F-16 Multirole Fighter Aircraft Program

Supplier Configuration Management Requirements

Prepared and Approved for Release by:

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1. INTRODUCTION

It is the policy of LMTAS (hereafter referred to as "Buyer"), whether operating within a military or commercial environment, to maintain a high level of configuration management (CM) control over its deliverable and non-deliverable products. The products of our suppliers shall be consistent and reliable in their performance, form, fit, function, interface control, testability and supportability.

1.1   This document establishes the CM requirements necessary to satisfy the Seller's purchase order. The Seller shall in turn properly flow these requirements down to applicable suppliers.

1.2   This document accommodates the following prime contracting types to be used regardless of which method or contract is chosen:

- foreign military sale

- performance based/acquisition reform

- commercial/contractor logistics support

1.3   The matrix provided in Paragraph 2.1 describes the specific requirement paragraphs for each of the following supplied item classifications:

1.3.1   <u>Configuration Item Supplier</u> - supplier of an item designated by the Buyer as a configuration item. Full requirements are invoked for this classification of supplier.

1.3.2   <u>Non-Configuration Item Supplier</u> - supplier of an item that has not been designated as a configuration item. The need for configuration audits and additional status accounting tracking is not required.

1.3.3   <u>Build-To-Print Item Supplier</u> – supplier of an item that is manufactured to the Buyer's technical data package. These items have been previously developed and qualified by the Buyer. Requirements are greatly diminished for these suppliers due to reduced risk.

The Seller's purchase order will identify the classification applicable to his product.

1.4   The following military and industry standards are referenced herein:

EIA-649   National Consensus Standard for Configuration Management

MIL-STD-973   Configuration Management

2.1   The configuration management requirements by item classification are as follows:

Paragraph Number	Configuration Item	Non-Configuration Item	Build to Print Item
1	X	X	X
1.1	X	X	X
2.2	X	X	X
2.3	X	X	X
2.4	X	X	X
2.5	X	X	2.5.4 and 2.5.5 only
2.6	X	X	
2.7	X	X	
2.8	X	X	X
2.9	X	X	X
2.10	X	X	X
2.11	X		
2.12	X	X	X
2.13	X		

x - denotes the entire requirement paragraph must be satisfied by the Seller

2.2   ORGANIZATION

The Seller shall assign one person as the focal point within the organization to assure requirements stated herein are satisfied.

2.3   CONFIGURATION MANAGEMENT PROCESS

The Seller shall certify, through submittal a letter of certificate, that they and their suppliers have a process in place for ensuring compliance to the requirements stated herein.   The Seller's configuration management process shall be documented in the form of internal procedures, instructions or a plan. This documentation shall be provided to the Buyer for review, upon request. In those cases where the Buyer determines that preparation of a configuration management plan is appropriate, the requirements will be included in the Supplier Data Requirement List (SDRL).

2.4   SURVEILLANCE REVIEWS

The Buyer reserves the right to conduct periodic reviews of the Seller's configuration management process to verify it consistently meets the requirements stated herein. These reviews will be conducted in a non-disruptive manner to avoid adverse delays in Seller's performance. This may include a review of the Seller's suppliers.

The Seller shall correct, at no cost to the Buyer, any process element that would preclude compliance with the requirements stated herein.

2.5   CONFIGURATION IDENTIFICATION

The Seller's internal configuration management process, policies and procedures shall meet the minimum standards for identification and control set forth in Appendix I.

2.5.1   Drawings and Associated Lists

The Seller shall prepare and maintain engineering drawings and associated lists in accordance with the requirements set forth in the Supplier Data Requirement List (SDRL).

Following acceptance and delivery of the first production unit, or establishment of the product baseline, all revisions to engineering drawings and associated lists will be processed and submitted in accordance with the SDRL. The Seller shall retain engineering documentation revision history.

2.5.2   Item Identification

The Seller shall comply with the requirements identified in Appendix II for item numbering and the identification of all engineering, manufacturing and other technical data and the products manufactured.

2.5.3   Part Numbering

The Seller shall assign and revise part numbers in accordance with the requirements set forth in Appendix III.

2.5.4   Serialization

Serialization of the air vehicle (CIs, LRUs, assemblies and components) and trainers shall be in accordance with Appendix IV.

2.5.5   Product Marking

Equipment, assemblies, and components shall be marked for identification as specified in Appendix V.

