



# JOINT LOGISTICS COMMANDERS JOINT AERONAUTICAL LOGISTICS COMMANDERS

DEPARTMENT OF THE NAVY  
NAVAL AIR SYSTEMS COMMAND  
47123 BUSE ROAD, UNIT IPT, SUITE 540  
PATUXENT RIVER, MD 20670-1547

AUG 12 2005

## MEMORANDUM FOR DISTRIBUTION

FROM: Joint Aeronautical Logistics Commanders (JALC)

SUBJECT: JALC Endorsement of the Aviation Critical Safety Items (CSIs) Handbook

1. The failure of Aviation Critical Safety Items (CSIs) result in potentially catastrophic consequences. Therefore, the JALC has strived to establish a foundation for effective life-cycle management of these items. We have focused on institutionalizing CSI requirements through legislative change, policies, and regulations. The attached Aviation CSI Handbook is intended to provide common procedural guidance for the many organizations and individuals involved in defining, acquiring, managing, or supporting aviation CSIs. This "user guide" will improve the quality and consistency of CSI practices and will be refined and updated regularly as lessons are learned.
2. To this end, the JALC endorses the Aviation CSI Handbook for implementation within and across our member organizations. We also authorize the development of supplementing guidance, as needed, within each member organization.
3. Comments, lessons learned, and recommendations for improvement should be submitted to Mr. Jeffrey Allan, NAVAIR-4.1E, [jeffrey.allan@navy.mil](mailto:jeffrey.allan@navy.mil), (301) 342-2246 or Mr. Alan Burleson, AMSRD-AMR-AE-KS, [alan.burleson@rdec.redstone.army.mil](mailto:alan.burleson@rdec.redstone.army.mil), (256) 313-8966.

Department of the Army  
US Army Aviation and  
Missile Command  
Redstone Arsenal, AL 35898

Department of the Air Force  
Aeronautical Systems Center  
1865 Fourth Street  
Wright-Patterson AFB, OH  
45433

Department of the Navy  
US Marine Corps  
Dept of Aviation, 2 Navy  
Annex  
Washington, DC 20380

United States Coast Guard  
USCG Headquarters  
2100 Second St, SW  
Washington, DC 20593

National Aeronautics and  
Space Administration  
300 E Street, SW  
Washington, DC 20546

Defense Contract Management  
Agency  
6350 Walker Lane  
Alexandria, VA 22310

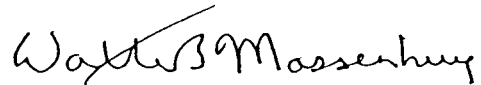
Defense Logistics Agency  
Defense Supply Center – Richmond  
8000 Jefferson Davis Highway  
Richmond, VA 23297

Federal Aviation Administration  
800 Independence Ave, SW  
Washington, DC 20591

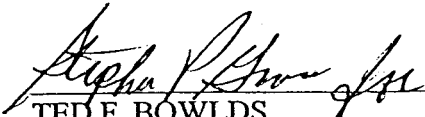
Department of Homeland Security  
245 Murray Lane, Bldg 410  
Washington, DC 20528



JAMES H. PILLSBURY  
Major General, USA  
Commanding General  
US Army Aviation and Missile Command



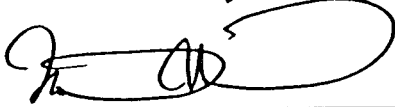
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Vice Admiral, USN  
Commander  
Naval Air Systems Command



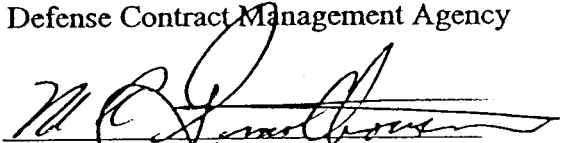
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Brigadier General, USAF  
Commander  
Aeronautical Systems Center



DARRYL A. SCOTT  
Major General, USAF  
Director  
Defense Contract Management Agency



M. F. HEINRICH  
Rear Admiral (Sel), USN  
Commander  
Defense Supply Center Richmond  
Defense Logistics Agency



MICHAEL R. GROOTHOUSEN  
Rear Admiral, USN  
Assistant Deputy Commandant for Aviation  
United States Marine Corps



