engineering (A&E) design is required and the date by which the complete design package is required.

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ENGINEERING CHANGE PROPOSAL, PAGE 6 (MILESTONE CHART)		DATE PREPARED		PROCURING ACTIVITY NO.	
(SEE MIL-STD-480 FOR INSTRUCTIONS)		3 Oct 1968			
ORIGINATOR AND ADDRESS		MIR CODE		ECF NUMBER	
A. B. SEE AIRCRAFT CORPORATION OKLAHOMA CITY, OKLAHOMA		99999		462-1	
CONFIGURATION ITEM NO. AND TITLE		TITLE OF CHANGE			
A 267 B AIRCRAFT		LANDING GEAR IMPROVEMENT			
DATE AUTHORIZATION TO PROCEED RECEIVED BY CONTRACTOR		30000 EXPLANATION			
		START DELIVERY		COMPLETE DELIVERY	
		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36	
NO. OF MONTHS					
PRODUCTION					
TECH. MANUALS/ PROC. TAPES		▽ SF 30		[S] [C]	
REPROFIT		▽ GOVT REP PLACES KIT CALL		[S] [C]	
WMD, TCIO, SC, ALT				[S] [C]	
SPARES/REPAIR PARTS		SICR SUB M		SICR SUB M	
PRODUCTION		N/A			
TECH. MANUALS/ PROC. TAPES		SF 30		[S] [C]	
REPROFIT		GOVT REP AUTH.		[S] [C]	
WMD, TCIO, SC, ALT				[S] [C]	
REPAIR PARTS		N/A			
OPERATOR				[S] [C]	
MAINTENANCE				[S] [C]	
NO. OF MONTHS		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36	

FIGURE 6. Sample milestone chart.

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APPENDIX B

INSTRUCTIONS FOR THE PREPARATION OF
REQUEST FOR DEVIATION UTILIZING
DD FORM 1694

* 80. Request for deviation/waiver, figure 3. Local reproduction of DD Form 1694 is authorized. As explained in the basic standard, this form or authorized alternative shall be completed when the contractor desires to be authorized to depart temporarily from the applicable technical requirements.

80.1 Block 1. Enter the name and address of the contractor, or government activity, submitting the request.

80.2 Block 2. Enter an "X" in the deviation box.

* 80.3 Block 3. The deviation shall be designated minor, major, or critical in accordance with the applicable definition of paragraphs 7.2.1, 7.2.2 or 7.2.3 by entry of an "X" in the proper box.

80.4 Block 4. Deviation designation. Paragraph 10.6 applies.

80.4.1 Block 4 a, b and c. Paragraphs 10.6 a, b and c apply.

80.4.2 Block 4 d. Deviation No. Paragraph 10.6 applies with the term "Request for Deviation" substituted for "ECP". The series of numbers assigned to requests for deviation shall be a separate series from those used for ECPs and NORs.

80.5 Block 5. Check applicable box if a base line is affected.

80.6 Block 6. Check applicable box.

80.7 Block 7. Specifications affected - test plan. If the deviation either is a deviation from or affects a specification or test plan, enter the identification of such document(s) (see 10.9).

80.8 Block 8. Drawings affected. If the deviation is a deviation from a drawing or drawings, enter the identification of such drawing(s) (see 10.10).

80.9 Block 9. Title of deviation/waiver. Enter a brief descriptive title.

80.10 Block 10. Contract no. and line item. Enter the number of the prime contract and the item no. in the contract applicable to the configuration item shown in block 11.

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80.11 Block 11. Configuration item nomenclature. Enter the government assigned name and type designation, if applicable, or authorized name and number of the configuration item to which the deviation will apply.

80.12 Block 12. CD No. If either a government or contractor's classification of defects (CD) applies, enter the number assigned.

80.13 Block 13. Defect No. If a CD applies, enter the defect number(s) which correspond(s) with the characteristic(s) from which an authorized deviation is desired.

80.14 Block 14. Defect classification. If a CD applies check the box which states the proper classification of the defect number(s) entered in block 13.

80.15 Block 15. Name of part or lowest assembly affected. An appropriate complete descriptive name of the part(s) shall be given here without resorting to such terms as "Numerous bits and pieces".