2.6   SPECIFICATIONS

    2.6.1   Specification Change

The Seller shall correct or update specifications set forth in the purchase order using either a change or revision.   A proposed change to a Buyer-controlled specification shall be processed as an Engineering Change Proposal (ECP) with:

The attached Specification Change Notice (SCN) and affected changed pages (refer to Paragraph 2.7.1 for major change processing). The Seller shall use the SCN format in MIL-STD-973 or equivalent format if it includes the same information.

A revision consists of a complete re-issue of the entire specification, all pages being identified by the same applicable revision letter. A revision shall be used if 50% or more of the specification pages are affected by the correction or update. Otherwise, use of a SCN is appropriate.

    2.6.2   Buyer-Controlled Lower Tier Specifications

The Seller shall process a minor variance in accordance with Paragraph 2.8 and the SDRL to request approval to use versions of U.S. Government or Buyer's documents other than those currently specified in the specification, provided the following criteria is met:

    a.   The Seller agrees to comply with the document's previously released version at no change in Contract targets or price.

    b.   The new document is equal to, or better than, the specified document in the specification.

    c.   The Buyer-approved departure will be incorporated into the next specification update. This update will be implemented by the Buyer and imposed on the Seller at no cost.

2.7   CONFIGURATION CONTROL

The Supplier shall have procedures for internally initiating, reviewing, classifying, and formalizing proposed changes to a deliverable item. EIA-649 shall be used as a guideline in change processing. The configuration control principles as set forth herein shall be followed for change management. Formal change control shall commence concurrent with the on-site or off-site delivery of the first pre-production or production article.

An Engineering Change Proposal (ECP) may be initiated by both the Buyer and Seller.   The technical feasibility and budgetary price estimate for a proposed engineering change may be ascertained by evaluation of proposals.

    2.7.1   Major Change

Engineering changes shall be classified as major in accordance with the definition set forth in Appendix VIII.   Major changes shall be submitted using the EIA-649 Change Request format (page 1 only), or the ECP format provided by MIL-STD-973 (DD Form 1692, Page 1 only), or the Seller's equivalent format may be used if it includes the same information.

The Seller shall not implement any major change without prior written approval from the Buyer's contracting representative.   The Seller shall not act on any verbal or informal authorization provided by Buyer's representatives.

In the case of reprocurement after a break in production, the Seller shall accumulate and submit to the Buyer all previously unsubmitted major and minor changes approved by an authority other than the Buyer for the specific item(s) identified in the reprocurement purchase order.

2.7.2   Minor Change

Engineering changes shall be classified as minor in accordance with the definition set forth in Appendix VIII. Minor changes will be prepared and submitted to the Buyer for concurrence in classification and effect on technical data. When an engineering change is classified as minor, the Seller certifies that all factors for a major change were reviewed and determined to be non-applicable. The Seller shall use the form of his choice to process minor changes. To eliminate regeneration of data, the actual change form should be submitted as-is without reformatting.

The Seller may submit a written request for relief from processing minor changes for classification concurrence review if the Seller's past performance indicates a low risk situation. Information copies of the change documents may be required to maintain Buyer's technical publication requirements. The SDRL will reflect any relief in minor change processing and data deliverable requirements.

The Seller may implement minor changes in advance of receiving Buyer's concurrence. If it is determined by a later analysis or during service that the factors for a major change are applicable, the Seller at the discretion of the Buyer, shall cancel the minor change in its entirety and remove the change from the equipment at no cost to the Buyer. The Seller may reprocess the engineering change as a major change.

2.7.3   Computer Softwares

All formal changes to Computer Software Configuration Items (CSCIs) will be accomplished through major change processing. Two baselines will be established for the implementation of change control on computer softwares:

> Development Baselines – Described by the Buyer-approved specification(s) contained in the purchase order at contract go-ahead. In the case of lower level specifications, this baseline will become complete as these specifications are formalized through Buyer approval. The development baselines are traditionally known as performance, functional and allocated baselines.

> Product Baseline – Established by completion of the Physical Configuration Audit (PCA) or the acceptance and delivery of the computer software media, whichever occurs first. Commonly referred to as Delivery Baseline.

The configuration of computer software will be documented by issuance of a Software Version Description (SVD), formerly referred to as Version Description Document. A SVD will accompany the first issuance of each computer software and every update/revision/version thereafter. The SVD shall be prepared and submitted using the following guidance information:

> Title Page – include Seller's SVD document number and descriptive title

> Identification - include full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s). It should also identify the intended recipients of the SVD to the extent that this identification affects the contents of the software released (for example, source code may not be released to all recipients).