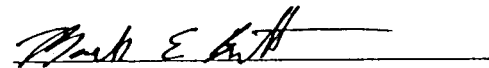
DANIEL P. SALVANO  
Director Navigation Services  
Federal Aviation Administration



TERRENCE J. HERTZ  
Director, Aeronautics Technology  
Office of Aerospace Technology  
National Aeronautics and Space Administration



JANET DOBBS  
Assistant Director  
Personal Property Management  
US Department of Homeland Security



MARK E. BUTT  
Captain, USCG  
Chief, Office of Aeronautical Engineering  
United States Coast Guard

Attachment:  
Critical Safety Items (CSI) Handbook

cc:  
JALC Principals

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# Aviation Critical Safety Item Management Handbook

4 August 2005



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## Section 1 Introduction

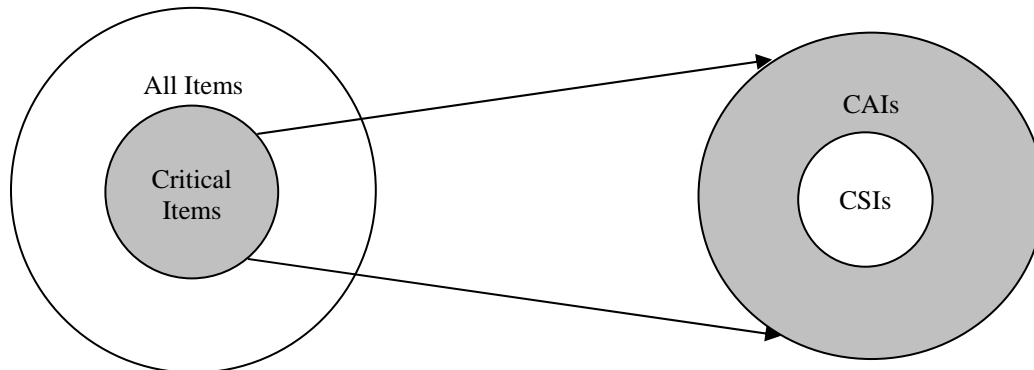
1. Public Law 108-136 Section 802 established the requirement for Aviation Critical Safety Items (CSIs) to be procured only from, and repaired or overhauled only by, sources approved by the military Service Design Control Activity (DCA). (In this Handbook, the term Engineering Services Activity (ESA) is used and is synonymous with the term DCA.) Section 8.5 of the *Department of Defense (DoD) Supply Chain Materiel Management Regulation* (DoD 4140.1-R) also establishes overarching requirements for Aviation CSI management. To implement this statutory and regulatory direction, the Joint Aeronautical Logistics Commanders (JALC) are issuing an instruction entitled *Management of Aviation Critical Safety Items* (hereafter referred to as the Joint Instruction). This Handbook provides discretionary guidance implementing the requirements of these Aviation CSI policies through common processes. At the time this Handbook was published, the Joint Instruction had not been signed. A draft version of the Joint Instruction, as it existed at the time of publication, is enclosed as [Appendix I](#). For a copy of the signed Joint Instruction, please contact your Service point of contact (POC) as identified in [Exhibit A](#).
2. This document applies to aviation CSIs used in fixed and rotary wing aircraft, unmanned air vehicles, Aircraft Launch and Recovery Equipment (ALRE), aviation weapons and equipment, and associated aviation support equipment. Additionally, it applies to Foreign Military Sales (FMS) aircraft when they are still used in the active DoD inventory or if the U.S. military is providing engineering expertise via an FMS case. This document does not apply to aircraft or subsystems purchased and maintained in accordance with Federal Aviation Administration (FAA) regulation, unless required by the ESA. It does apply to those portions of the commercial aircraft or subsystems modified or maintained to meet unique military requirements. This Handbook does not address software in any regard. Software does not meet the basic definition of a CSI, and there are other system safety policies and guidance regarding software. For guidance on acquisition and life cycle management of safety-critical software, the following references are recommended: Joint System Safety Committee Joint Software System Safety Handbook ([www.egginc.com/dahlgren/files/ssshandbook.pdf](http://www.egginc.com/dahlgren/files/ssshandbook.pdf)); Radio Technical Commission for Aeronautics DO-178B, Software Considerations For Airborne System and Equipment Certification ([www.rtca.org/onlinecart/](http://www.rtca.org/onlinecart/)); and MIL-STD-882D, Standard Practice for System Safety ([assist2.daps.dla.mil/quicksearch](http://assist2.daps.dla.mil/quicksearch)).
3. This Handbook provides the standard overarching processes for management of Aviation CSIs throughout their life cycle and applies to all DoD entities involved with the life cycle acquisition and management of aviation CSIs. It implements the policies set forth in the Joint Instruction and the other documents cited in paragraph 1. These integrated processes are intended to provide consistent meanings, actions and outcomes across all activities and to provide guidance for user level employees. Each Service and DoD activity will develop internal structure-unique processes that comply with the processes contained within this document. The Service ESA shall coordinate actions that may adversely impact cost, supply posture or system readiness, with the Integrated Material Manager (IMM) and Life Cycle Manager of effected end items, in accordance with Service implementing procedures, so that strategies may be developed to mitigate adverse impact.