80.16 Block 16. Part No. or type designation. The number(s) of the part(s) named in block 15 shall be entered.

80.17 Block 17. Lot No. If lot numbers have been assigned the number(s) applicable to the lot(s) for which the deviation is requested shall be entered. Lot may also be defined by serial numbers of the applicable items.

80.18 Block 18. Quantity. Enter the quantity for which the deviation is proposed.

80.19 Block 19. Recurring deviation. Show whether the same deviation has been requested and approved for a previous contract or lot by placing an "X" in the proper box. If "yes," reference the previous correspondence and request number in block 23.

80.20 Block 20. Effect on cost/price. If a reduction in contract price, cost, or fee is being offered as a concession for the proposed authorized nonconformance with technical requirements, state the proposed reduction here. If no change in price, cost, or fee is considered equitable, so state.

80.21 Block 21. Effect on delivery schedule. State the effects on the contract delivery schedule that will result from approval and from disapproval of the request for deviation.

80.22 Block 22. Effect on integrated logistic support, interfaces, etc. If there is no effect on logistic support or interfaces, enter the words "No effect". If the deviation will have an impact on logistic

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support or interfaces, describe such effects on an enclosure and reference the enclosure in this block (see, however, 7.3.1).

80.23 Block 23. Description of deviation. Describe in detail the nature of the proposed departure from the technical requirements of the configuration identification. The deviation shall be analyzed to determine whether it affects any of the factors listed in block 34 through 37 on page 3, DD Form 1692-2. Describe any effect on each of these factors. Marked up drawings shall be included when necessary to a full explanation of the deviation.

80.24 Block 24. Need for deviation. Explain the reasons which make it impossible or unreasonable to comply with the configuration identification within the specified delivery schedule. Also explain why a deviation is proposed in lieu of a permanent design change. If the deviation is recurring, an explanation should be made as to the steps being taken to prevent a future recurrence.

80.25 Block 25. Production effectivity by serial number. When possible, the contractor shall provide the effectivity by serial number.

80.26 Block 26. Submitting activity authorized signature. An authorized official of the activity entered in block 1 shall sign in this block and enter his title.

80.27 Block 27. Government approval/disapproval. When a government representative is authorized by the procurement contract to approve minor deviations and when a deviation properly classified as minor is submitted, he shall enter his signature, the date, and the name of his activity in block 27. Such government representative shall record his decision by checking either the "approved" or "disapproved" box. If a government representative is delegated responsibility only for review of deviations of the classification (minor, major or critical) which applied, he shall either check the box recommending approval or shall write "recommend disapproval" in this space and shall forward the form to the procuring activity for final action.

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APPENDIX C

INSTRUCTIONS FOR THE PREPARATION OF
REQUEST FOR WAIVER UTILIZING DD FORM 1694

* 90. Request for waiver. A single DD Form 1694, figure 3, or authorized alternative shall be completed for one or more parts having the same part number for which a waiver of a common defect(s) is requested. Appendix B instructions are applicable with "WAIVER" substituted for "DEVIATION."

* 90.1 Block 3. The waiver shall be designated minor, major or critical in accordance with the applicable definition of paragraphs 8.2.1, 8.2.2 or 8.2.3 by entry of an "X" in the proper box.

90.2 Block 4d. Waiver No. Paragraph 10.6 applies with the term "Request for Waiver" substituted for "ECP." The series of numbers assigned to requests for waiver shall be a separate series from those used for ECPs, NORs and deviations.

90.3 Block 26. Signature. Authorized representatives of both the quality and engineering departments of the activity requesting the waiver shall sign in this block.

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APPENDIX D

INSTRUCTIONS FOR PREPARATION OF NOTICE
OF REVISION DD FORM 1695

* 100. Notice of revision (NOR), figure 4. Local reproduction of DD Form 1695 is authorized. See 5.1 for applicability of NORs.

100.1 Block 1. Enter the name and address of the contractor, or government activity, submitting the proposed NOR.

100.1.1 Date. Enter the date of submittal of the NOR.

* 100.1.2 Mfr. code. Enter the FSCM of the activity whose NOR number is assigned.

100.1.3 NOR No.. Unless the use of a government assigned number is prescribed, the originator shall either assign a number for his (its) own NOR series, or enter the document number and new revision letter as the NOR number.

100.2 Block 2. Title of document. Enter either the title of the document to which the NOR applies, or an abbreviation of such title.