> System Overview - briefly state the purpose of the system and the software to which this document applies. It should describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and maintenance organizations; identify current and planned operating sites; and list other relevant documents.

<u>Document Overview</u> - summarize the purpose and contents of this document and describe any security or privacy protection considerations associated with its use.

<u>Referenced Documents</u> - list the number, title, revision, date, and source of all referenced documents.

<u>Version Description</u> - this section should be divided into the following subclauses:

<u>Inventory of Materials Released</u> – include list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all physical media (for example, listings, tapes, disks) and associated documentation that make up the software version being released. Also include applicable security and privacy protection considerations for these items, safeguards for handling them, such as concerns for static and magnetic fields, and instructions and restrictions regarding duplication and license provisions.

<u>Inventory of Software Contents</u> – include list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all computer files that make up the software version being released. Any applicable security and privacy protection considerations shall be included.

<u>Changes Installed</u> - include a list of all changes incorporated into the software version since the previous version. If classes or categories of changes have been used, the changes shall be separated into these classes or categories. Also identify, as applicable, the problem reports, change proposals, and change notices associated with each change and the effects, if any, of each change on system operation and on interfaces with other hardware and software. This subclause does not apply to the initial software version.

<u>Adaptation Data</u> - identify or reference all unique-to-site data contained in the software version. For software versions after the first, this subclause shall describe changes made to the adaptation data.

<u>Related Documents</u> - include list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all documents pertinent to the software version being released but not included in the release.

<u>Installation Instructions</u> - provide or reference the following information, as applicable; a) instructions for installing the software version, b) identification of other changes that have to be installed for this version to be used, including site-unique adaptation data not included in the software version, c) security, privacy protection, or safety precautions relevant to the installation, d) procedures for determining whether the version has been installed properly, e) a point of contact to be consulted if there are problems or questions with the installation.

<u>Possible Problems and Known Errors</u> - identify any possible problems or known errors with the software version at the time of release, any steps being taken to resolve the problems or errors, and instructions for recognizing, avoiding, correcting, or otherwise handling each one. The information presented should be appropriate to the intended recipient of the SVD (for example, a user organization may need advice on avoiding errors, a maintenance organization on correcting them).

<u>Notes</u> - include any general information that aids in understanding this document (e.g., background information, glossary, rationale). Also include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

<u>Annexes</u> - annexes may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each annex shall be referenced in the main body of the document where the data would normally have been provided. Annexes may be bound as separate documents for ease in handling.

2.7.3.1 Changes Prior to Development Baseline

Prior to establishment of the development baseline, control of computer software configurations will be implemented and maintained by the Seller. The Seller will administer and monitor the implementation of the configuration management of the computer software development by the Seller. The Seller shall coordinate with the Buyer on technical design questions, problems, and decisions.

2.7.3.2 Development and Product Baseline Changes

Formal change control will be established between the Seller and Buyer upon approval of the associated specification and establishment of the development baseline. The product baseline is the configuration of the computer software verified through Physical Configuration Audit (PCA) or the first delivery of the computer software, whichever occurs first. Changes to the computer software and its approved performance, development, functional, allocated or product specifications will be submitted to the Buyer for authorization prior to implementation. All changes will be in scope unless they affect contract specification requirements. The Seller shall prepare and process the ECP form specified in paragraph 2.7.1 above for these changes. Should the change affect a specification, the requirements set forth in paragraph 2.6.1 apply.

2.8 VARIANCES

The Seller shall not deliver any product with a known departure from the requirements without having first received Buyer approval. If the Seller deems it necessary to temporarily depart from the requirements, a variance request (previously known as deviation or waiver) shall be prepared and submitted to the Buyer. The Seller shall refer to EIA-649 for guidance on variance processing.

2.8.1 Major Variance

If the Seller deems it necessary to temporarily depart from the contract, specification or baseline configuration requirements, a major variance request shall be prepared and submitted to the Buyer. The Seller shall ensure that end user requirements are considered prior to requesting Buyer approval. Every alternative solution should be adequately evaluated prior to submitting the variance request. Major variance addresses health, performance, interchangeability, reliability, effective use of operation, weight or appearance.