4. Common use items are items used by multiple Military Services or multiple platforms. Criticality determinations and other actions taken on aviation CSIs that are also used by another Service must be coordinated with all other using Services prior to implementation in accordance with DoD 4140.1-R. Using Services should make every effort to come to agreement on all aspects of criticality determination and other related actions prior to imposing the most stringent requirements. Procedures for this coordination process are outlined in [Section 3](#) of this document.
5. Throughout the Handbook, the acronym CSI refers to aviation CSIs.
6. Users are encouraged to provide input and lessons learned to their Service or activity points POCs for updates to this Handbook. [Exhibit A](#) contains POCs for all Services plus DLA and Defense Contract Management Agency (DCMA).
7. Definitions for terms used in this Handbook are included in [Appendix I](#), and acronyms are presented in [Appendix II](#).



## Section 2 DoD Critical Safety Item and Critical Characteristic Identification Criteria

1. All aviation spare parts have a subset of parts that are called Critical Items (CIs). These CIs have special management requirements and consist of Critical Application Items (CAIs) and their subset CSIs. CAIs are defined in DLAI 3200.1, (latest issuance). Criteria for selection of CAIs are provided for informational purposes. Guidance on the implementation of management controls for CAIs will be provided in a subsequent document. The figure below highlights the relationship between the terms CI, CSI, and CAI.



**Figure 1. CSIs are a subset of CAIs**

2. The foundation for criticality determination is performance of a Failure Modes, Effects, and Criticality Analysis (FMECA). The Prime System Contractor or OEM should be required to accomplish the FMECA during the design phase of weapon system development. The FMECA is used to incorporate design changes or outline maintenance requirements to minimize risk of a functional failure or mishap. New weapon systems generally have a FMECA performed to the subsystem level. On older platforms, FMECA should have been accomplished as part of the Reliability Centered Maintenance or Maintainability Analyses. If a FMECA has not been performed, then an informal analysis such as a Hazard Risk Assessment, hazard analysis as performed in an Airworthiness Impact Statement (AWIS) or equivalent analysis (as determined by the ESA), may be used for criticality determination.

3. ESA Government engineers shall designate items under their cognizance as CSIs, CAIs, or non-critical items using the procedures outlined within this document. The Prime Manufacturers for items (or other parties) may provide recommendations for categorization to the ESA, but the ESA cognizant engineer shall perform the formal item criticality determination. The ESA cognizant engineer shall ensure that these designations are loaded into appropriate DoD databases for supply management in accordance with Service procedures. The ESA cognizant engineer shall revalidate criticality determinations for items whenever there are changes to an item's configuration, manufacturing or repair/overhaul processes, source of supply or repair/overhaul, or when there is a request for deviation. Changes in operating conditions or environment may create the need for revalidation on a case-by-case basis. (The term deviation is consistent with MIL-HDBK-61 Sec 6.3, and supersedes the previously used term "waiver".)

4. The determining factor for item designation as CSI is the consequence of failure, not the probability that the failure or consequence would occur. The following selection criteria shall be used by the ESA cognizant engineer for identification of CSIs.

A. An item shall be designated CSI if it contains a characteristic whose failure, malfunction or absence could result in death, permanent total disability, or permanent partial disability to personnel, or injuries that may result in the hospitalization of at least three personnel.