* 100.3 Block 3. Mfr. code. Enter the FSCM which appears on the document to which the revision applies.

100.4 Block 4. Document number. Enter the number of the drawing, standard, list or specification to be revised.

100.5 Block 5. Revision

- a. Current. Show the revision letter applicable to the latest known revision of the document.
- b. New. Show the revision letter proposed for the revision covered by the NOR. Usually the new letter will be the one following the current letter in alphabetical sequence, unless there are known outstanding NORs which may have not been incorporated.

NOTE: The Government approving activity may change the new revision letter proposed by the contractor in order to retain a proper sequence of approved revisions.

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100.6 Block 6. ECP No. Enter the number of the ECP describing the engineering change which necessitates the document revision covered by this NOR. If the activity preparing the referenced ECP assigned ECP numbers by weapons systems, include the weapon system designation with the ECP number.

100.7 Block 7. Configuration item (or system) to which ECP applies. Enter government assigned system designation (if any); otherwise, enter the name and type designation of the configuration item to which the ECP applies (see blocks 5c, 5a and 12 on ECP form).

100.8 Block 8. Description of revision. Describe the revision in detail, giving the exact wording of sentences or paragraphs that are to be added, or that are to replace designated sentences or paragraphs of the current document. State the dimensions, tolerances and other quantitative requirements that are to replace current requirements. Attach a marked print when necessary to clearly explain the desired revision.

SECTION 9 - FOR GOVERNMENT USE ONLY

100.9 Block 9 (A). The government approving activity will enter an "X" in the first box if manufacture may proceed using the existing document as modified by this NOR. If so, a copy of the approved NOR will be furnished both to the contractor submitting the ECP and to the custodian of the master document. The government approving activity will enter an "X" in the second box if the contractor is not authorized to incorporate the change proposed by the submitted NOR until receipt of the revised document.

When the custodian of the master document has not been furnished a standard distribution list for the subject configuration item (or system), the government approving activity will check the third box and will enter instructions to the custodian regarding distribution of copies of the revised document. Such instructions may be in this space if there is sufficient room; otherwise, the distribution list may be entered above block 9, on a referenced enclosure, or in a letter of transmittal.

100.10 Block 9 (B)

100.10.1 Activity authorized to approve change. The name of the activity authorized to approve the ECP and the associated NORs for the Government will be entered by such activity.

100.10.2 Signature. If the referenced ECP is approved and the NOR also is approved as written or corrected, an authorized representative of the government approving activity shall sign in this block, including entry of the date of approval.

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100.11 Block 10

100.11.1 Activity accomplishing revision. The name of the activity (custodian) that is directed to make the revision in the master document will be entered by the approving activity.

100.11.2 Revision completed. An authorized representative of the custodian shall sign in this block to certify that the revision described by the NOR has been accomplished, including entry of the date of the accomplishment.

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APPENDIX E
DEFINITIONS

110.1 Advanced development. Includes all projects which have moved into the development of hardware for experimental or operational test. (DOD INST 3200.6)

110.2 Allocated configuration identification (ACI). Current, approved performance oriented specifications governing the development of configuration items that are part of a higher level CI, in which each specification (a) defines the functional characteristics that are allocated from those of the higher level CI, (b) establishes the tests required to demonstrate achievement of its allocated functional characteristics, (c) delineates necessary interface requirements with other associated configuration items, and (d) establishes design constraints, if any, such as component standardization, use of inventory items, and integrated logistic support requirements. (DOD Directive 5010.19)

110.3 Base line. A configuration identification document or a set of such documents formally designated and fixed at a specific time during a CI's life cycle. Base lines, plus approved changes from those base lines, constitute the current configuration identification. For configuration management there are three base lines, as follows:

- a. Functional base line. The initial approved functional configuration identification.
- b. Allocated base line. The initial approved allocated configuration identification.
- c. Product base line. The initial approved or conditionally approved product configuration identification. (DOD Directive 5010.19)

* 110.4 Code identification number (FSCM). A five digit number listed in Cataloging Handbook H4-1, Federal Supply Code for Manufacturers, which is assigned to activities that manufacture or develop items for the Federal Government. When used with an ECP number, the FSCM designates the contractor or Government agency from whose series the ECP number is assigned. When used with a drawing number or part number, the FSCM number designates the design activity from whose series the drawing or part number is assigned.