2.8.2 Minor Variance

Nonconformances to drawing dimensions, processes, or tolerances will be forwarded to the Seller's Material Review Board (MRB) for dispositioning. If the Seller does not have MRB authority, the minor variance shall be submitted to the Buyer's Quality Assurance function for Supplier Quality Assurance Report (SQAR) disposition. Nonconformances that do not fall into the previous category, and are not considered major, shall be submitted to the Buyer in accordance with the SDRL for minor variance disposition. The minor variance is also required to obtain Buyer approval to use previously released versions of U.S. Government or Buyer's documents other than those currently specified in the specification.

2.8.3   Variance Request Format

The Seller may use his own variance request format and it shall, as a minimum, include the following information:

Unique identifier, tracking or variance number

Category of variance

Originating company name and address and CAGE Code

Descriptive title

Product(s) and component(s) affected

Complete description of nonconformance and any impacts

Reason/justification for Variance

Alternatives considered

Proposed effectivity of the nonconformance (serial numbers, quantity, and/or time)

Corrective action plan to prevent recurrence

Consideration, if any, for accepting the Variance

In lieu of an industry suitable variance form, DD Form 1694 Deviation/Waiver Request is acceptable for use.

2.8.4   Certificate of Compliance

The Seller shall certify to the Buyer, via letter of Certification of Compliance (COC), that the nonconformance described in the Buyer-approved major variance request has been fully resolved and considered closed. Format is at the Seller's discretion. An explanation of action taken shall be included along with the signature of the Seller's Quality Assurance representative. The Seller shall submit the COC in accordance with the data requirements set forth in the SDRL.

2.9   CHANGE VERIFICATION

The Seller shall verify the release of approved engineering changes and that the changes have been properly incorporated. The Seller shall verify that the first serial number unit specified on the ECP's effectivity has the approved released change incorporated and the change is scheduled for incorporation in all other affected units. The Seller shall verify the release and implementation of approved minor changes. Records of certification and verification shall be retained by the Seller.

2.10   ATTENDANCE AT MEETINGS

The Buyer's representatives reserve the right to attend the Seller's design reviews and configuration control meetings as the need arises. Buyer participation will not adversely affect normal meeting proceedings.

2.11   CONFIGURATION AUDITS

The Seller shall assist and support the Buyer in the conducting configuration audits for each Buyer-designated CI/CSCI. EIA-649 and MIL-STD-973 shall be used as a guidelines in preparing for the audits. Prime Customer representatives may participate in these audits.

2.11.1   Functional Configuration Audit

Functional Configuration Audit (FCA) shall be conducted at the Supplier's facility to validate that the CI/CSCI functions/performs as stipulated by the performance and/or development specification. The FCA is an audit of the development baseline. Applicable test, analysis, inspection or demonstration data will form the basis for the FCA. The audit minutes shall include a verification cross-reference matrix denoting requirements and verification method used. If applicable, action items will assigned with corrective action dates identified.

2.11.2   Physical Configuration Audit

Physical Configuration Audit (PCA) shall be conducted at the Supplier's facility to examine the "as-built" configuration of the CI/CSCI against its technical documentation in order to establish the initial product baseline. The PCA is an audit of the product baseline.
The hardware PCA will be incrementally conducted on the first production (or Buyer-designated alternate) article. These audits are referred to as Incremental PCAs or IPCA.

2.11.2.1   Hardware PCA

The hardware item PCA shall be performed incrementally at appropriate sub-assembly and LRU completion points during the assembly of the first production unit, to ensure that the production configuration matches its documentation. Final assembly of the CI shall also be inspected in the same manner.

The part number and serial number of each subassembly shall be identified on the IPCA documentation. In addition, if the part number should roll on an SRU or LRU prior to formal PCA meeting, a delta audit will be performed to verify the current configuration.

These IPCAs shall continue through acceptance testing in order to preclude disassembly at the formal PCA meeting. The IPCA activity shall be conducted by or witnessed by the Seller's Quality Assurance, the Buyer's Procurement Quality Assurance and the local Government-designated inspector.

The IPCA documentation and the build paper (drawings, work instructions, etc.) used during the IPCA shall be accumulated by the Seller and made available for review at the formal PCA meeting.

An acceptance test shall be performed after completion of the IPCA on the first production (or Buyer-designated alternate) article and recorded on the IPCA documentation.

The first production (or Buyer-designated alternate) article subjected to the audit shall not be removed from the Seller's facility until completion of the formal audit meeting. The audit article shall be available for inspection (not tear-down) during the formal audit proceedings.