B. An item shall be designated CSI if it contains a characteristic whose failure, malfunction or absence could result in the loss of an aircraft or weapon system or damage to the aircraft or weapon system exceeding \$1M.

C. An item shall be designated CSI if it contains a characteristic whose failure, malfunction or absence could result in an uncommanded engine shutdown that jeopardizes safety.

D. The following criteria should be used to make a criticality determination in the case of dependent failures or latent/hidden failures.

(1) Dependent Failure: If failure of the item causes failure of another item or items in an unstoppable chain of events (i.e. domino effect) causing one of the results outlined in 4 (a) through (c), it shall be designated CSI. If the failure of the item does not cause one of the results outlined in 4(a) through (c) unless another item fails or malfunctions not directly caused by the item in question (i.e. secondary or dual independent failure), it shall not be designated CSI. The exception to this rule is survival equipment or safety systems used in emergency situations where the impact of a failure in these systems is realized only when the item is placed in operation.

(2) Latent/Hidden Failure: If latent/hidden failure of an item could cause one of the results outlined in 4(a) through (c), the item shall be designated CSI. Latent/hidden failures may occur and remain undetected because the effects of the failure on the system are masked by redundant components or because the existence of one failure mode masks the existence of a second failure mode. Mitigating actions such as inspections called out in technical publications should be considered as part of the analysis. Sound engineering judgment has to be used in peculiar cases.

E. If any assembly has one or more subcomponents that are CSI, then the assembly shall be designated CSI. Conversely, the CSI designation of an assembly does not necessarily extend downward to every subcomponent of that assembly, just to those subcomponents that are determined to be relevant to the critical nature of the assembly.

F. Items which meet the CSI criteria solely based upon Foreign Object Damage (FOD) potential shall not be designated CSI.

G. Software shall not be designated CSI.

H. Standard Parts:

(1) Definition: A standard part is a part manufactured in complete compliance with an established U.S. government specification [e.g., a military or federal specification, Army-Navy

Aeronautical Standard (AN), etc.], US ratified NATO Standardization Agreement, or non-government standard (i.e., a specification or standard published by a broadly-recognized professional society, industry association, or consensus standards development organization) which either includes design, manufacturing, test and acceptance criteria, and uniform identification requirements; or establishes specific performance criteria, test and acceptance criteria, and uniform identification requirements.

(2) The general classification of standard parts should be CAI or non-critical. Only if a standard part is known to be used in a specific safety critical application should it be classified as CSI. Standard parts are manufactured in conformance with established government or non-government specifications and standards (see definition of standard part above). They are commonly used in a variety of applications across systems and equipment. Standard parts are typically manufactured by multiple suppliers, procured in large quantities, and subjected to established quality assurance processes. For other than CSIs, quality assurance and any qualification requirements (e.g., Qualified Products Lists, Qualified Manufacturers Lists, etc.) established by the specification preparing activity, procuring activity, or DCMA shall apply.

NOTE An example of a Standard Part is a rivet. One specific rivet can be used in thousands of locations on one specific platform, such as rivets that secure aircraft body panels. If every single rivet location has not been reviewed, then the rivet should not be called CSI on the assumption that out of the thousands of rivets used on an aircraft, there surely is one location on the aircraft where the use of the rivet is in a safety critical application. However, if it has been determined that the failure of a specific rivet that secures a specific panel could have catastrophic results for the aircraft, then the rivet should be deemed CSI.

5. The following selection criteria shall be used by the ESA cognizant engineer for identification of non-CSI CAIs.

A. An item shall be designated CAI if its failure could result in minor injuries to personnel (resulting in at least one lost workday) or mission loss.

B. If an assembly has one or more subcomponents that are CAI, then the assembly shall be minimally designated CAI.

6. Items not designated as CSI or CAI shall be designated as non-critical items.

7. The Federal Logistics Information System (FLIS) must be updated in accordance with Service procedures to reflect item criticality. FLIS Data Record Number (DRN) 3843 (Criticality Code) for the item shall be updated in accordance with the following criteria: Refer to DoD 4100.39-M, Volume 10, FLIS Procedures Manual, Table 181. Codes "E" and "F" are specifically established for aviation CSIs. Other codes may be applicable for CAIs or non-critical parts as indicated below:

A. If the item is a CSI and is nuclear hardened, enter "E."

- B. If the item is a CSI and is not nuclear hardened, enter “F.”
- C. If the item is a CAI and is nuclear hardened, enter “M.”
- D. If the item is a CAI and is not nuclear hardened, enter “Y.”
- E. If the item is non-critical and is nuclear hardened, enter “H.”
- F. If the item is non-critical and is not nuclear hardened, enter “X.”

