

APPENDIX VIII

80. ENGINEERING CHANGES (EQUIPMENT)

80.1 Purpose. This appendix provides information for configuration control of engineering changes. MIL-STD-480 should be referenced for further information. These instructions pertain to all engineering changes to hardware. Engineering changes to computer software are covered in Appendix IX of this standard.

80.2 Scope. This appendix establishes unique provisions for engineering changes to the functional baseline as reflected in the system/segment or HWCI specification, the allocated baseline as reflected in the hardware development specifications, and the product baseline as reflected in the hardware product specifications. The baseline established in the contract is changed only by Class I ECPs approved by the procuring activity and incorporated in the contract by contract change documentation.

80.3 Requirement for engineering changes. The contractor shall not incorporate any engineering change in a configuration item as described in the configuration identification prescribed by the contract, unless request for an engineering change has been submitted to, and approved by FAA, as set forth herein. Contractual authorization will be required prior to the incorporation of an engineering change proposal (ECP) when affects cost, fee, schedule technical requirements, or training methodology.

80.3.1 Priorities of action. ECPs shall be classified as Emergency, Urgent, and Routine with approval periods as follows: Emergency - 24 hours; Urgent 15 calendar days; Routine - 30 calendar days. An engineering change may be expedited, if in the judgment of the contractor it requires immediate action. The contractor may initiate the ECP by Teletype, by telephone, or personal contact, to be followed by the contractor's written statement within 3 days. If the initial reaction by the addressee to the ECP is favorable, a formal ECP in accordance with this standard shall be submitted as soon as practicable, but not later than 30 days after the first communication. Verbal authorization for an emergency change shall be restricted to the FAA contracting officer.

80.3.2 Revision or correction. When an engineering change requires revision or correction, the contractor shall submit a revised ECP proposal with a new date, the original ECP number followed by "-R1". Subsequent revisions or corrections shall be identified as "-R2", "-R3", etc.

80.3.3 Coverage. A separate ECP shall be prepared for each engineering change. Unrelated engineering changes shall not be covered by the same ECP.

80.3.4 Engineering changes affecting fielded equipments. When engineering changes affect both equipments in production and equipments that are operational in the field, an electronic equipment modification order in accordance with appendix 6 and/or appendix 7 of the latest edition of FAA Order 1320.33 shall be submitted with the ECP.

80.3.5 Submittal. The contractor shall provide the FAA technical officer with a minimum of four (4) copies unless otherwise specified in the contract. Supporting technical documentation shall be attached to each ECP. An additional copy shall be submitted to the resident Quality Reliability Officer (QRO), if assigned.

80.3.6 Approval/disapproval. The approval or disapproval of an ECP will be achieved by:

- a. The signature on the ECP form of an authorized representative of the government activity, or of a review activity delegated such authority, and by the return of approved or disapproved copies to the contractor.
- b. Contractual authorization when the ECP affects the contract.

80.4 ECP classification. ECPs are classified as either Class I or Class II, as defined in 80.4.1 and 80.4.2. When the contractor has established the purpose and necessity for an ECP, assignment will be made to the appropriate ECP classification. If the contract document requires the use of the ECP Long Form defined in this appendix, the contractor must use the long form for all engineering changes requiring Government concurrence in classification or approval, regardless of classification. If the contract document does not require use of the long form, the contractor may use an original form where an engineering change proposal is submitted to the Government for concurrence in classification only. The Government may concur or nonconcur with the originator's ECP classification.

80.4.1 Class I engineering change proposals. An ECP shall be designated as Class I when one or more of the following factors are affected:

- a. The functional or allocated configuration identification
- b. The product configuration identification as contractually specified
- c. Technical requirements below those contained in the product configuration identification, including referenced drawings, as contractually specified, for example:
 - (1) Performance outside stated tolerance
 - (2) Reliability and maintainability outside stated tolerance

- (3) Weight, balance, moment of inertia
 - (4) Interface characteristics
- d. Nontechnical contractual provisions:
 - (1) Fee
 - (2) Cost
 - (3) Schedules
- e. Other factors
 - (1) Government Furnished Equipment (GFE)
 - (2) Safety
 - (3) Electromagnetic characteristics
 - (4) Operational tests or maintenance computer programs
 - (5) Compatibility with support equipment, trainers or training equipment
 - (6) Configuration to the extent that retrofit action would be taken
 - (7) Delivered operation or maintenance manuals for which adequate change/revision funding is not available on existing contracts
 - (8) Preset 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 configuration items and to all subassemblies and parts of repairable configuration items but excluding the pieces and parts of nonrepairable subassemblies
 - (10) Sources of configuration items or repairable items at any level defined by source control drawings.

80.4.2 Class II engineering change proposal. An engineering change proposal will be designated as a Class II ECP when it does not fall within the classification of Class I engineering change proposal as defined in this appendix. Examples of a Class II engineering change proposals are: a change in documentation only, such as correction of errors; addition of clarifying

notes or illustrations; or a change in hardware which does not affect any factor in paragraph 80.4.1 of this appendix. 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 other contractors. Therefore, it is imperative that all engineering changes be fully coordinated with all affected parties.

80.5 Multiple HWCI ECPs. When more than one HWCI is affected by a change under the cognizance of a single contracting agency, a single ECP with separate dash numbers for each HWCI may be used in lieu of separate ECPs for each HWCI.