2.11.2.2   Software PCA

The software PCA will be conducted using the software documentation (SRS, SVD, etc.) to validate the software conforms to the product documentation.

2.11.3   Formal FCA/PCA Meeting

A dry-run FCA/PCA will be performed at the Seller's facility in order to ensure that the Seller is adequately prepared for the formal audit proceedings. The Seller and Buyer shall mutually agree to a specific date when this dry-run shall be conducted. The Seller shall document and assure closure of any action items resulting from the dry-run.

The Seller shall prepare and submit agendas and minutes of each FCA/PCA in accordance with the submittal requirements set forth in the SDRL. The Seller shall provide appropriate facilities, documentation, data, stenographic assistance, and technical assistance for conducting the formal FCA/PCA meeting.

2.12 Product Configuration Verification

A Product Configuration Verification (PCV) shall be performed on items that are co-produced at a second source. The PCV is an inspection of the "as-built" configuration to its technical documentation (drawings, material/process specification, etc.) to verify that the baseline configuration established by the initial supplier is the same as the co-produced configuration. The PCV also provides verification that acceptance testing using the approved acceptance test procedure, required by the applicable product specification, has been successfully completed on the first production article manufactured by the second source. When acceptance testing is not required, the PCV consists of documentary review of the First Article Inspection (FAI).

The Seller shall prepare meeting minutes as documentary evidence of the PCV completion and to record any discrepancies that will require corrective action and closure.

2.13 CONFIGURATION STATUS ACCOUNTING

The Seller shall document and submit reports of various configuration management–related information pertinent to specific deliverable items designated by the Buyer as CIs. This information shall be submitted by the Seller as described below and the SDRL.

2.13.1 Information of Shipments

The Seller shall prepare and submit a copy of the packing sheet (e.g. DD250, DD Form 1149, or equivalent) which will include (where applicable); destination of shipment, nomenclature(s), part number(s), serial number(s), incorporated ECPs and Buyer-approved variances.

2.13.2 Information of Modification

Subsequent to incorporation of an ECP, the Seller will submit a record documenting the following:

- completion date of the retrofit modification on each item, serial number, and/or shipment date of the modified unit.

- CI identifier (if applicable) and/or item serial number incorporation of ECP.

- modification kit letter designation and modification date, if applicable.

The Seller shall also furnish, upon request from the Buyer, information regarding Time Compliance Technical Orders, Service Bulletins, Technical Publications in preparation, or item "work-in-process" status at the Seller's facility.

2.13.3 Computer Software

The Seller will maintain the current status information concerning computer software.

APPENDIX I

STANDARD FOR IDENTIFICATION AND CONTROL

1. PURPOSE

This appendix establishes the minimum requirements for achieving proper relationship between engineering/manufacturing data and manufacturing configuration items.

2. SCOPE

The criteria of this appendix applies to the Seller's engineering authentication and release system pertaining to; 1) elements of data required, 2) production release of functional capabilities, 3) release of engineering changes, and 4) field release functional capabilities.

After the initial release of data, criteria are set forth for the control of incorporating engineering changes. The Seller's internal control system shall be capable of; 1) reconciling engineering work authorizations to contract requirements, 2) verifying that released engineering and purchase orders are consistent in contractual requirements, and 3) assuring that engineering changes are manufactured and incorporated as released.

3. APPLICABILITY

The criteria of this appendix applies to purchase orders requiring the preparation of engineering drawings and specifications. Guidance on drawing requirements are set forth in the purchase order under the heading Technical Data Package (TDP) Requirements.

The Seller's suppliers are expected to comply with this Appendix.

If applicable, the Seller shall ensure that the intent of this appendix is applied to software release and control requirements.

4. ENGINEERING RELEASE REQUIREMENTS

The Seller shall prepare and maintain engineering release records in accordance with its internal format and procedures, and the minimum requirements stated herein. The Seller's formats and procedures may include information in addition to the following minimum requirements providing that the portion thereof which constitutes engineering release records:

4.1. is limited to an expression of configuration requirements defined by engineering data

4.2 does not reflect a hardware or product configuration that varies from engineering requirements contained in the data

4.3 does not reflect manufacturing status. Only one release record (which may be multi-sheet) shall be maintained for each drawing number. Drawings released by a supplier shall not be released by the Seller.

5. ELEMENTS OF DATA REQUIRED

The Seller's engineering release records shall contain the standard configuration identification numbers specified in Appendix II.