8. Drawings and associated technical data for new replenishment items shall clearly identify that the item is CSI. Drawings and technical data shall identify the critical and major characteristics, critical processes, and inspection and other quality assurance requirements in accordance with [Appendix I](#), references 3 through 7.

9. Where legacy drawings for CSIs do not clearly identify the item as a CSI, or do not identify the critical characteristics/processes, the cognizant Service ESA shall determine whether there are sufficient other protections in place to assure successful procurement or repair/overhaul of the CSI. If not, the ESA shall update the drawings to identify the critical characteristics and/or processes; funding will be service-specific.

10. The critical characteristics for an assembly will be the sum of the critical characteristics of the subcomponents and critical characteristics created in the assembly process, if applicable. [Exhibit B](#) provides guidance on identification of critical characteristics. Critical characteristics are sub-divided into manufacturing, depot, or installation critical, as follows:

A. MANUFACTURING CRITICAL CHARACTERISTIC (M): Any feature established at a new manufacture, such as dimension, finish, material or assembly, manufacturing or inspection process, special process (i.e. heat treat, brazing/welding, plasma, shot peening, non-destructive testing, chemical cleaning, grit blast, plating and paint), installation, or operation (acceptance test), which if non-conforming, missing or degraded, could cause the failure or malfunction of the CI. [Exhibit C](#) lists typical critical manufacturing processes, and elements of those processes, which meet the definition of a critical manufacturing process.

B. DEPOT CRITICAL CHARACTERISTIC (D): Any feature during maintenance/overhaul/repair such as dimension, finish, material, assembly, inspection process, special process (i.e. heat treat, brazing/welding, plasma, shot peening, non-destructive testing, chemical cleaning, grit blast, plating and paint), installation, operation (acceptance test), or depot overhaul/repair requirement which, if non-conforming, missing or degraded during maintenance/overhaul/repair could cause the failure or malfunction of the CI.

C. INSTALLATION CRITICAL CHARACTERISTIC (I): Any feature such as proper assembly/orientation, installation sequence or technique, use of special tools/fixtures, hardware, safety wire, or torque which, if non-conforming, missing or degraded, could cause the failure or malfunction of the CI. Installation Critical does not imply that the part simply must be installed. Sometimes, the only plausible way a part can fail is through improper installation. In the case

that a piece part has proper installation as its only critical characteristic, consideration should be given to designating the next higher assembly as CSI with the appropriate critical installation characteristic(s).

11. When a criticality determination or identification of critical characteristics is performed for a common use item, the cognizant engineer shall coordinate the criticality determination/critical characteristics with engineering counterparts for each affected DoD Aviation system and shall ensure that records reflect the most stringent requirements.