110.5 Configuration. The functional and/or physical characteristics of hardware/software as set forth in technical documentation and achieved in a product. (DOD Directive 5010.19)

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110.6 Configuration control. The systematic evaluation, coordination, approval or disapproval, and implementation of all approved changes in the configuration of a CI after formal establishment of its configuration identification. (DOD Directive 5010.19)

110.7 Configuration identification. The current approved or conditionally approved technical documentation for a configuration item as set forth in specifications, drawings and associated lists, and documents referenced therein. (DOD Directive 5010.19)

110.18 Configuration item (CI). An aggregation of hardware/software, or any of its discrete portions, which satisfies an end use function and is designated by the Government for configuration management. CIs may vary widely in complexity, size and type, from an aircraft, electronic or ship system to a test meter or round of ammunition. During development and initial production, CIs are only those specification items that are referenced directly in a contract (or an equivalent in-house agreement). During the operation and maintenance period, any reparable item designated for separate procurement is a configuration item. (DOD Directive 5010.19)

* 110.9 Configuration management. A discipline applying technical and administrative direction and surveillance to (a) identify and document the functional and physical characteristics of a configuration item, (b) control changes to those characteristics, and (c) record and report change processing and implementation status. (DOD Directive 5010.19)

110.10 Configuration status accounting. The recording and reporting of the information that is needed to manage configuration effectively, including a listing of the approved configuration identification, the status of proposed changes to configuration, and the implementation status of approved changes. (DOD Directive 5010.19)

110.11 Contract. The legal agreement between DOD and industry, or similar internal agreement wholly within the Government, for the development, production, maintenance or modification of an item(s).

110.12 Contractor. An individual, partnership, company, corporation, or association having a contract with the procuring activity for the design, development, design and manufacture, manufacture, maintenance, modification or supply of items under the terms of a contract. A government activity performing any or all of the above actions is considered to be a contractor for configuration management purposes.

110.13 Deleted

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

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110.14.1 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.

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

110.15 Critical item. An item within a configuration item (CI) which, because of special engineering or logistic considerations, requires an approved specification to establish technical or inventory control at the component level.

110.16 Data (technical data and information). The means for communication of concepts, plans, descriptions, requirements, and instructions relating to technical projects, materiel, systems, and services. These may include specifications, standards, engineering drawings, associated lists, manuals, and reports, including scientific and technical reports; they may be in the form of documents, displays, sound records, punched cards, and digital or analog data. (DOD INST 5010.12)

* 110.17 Deficiencies. Deficiencies consist of two types: (a) conditions or characteristics in any hardware/software which are not in compliance with specified configuration, or (b) inadequate (or erroneous) configuration identification which has resulted, or may result, in configuration items that do not fulfill approved operational requirements. (DOD Directive 5010.19)

110.18 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 specific 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.

110.18.1 Minor deviation (see 7.2.1)

110.18.2 Major deviation (see 7.2.2)

110.18.3 Critical deviation (see 7.2.3)

110.19 Engineering change. An alteration in the configuration of a configuration item or item, delivered, to be delivered, or under development, after formal establishment of its configuration identification.

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110.19.1 Class I engineering change (see 4.2.1)

110.19.2 Class II engineering change (see 4.2.2)

110.20 Engineering change justification code. A code which indicates the reason for a Class I engineering change. (See 4.3.2 subparagraphs for individual codes.)

110.21 Engineering change priorities. The rank assigned to a Class I engineering change, which determines the methods and resources to be used in review, approval and implementation.

110.21.1 Emergency (see 4.5.1)

110.21.2 Urgent (see 4.5.2)

110.21.3 Routine (see 4.5.3)

110.22 Engineering change proposal (ECP). A term which includes both a proposed engineering change and the documentation by which the change is described and suggested.

110.23 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.

110.23.1 Preliminary ECP (see 4.4.1.1)

110.23.2 Formal ECP (see 4.4.1.2)

110.24 Engineering development. Includes those development programs being engineered for service use but which have not yet been approved for procurement or operation. (DOD INST 3200.6)

110.25 Facility. Any fixed installation which is an intimate part of a system. This includes real property installed equipment (RPIE).

110.26 Form, fit and function. That configuration comprising the physical and functional characteristics of the item as an entity but not including any characteristics of the elements making up the item. (DOD Directive 5010.19)

110.27 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.