5.1 Configuration Item (CI) elements (if applicable):

    a. CI number

    b. CI serial number

    c. Top assembly drawing number

    d. CI specification identification number

5.2 Drawing elements:

    a. Drawing number

    b. Drawing title

    c. Code identification number

    d. Number of sheets

    e. Date of release

    f. Change letters

    g. Date of change letter release

    h. Ancillary document numbers (ECNs, EOs, etc.)

5.3 Part number elements:

    a. Controlling drawing number

    b. Part number released

6. PRODUCTION RELEASE FUNCTIONAL CAPABILITIES

To the extent that the Seller has detail design responsibility, the Seller's release function and documentation, including drawing and associated lists, shall be capable of determining the following released engineering requirements:

6.1 Except for standard parts, the composition of any part at any level in terms of subordinate part numbers.

6.2 All next higher assembly part numbers, except parts assembling into standard parts.

6.3 The composition of any item in terms of part numbers and subordinate item numbers.

6.4 In the case whereby the Seller is producing a CI:

    a. the CI number will be provided to the Seller by the Buyer in the purchase order or through separate written correspondence.

    b. the CI Number and CI serial numbers on which any subordinate provisioned or to be provisioned part is used.

    c. identification numbers of Class I changes which have been partially or completely released for any CI number and CI serial number and Class II changes as they apply to the CI number.

    d. the CI numbers and CI serial numbers which constitute effectivity of each engineering change.

6.5 The military specification numbers or military standard part numbers used within any nonstandard part number.

6.6 The Seller's supplier part numbers which have been assigned.

6.7 The Buyer's specification number, specification control drawing numbers, or source control drawing numbers associated with any of the Seller's part number.

7.   RELEASE OF ENGINEERING CHANGE

The Seller's release function and documentation shall be capable of identifying engineering changes and retaining the record of superseded configuration requirements, affecting items which have been formally accepted and delivered to the Buyer.

7.1   All major and minor engineering changes released for production incorporation shall be identified by identification numbers and shall be completely released prior to formal acceptance of the item.

7.2   The configuration released for each item at the time of its formal acceptance shall be retained in release records for the time required by retention of record requirements in the purchase order, or as otherwise provided in paragraphs 8 and 8.c below.

8.   FIELD RELEASE FUNCTIONAL CAPABILITIES

Engineering data defining formally accepted and delivered items to the Buyer shall be maintained current with all field activity requirements and released as follows:

8.1   Superseded requirements may be replaced by superseding requirements in the release records for items logistically supported by the Buyer and which were accepted prior to establishment of the product baseline at PCA, if applicable.

8.2   Superseded requirements of the product baseline shall be retained as a reference release and superseding requirements added as a requirements release for all units which have been formally accepted and delivered or are under the control of the Buyer.

8.3   Superseded requirements shall be retained in all release records until status accounting records indicate that the superseded configuration no longer exist.

8.4   Engineering changes to items which have been formally accepted, but not under the control of the Buyer, shall be released for service action. For service action, the multiple release procedure shall not be used.

9.   CORRELATION OF ENGINEERING CHANGES WITH MANUFACTURED PRODUCTS

It is the objective that each major engineering change approved by the Buyer be incorporated in all affected units. Complete verification of the production incorporation of engineering changes is therefore required to assure that engineering changes directed were accomplished on the specific items. Complete verification will be considered accomplished by a documented audit of the first incorporation of the engineering change and routine surveillance thereafter.

APPENDIX II

STANDARD FOR DOCUMENT AND ITEM IDENTIFICATION

1. SCOPE

This appendix establishes the numbering requirements for identifying documents and physical items in order to achieve configuration traceability for equipment, components, computer softwares, and spares.

2. APPLICABILITY

This appendix applies to the configuration identification and marking of each item requiring configuration control which are accepted/delivered to the Buyer or are for follow-on spares procurement. The Seller shall be responsible for compliance by its suppliers to the extent that the supplier assign and controls standard configuration identification numbers.

3. REQUIREMENTS

3.1 Specification Numbers

The Seller shall use MIL-STD-973 as a guidance document to assign specification identification numbers, specification change notices, and specification revisions.

3.2 Item Identification Numbers

3.2.1 The design activity and the manufacturer of the item shall be identified by manufacturing code identification numbers.

3.2.2 All discrete parts, assemblies, and units shall be identified by part numbers in accordance with guidance information set forth in Appendix III.