12. Applicability to munitions/weapons will be added in a future revision.

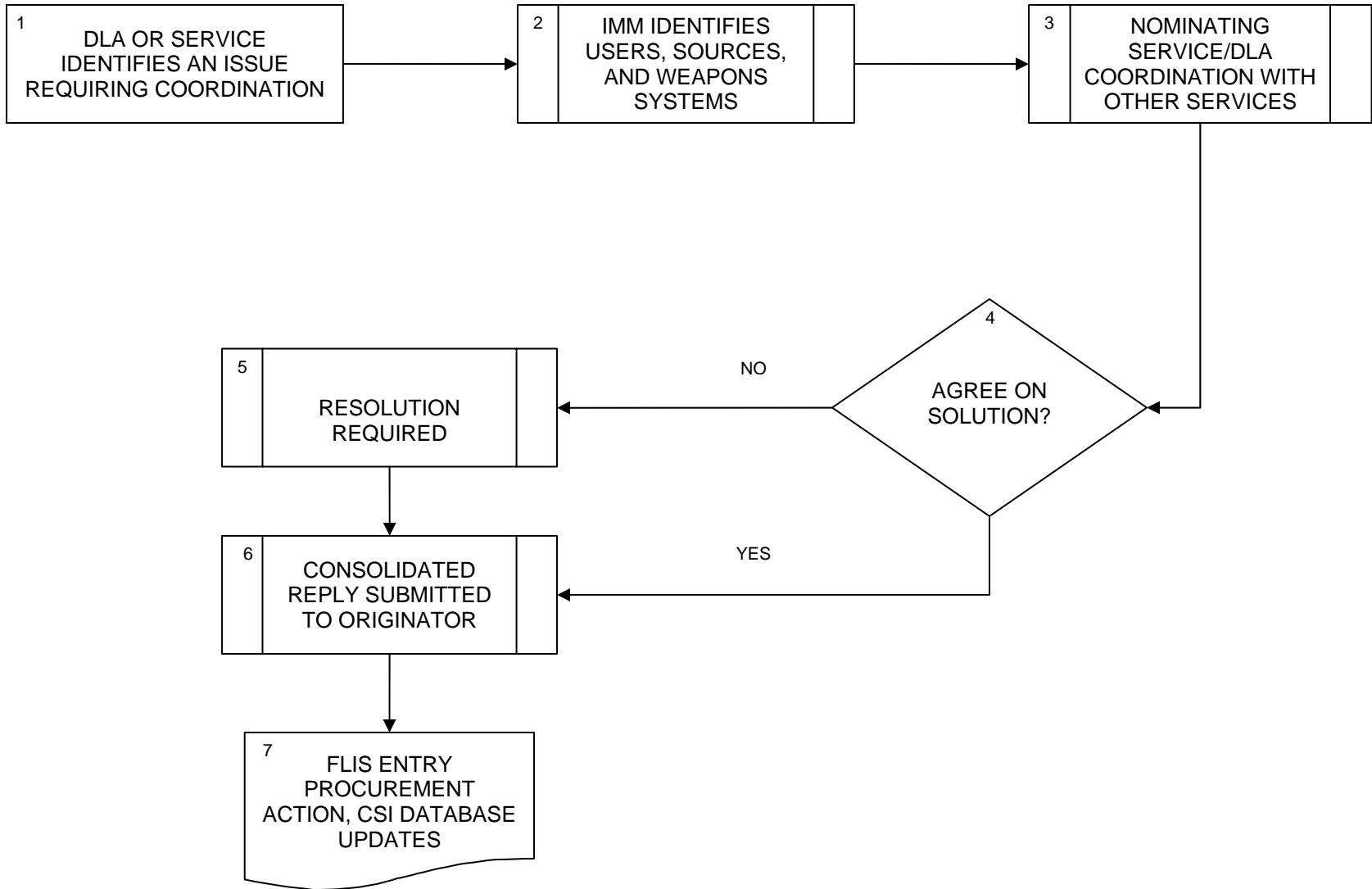
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### Section 3 CSI Common Use Item Coordination Process

1. The purpose of this section of the Handbook is to define the processes to be used for coordination of common use items between Services.
2. Many military aviation systems employ common use items, defined as a part, assembly, subsystem, or store used in different military aviation systems (e.g., “types”) or that are unique to a specific aviation system used by multiple Military Services. While the various Services may employ the same part-numbered item, the individual Services may not always agree on the criticality, critical characteristics, or approved sources for the item. A coordination process is needed to ensure that identification of critical safety items, critical characteristics, and approved sources is performed efficiently among users with maximum consideration for safety. This process will better assure coordination of criticality determinations, design changes, and other decisions among users of common use CSIs.
3. There are two instances when the CSI Common Use Item Coordination Sheet ([Exhibit D](#)) should be used:
  - A. when a Service determines that an item should be designated as a CSI, or
  - B. when a Service receives a Request for Engineering Support (RES)/DLA Form 339 regarding an existing CSI. Some examples include requests for approved sources, surplus material offers, deviations, and other miscellaneous technical requirements.

A process chart detailing the CSI Common Use Item Coordination Process is shown below. The time shown in parentheses after each step indicate the typical expected time for the completion of that activity.