110.28 Functional characteristics. Quantitative performance, operating and logistic parameters and their respective tolerances. Functional characteristics include all performance parameters, such as

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range, speed, lethality, reliability, maintainability, and safety. (DOD Directive 5010.19)

110.29 Functional configuration audit. The formal examination of functional characteristics' test data for a configuration item, prior to acceptance, to verify that the item has achieved the performance specified in its functional or allocated configuration identification. (DOD Directive 5010.19)

110.30 Functional configuration identification (FCI). The current approved technical documentation for a configuration item which prescribes (a) all necessary functional characteristics, (b) the tests required to demonstrate achievement of specified functional characteristics, (c) the necessary interface characteristics with associated CIs, (d) and CIs key functional characteristics and its key lower level CIs, if any, and (e) design constraints, such as, envelope dimensions, component standardization, use of inventory items, integrated logistics support policies. (DOD Directive 5010.19)

110.31 Hardware/software. Hardware or software, or a combination of both, in which the software includes only that associated with hardware for operational use, e.g., computer programs for command and control, handbooks for operations, maintenance, etc., and excludes fabrication specifications, drawings, etc. (DOD Directive 5010.19)

110.32 Integrated logistic support (ILS). A composite of the elements necessary to assure the effective and economical support of a system or equipment at all levels of maintenance for its programmed life cycle. The elements include all resources necessary to maintain and operate an equipment or weapons system, and are categorized as follows: (a) planned maintenance, (b) logistic support personnel, (c) technical logistic data and information, (d) support equipment, (e) spares and repair parts, (f) facilities, and (g) contract maintenance. (DOD Directive 4100.35)

110.33 Interchangeability, substitutability and replaceability. The definitions of "interchangeable item", "substitute item" and "replacement item" in MIL-STD-280 apply.

110.34 Item. (When the term is used without a modifier). Any level of hardware assembly below a system; i.e., subsystem, equipment, component, subassembly or part. Also see "configuration item", "critical item", and "privately developed item."

110.35 Key functional characteristics. Those functional characteristics that critically affect the configuration item's satisfactory fulfillment of the operational requirements; for example, a transport aircraft's payload/range characteristics. (DOD Directive 5010.19)

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110.36 Manufacturer's code (FSCM). (see 110.4)

110.37 Notice of revision (NOR). A form used to propose revisions to a drawing or list, and, after approval, to notify users that the drawing or list has been, or will be, revised accordingly. (This also applies to a specification when a SCN is not applicable. See 4.8.7.1.2)

110.38 Operational systems development. Includes a research and development effort directed toward development, engineering and test of systems, support programs, vehicles and weapons that have been approved for production and service employment. (DOD INST 3200.6)

110.39 Original (master) drawing. The initial drawing or copy thereof on which is kept the revision record recognized as official by the design activity.

110.40 Physical characteristics. Quantitative and qualitative expressions of material features, such as composition, dimensions, finishes, form, fit, and their respective tolerances. (DOD Directive 5010.19)

110.41 Physical configuration audit (PCA). The formal examination of the "as-built" configuration of a unit of a CI against its technical documentation in order to establish the CI's initial product configuration identification. (DOD Directive 5010.19)

110.42 Privately developed item. An item completely developed at private expense and offered to the Government as a production article, with government control of the article's configuration normally limited to its form, fit and function. (DOD Directive 5010.19)

110.43 Product configuration identification (PCI). The current approved or conditionally approved technical documentation which defines the configuration of a CI during the production, operation, maintenance, and logistic support phases 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 tests. (DOD Directive 5010.19)

110.44 Retrofit. Incorporation of an engineering change (at any level) in accepted or in-service items.

110.45 Spares and repair parts. Spares are components or assemblies used for maintenance replacement purposes in major end items of equipment. Repair parts are those "bits and pieces," e.g., individual parts or nonreparable assemblies, required for the repair of spares or major end items. (DOD Directive 4100.35)

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110.46 Specification. A document intended primarily for use in procurement, which clearly and accurately describes the essential technical requirements for items, materials or services including the procedures by which it will be determined that the requirements have been met. (DOD Directive 4120.3)

110.46.1 General specification. A document which covers the requirements common to different types, classes, grades and/or styles of items or services.