3.2.3 A family of like units of an item that individually satisfies prescribed functional requirements shall be identified by an unchanging base number such as a CI identification number, or a type-model-series designator. This number:

a. shall establish a base for serializing individual units of an item

b. shall not change when the unit is modified, even though the interchangeability of units within the family is affected.

c. shall remain the same even though the item may have more than one application or may be reprocured through different contractors.

d. shall be composed of seven digits of alpha-numeric characters. On privately developed items where the number exceeds seven digits, the last seven digits of the number will be utilized for electronic data system application.

3.2.4 A single unit or lot in a family of like units of an item shall be permanently and uniquely identified by a serial or lot number in accordance with Appendix IV.

3.3 Change Identification Numbers

The Seller shall assign engineering change numbering, codes and priorities using guidance information contained within MIL-STD-973.

3.4 Identification of Physical Items

Item identification numbers for configuration management shall be affixed or marked on physical items in accordance with Appendix V.

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APPENDIX III

STANDARD FOR PART NUMBERING

1. SCOPE

This appendix establishes the standard part numbering convention. This standard was derived from the canceled military standard MIL-STD-100 and is provided as guidance information.

2. DEFINITIONS

2.1 Part

One, two or more pieces joined together, which are not normally subject to disassembly without destruction or impairment of designed use.

2.2 Part Number

The identifier assigned by the responsible design activity or by the controlling recognized standard which uniquely identifies (relative to that design) a specific item. The part number generally includes the controlling drawing or document number and optional suffix. The part number shall never include the drawing revision identifier, drawing size, or CAGE Code.

3. REQUIREMENTS

3.1 The part number shall consist of letters, numbers or combination of letter and numbers, which may or may not be separated by dashes or slashes that are assigned to uniquely identify a specific item. The part number assigned to a specific item and the CAGE Code assigned to the drawing provide the basis for unique item identification.

3.2 Part numbers shall not exceed fifteen (15) characters. This number shall be or shall include the drawing number indicated on the drawing on which the item is described. Where one or more than one item is described on a drawing, unique identification shall be provided by the addition of a suffix identifier (also known as dash number), with the following limitations:

3.2.1 The total length of the part number, including the suffix identifier, shall not exceed fifteen (15) characters.

3.2.2 The suffix identifier shall have the same characteristics as drawing numbers.

3.2.3 Suffix identifiers may be used even if only one item is described on the drawing.

3.2.4 Part numbers shall not include the drawing revision.

3.2.5 Once assigned, part numbers shall not be changed. Exceptions are as follows:

a. When a repair part within an item is changed so that it is no longer interchangeable with its previous version, it shall be assigned a new part numbers

b. A new part number shall be assigned to the next higher assembly for a changed repair part and to all subsequent higher assemblies up to and including the level at which interchangeability is re-established.

c. The design activity shall assign new part numbers when a part or item is changed in such a manner that any of the following conditions occur:

Condition 1   Performance or durability is affected to such an extent that superseded items must be discarded or modified for reasons of safety or malfunction.

Condition 2   Parts, subassemblies, or complete articles are changed to such an extent that the superseded and superseding items are not interchangeable.

Condition 3   When superseded parts are limited to use in specific articles or models of articles and the superseding parts are not so limited to use.

Condition 4   When an item has been altered, selected, or is a source control item.

d.   When additional items are added to a drawing, the part numbers of existing items shall not be changed, even if no suffix identifier was originally assigned.

APPENDIX IV
STANDARD FOR SERIALIZATION

1. SCOPE

This appendix establishes the standard for serialization of Buyer items (e.g. air vehicles, support equipment, LRUs/SRUs, time compliance items, repairable items, mod/kit items, trainers, etc.).

2. REQUIREMENTS

2.1 AIR VEHICLE SERIALIZATION

2.1.1 Air Vehicle CIs, selected LRUs, fracture/durability critical items, time change items, and associated assemblies and components shall be serialized.

2.1.2 Seller shall serialize all engineering critical and logistics critical components using his own serial numbers within the constraints specified below.

2.1.3 Serial number shall be assigned sequentially, non-repetitively and without a break

2.1.4 All serial numbers, once assigned and delivered on an item, remain inviolate and are not to be duplicated for the same series and must remain associated with that serialized item.

2.1.5 Serial number shall be up to ten (10) digits.

2.1.6 Unique identifier must be contained within the first five (5) digits. Seller may elect to use their Cage Code for this purpose.