80.6 Deviation. A contractor may request authority before the fact to temporarily deviate from the mandatory requirements of the configuration identification. Items shall not be delivered that incorporate a known departure from documentation unless a request for a deviation has been processed in accordance with this standard, or unless otherwise permitted contractually. At the option of the Government, an engineering change proposal (ECP) may be converted to a deviation or a deviation may be converted to an ECP.

80.6.1 Significant factors. The following significant factors must be considered in the evaluation of a deviation:

- a. Health
- b. Safety
- c. Item performance
- d. Interchangeability, reliability, or maintainability of the item or its repairable parts
- e. Effect on operation/operational acceptability
- f. Weight and size
- g. Appearance
- h. Training effectiveness and efficiency
- i. Cost to the Government
- j. Schedule impact.

80.6.2 Restrictions on deviations. Deviations adversely affecting health or safety shall not be submitted. Requested deviations which would affect service, operation, or maintenance should not be submitted or authorized as deviations. Such effects, if approved, should be covered by appropriate revisions in drawings and technical manuals. Therefore, they should be requested and processed as engineering change proposals.

80.6.3 Submittal. Each request for deviation with supplemental drawings and information enclosed shall be submitted to the FAA Contracting Officer with copies to the resident Quality and Reliability Officer (QRO).

80.6.4 Review and approval. Unless otherwise specified in the contract, deviations which do to affect any factor listed in paragraph 80.6.1 shall be approved or disapproved by the FAA Contracting Officer. Review and approval of deviations may be delegated to the resident QRO.

80.7 Waivers. A contractor shall not deliver a manufactured item to the Government that does not conform to the configuration identification, unless a waiver has been processed and authorized in accordance with this standard, or unless permitted contractually. Supplies or services which do not conform in all respects to the contract requirements shall be rejected.

80.7.1 Restrictions on waivers. Waivers adversely affecting health and safety shall not be authorized.

80.7.2 Submittal. Each request for waiver with supplemental drawings and information enclosed shall be submitted to the FAA Contracting Officer With copies to the QRO. All waivers shall be submitted on DD Form 1694. Preparation of the waiver will be in accordance with MIL-STD-480, Appendix C. Paragraph 50.1.9.1 (block 9a, Weapon System code or designation) does not apply. The contractor requesting a waiver may subject to providing consideration to the government in accordance with the procedures specified in the contract.

80.7.3 Review and approval. Unless otherwise specified in the contract, waivers which do not affect any factor listed in paragraph 80.6.1 shall be approved by the FAA Contracting Officer. Review and approval of waivers may be delegated to the resident QRO.

80.8 Engineering change proposals, deviations, and waivers. A flow chart for the processing of ECPs, deviations, and waivers is shown in figure 8.

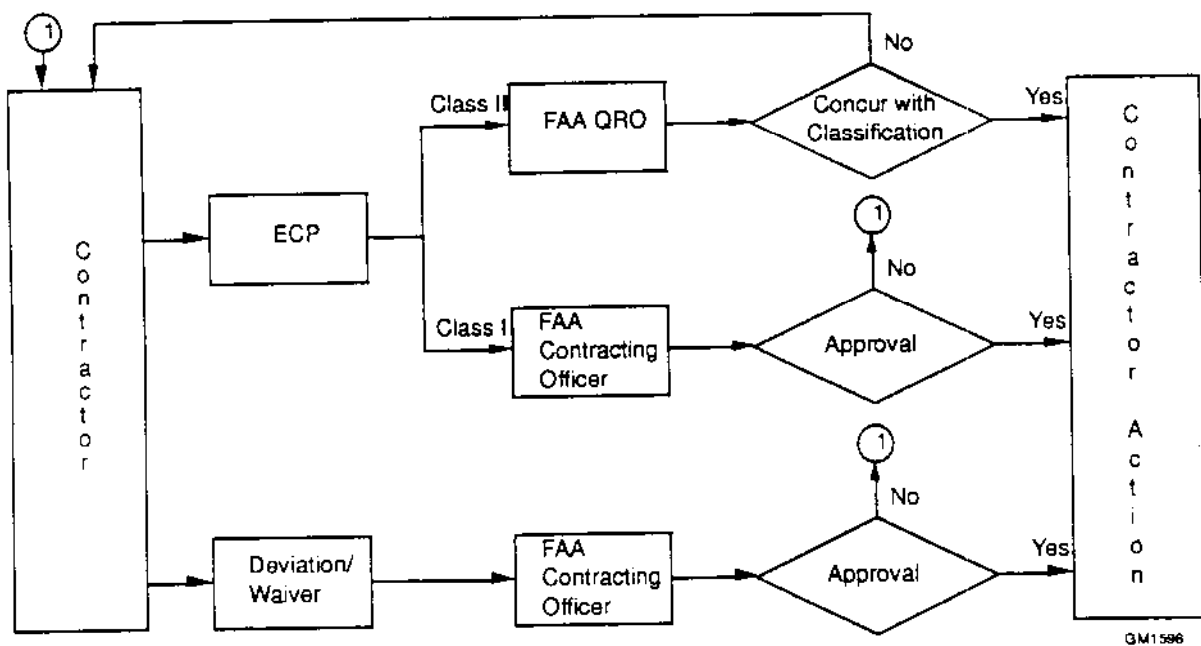


Figure 8 Flow Chart for Engineering Change Proposal, Deviations and Waivers