110.46.2 Detail specification. A document which covers (either within itself or by referencing and supplementing a general specification) the complete requirements for only one type of item, or for a limited number of types, classes, etc. of similar characteristics.

110.46.3 System specification. A document which states the technical and mission requirements for a system as an entity, allocates requirements to functional areas (or configuration items), and defines the interfaces between or among the functional areas.

110.46.4 Development specification. A document applicable to an item below the system level which states performance, interface and other technical requirements in sufficient detail to permit design, engineering for service use, and evaluation.

110.46.5 Product specification. A document applicable to a production item below the system level which states item characteristics in a manner suitable for procurement, production and acceptance.

110.46.5.1 Function (performance). A product specification which states (a) the complete performance requirements of the product for the intended use, and (b) the necessary interface and interchangeability characteristics. It covers form, fit and function.

110.46.5.2 Fabrication (design). A product specification which states (a) a detailed description of the parts and assemblies of the product, usually by prescribing compliance with a set of drawings, and (b) those performance requirements and corresponding tests and inspections necessary to assure proper fabrication, adjustment, and assembly techniques.

110.47 Specification change notice (SCN). A document used to propose, transmit and record changes to a specification. In proposed form, prior to approval, the SCN (P) supplies proposed changes in the text of each page affected.

110.48 Subcontractor. A subcontractor is an individual, partnership, corporation, or association, who (which) contracts with a contractor to design, develop, design and manufacture, manufacture items, which are, or were, designed specifically for use in a military application.

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110.49 Support equipment (SE). Support equipment is that equipment required to make an item, system, or facility operational in its intended environment. This includes (a) all equipment required to maintain and operate the item, system or facility including aerospace ground equipment (AGE), and ground support equipment and (b) computer programs related thereto.

110.50 System. A composite of subsystems, assemblies (or sets), skills, and techniques capable of performing and/or supporting an operational (or non-operational) role. A complete system includes related facilities, items, material, services, and personnel required for its operation to the degree that it can be considered a self-sufficient item in its intended operational (or non-operational) and/or support environment.

110.51 Training equipment. All types of maintenance and operator's training hardware, devices, visual/audio training aids and related software which (a) are 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.

110.52 Unit. One complete configuration item. For example, one F-111A of a total quantity of 100 F-111A's. (DOD Directive 5010.19)

110.53 Vendor. A vendor is a manufacturer or supplier of a commercial item.

110.54 Waiver. A written authorization to accept a configuration item or other designated items, which during production or after having been submitted for inspection, are found to depart from specified requirements, but nevertheless are considered suitable for use "as is" or after rework by an approved method. (DOD Directive 5010.19)

110.54.1 Minor waiver (see 8.2.1)

110.54.2 Major waiver (see 8.2.2)

110.54.3 Critical waiver (see 8.2.3)

110.55 Work breakdown structure (WBS). A product-oriented family tree, composed of hardware, software, services and other work tasks, which results from project engineering effort during the development and production of a defense materiel item, and which completely defines the project/program. A WBS displays and defines the product(s) to be developed or produced and relates the elements of work to be accomplished to each other and to the end product. (DOD Directive 5010.19)

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* 110.60 Acronyms

ACI	Allocated configuration item
A&E	Architectural engineering
AGE	Aerospace ground equipment
AQL	Acceptable quality level
CD	Classification of defects
CFE	Contractor furnished equipment
CI	Configuration item
CPCI	Computer program configuration item
DOD	Department of Defense
ECP	Engineering change proposal
EID	End item description (now ECP)
GFE	Government furnished equipment
FCI	Functional configuration item
FSCM	Federal supply code for manufacturers
I&C	Installation and checkout
ILS	Integrated logistics support
I/O	Input/output
MIPR	Military interdepartmental purchase request
MRB	Material review board
NOR	Notice of revision
PCA	Physical configuration audit
PCI	Product configuration identification
RPIE	Real property installed equipment
SE	Support equipment
SCN	Specification change notice
WBS	Work breakdown structure

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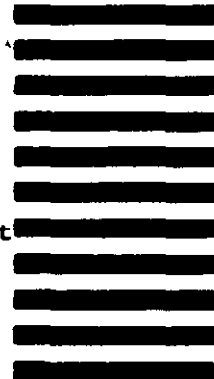
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