2.1.7 Last four digits shall be numeric starting at 0001.

2.1.8 This shall be the only serial number appearing on the nameplate.

2.1.9 Serial number sequence shall not be utilized on items being delivered to the U.S. Government as a result of a direct U.S. Government contract.

2.1.10 Seller shall retain the serial number assigned to a given item regardless of any modifications.

2.1.11 Seller shall establish and maintain serial number tracking records which identify the disposition of each part for traceability purposes.

APPENDIX V
STANDARD FOR PRODUCT MARKING

1. SCOPE

This appendix establishes the standard for marking of hardware and software products.

2. REQUIREMENTS

2.1 Hardware

2.1.1 Nameplates and Product Markings for Hardware

Equipment, assemblies, and parts shall be marked for identification as specified in Appendix II of this document. A nameplate will be affixed to CIs, LRUs, time change items, and fracture or durability critical items. This nameplate is subject to approval by the Buyer and as a minimum shall contain the following information:

a. Configuration Item Identification Number (if applicable)

b. Nomenclature/Item Name

c. Manufacturer's Part Number (including dash number, if any)

d. Buyer's SCD Number (if applicable)

e. Design Activity CAGE Code

f. Manufacturer's CAGE Code (if applicable)

g. National Stock Number

h. Serial Number

2.1.2 Marking of Small Items

If the part is very small, the physical marking of the serialized part shall include the Seller's CAGE Code in the part number (e.g. 81755-1234567-101) or serial number e.g. 8175500001).

2.2 Software

2.2.1 Nameplates and Product Markings for Software

Equipment containing Computer Software Configuration Items (CSCIs) shall be marked for identification of the CSCI in accordance with the guidance information set forth in MIL-STD-130 as appropriate for the type and size of the product. Nameplates shall be affixed on equipment which is capable of being programmed through an external connector. Nameplates shall be separate from the hardware nameplates described in paragraph 2.1.1. The nameplate shall be readable with the equipment installed. Design of the nameplate and its location on the equipment are subject to approval by the Buyer. The nameplate shall, as a minimum, contain the following information:

a. Legend "OPERATIONAL FLIGHT PROGRAM NO." - for equipment to be used on the air vehicle.

b. Computer Software Part Number - uniquely identifies the CSCI version/revision with a maximum of fifteen digits.

c. CSCI Nomenclature or Recognized Abbreviation

d.   Design Activity Identification Number

e.   CSCI Number

Software media (magnetic tapes, cartridges, disks, etc.) shall be marked with the same information as equipment containing CSCIs.   Where possible, the identification information shall be embedded within the software media and also affixed to the storage and shipping container. Copy serialization numbers shall be applied to labels on software media reels, storage containers, and shipping containers but will not be embedded into the media itself.

Exceptions to the use of CSCI nameplates on equipment may apply if either of the following conditions are applicable:

- The equipment using the computer software is loaded by the individual user as a normal user function.

- The equipment is programmed as a part of a manufacturing or maintenance operation in which the program cannot be altered without physical access to components inside the equipment, and the equipment part number reflects the programmed configuration of the equipment.

Should either of the above exception apply, the Seller shall coordinate with the Buyer to determine the method for CSCI identification.

APPENDIX VIII

ENGINEERING CHANGE DEFINITIONS

1. SCOPE

This appendix establishes the standard for classifying engineering changes.

2. REQUIREMENTS

2.1 Major Change

An engineering change classified as major is a change to the requirements of the baselined configuration documentation that has significant impact.

2.1.1 A major change is any change that affects the following factors relating to Buyer controlled activities:

a. Affects approved, baseline specification requirement (performance, reliability, maintainability, weight, balance, moment of inertia, interface characteristics, electromagnetic characteristics, etc.).

b. Affects one or more of the following, after establishment of the product baseline:

- Buyer furnished items
- safety
- compatibility with interfacing products (i.e., test equipment, support equipment and associated software)
- delivered operation or servicing instructions
- preset adjustments to the extent that product identification should be changed
- interchangeability or suitability of replaceable products, assemblies, or components
- change to a previously nonselected supplier, where supplier selection is specified
- user skills or physical attributes
- operator or maintenance training

c. Requires retrofit of delivered products.

d. Does not impact factors listed above but affects cost/price to the Buyer, guarantees, warranties, contracted delivery dates.

2.2 Minor Change

An engineering change classified as minor is a change that corrects or modifies configuration documentation (released design information), product or processes but does not affect the factors stated in 2.1.1.