# CSI COMMON USE ITEM COORDINATION PROCESS



3-2



## CSI COMMON USE ITEM COORDINATION PROCESS

**Block 1:** The IMM, DLA or an individual Service will identify an issue requiring coordination among users. This may include nominating a part as a Critical Safety Item (CSI) or coordination of a DLA Form 339 or other requests for engineering support (RES) for a CSI. Possible cases for RES include approved source coordination, surplus offers, deviations, Quality Assurance Provisions, and other miscellaneous technical requirements.

**Block 2:** The IMM will identify the using Services, the historical and current sources of supply, and the weapon system platforms on which the part is used. For an item nominated as a CSI, the request will include all critical characteristics (if identified) and will include a Common Use Item Coordination Sheet. (Typical expected time for completion is 5 days.)

**Block 3:** The coordination form will request that the other Services' POCs coordinate review and (if used by their Service) concur/provide comment on the identified issue(s). Once each Service has provided comments/concurrence, the originator will consolidate and evaluate for consensus position. The originator will act as lead for all related coordination actions. (Typical expected time for completion is 30 days.)

**Block 4:** If all using Services agree on issue resolution, proceed to Block 6. If agreement is not reached, proceed to block 5 for issue resolution.

**Block 5:** Resolution of any disagreement should be performed at the lowest possible level. If resolution cannot be reached at the working engineering level, resolution should be elevated to the systems/chief engineer level. If the issue still cannot be resolved, it should be passed to the Service Help POCs (listed on the Common Use Item Coordination Sheet) for action. In those rare instances where resolution cannot be obtained, the issue will be forwarded the head of the engineering activity for each affected ESA for a final decision. When resolution is attained, proceed to block 6. (Typical expected time for completion is 10 days.)

**Block 6:** Once resolution is attained, the completed Common Use Item Coordination Sheet and the completed Form 339/RES (if applicable) are returned to the originating IMM. When the common use item is determined to be CSI in some applications but non-CSI in others, the IMM may establish separate National Stock Numbers when it is economically advantageous to do so.

**Block 7:** The IMM adds fully coordinated part information to the FLIS. Newly designated or modified CSIs are entered in the Service specific CSI databases. (Typical expected time for completion is 5 days.)

Examples of the Common Use Item Coordination Sheet are shown in [Exhibit D](#).

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## Section 4 CSI Management Controls

1. Management controls are essential to ensuring the quality and integrity of CSIs throughout their life cycle. Significant responsibilities for CSI management controls lie with the ESA engineers, logisticians, and contracts personnel, and extend to the Commanders of Acquisition Organizations, Program Executive Officers, Program Managers, DLA, and DCMA. Standardized contractual controls for CSIs are discussed and presented in [Section 13](#) of this Handbook.
2. Aviation CSIs shall be identified during the System Development and Demonstration (SDD) phase of acquisition programs. One of the primary tools that may be used to identify them is a failure mode effects and criticality analysis (FMECA). Each aviation consumable or repairable item identified as a CSI must be tracked from initial design and updated throughout the design process to ensure adequate support planning for CSIs. Requirements to guide the identification of aviation CSIs and the milestones associated with the identification process are discussed in paragraph 3.3.10.3 of the Air Vehicle Joint Service Specifications Guide (JSSG) 2001B. Technical Data Packages (TDP) (drawings and associated documentation) for CSIs must be approved prior to provisioning and submitted to the appropriate technical data repositories.
3. Drawings or associated technical data for new replenishment items must clearly identify items as CSI and identify critical and major characteristics, critical processes, and inspection and other quality assurance requirements. Additionally, processes must be established by the Services to ensure that technical data required in the design, manufacture, procurement, repair, or overhaul of CSIs are properly reviewed and approved by the ESA cognizant engineer. This requirement also applies to development programs, upgrades, and Engineering Change Proposals (ECP).
4. Where legacy drawings for CSIs do not clearly identify the item's criticality or its critical characteristics and processes, the ESA cognizant engineer shall determine whether and when it is necessary to update the technical documentation, or whether there are sufficient other protections in place to assure procurement or repair/overhaul of the item in an appropriate manner [e.g., the item is purchased only from the Prime Contractor or Original Equipment Manufacturer (OEM), or a technical data package has been developed for alternate source procurements].
5. Requests for engineering support are routinely initiated by activities external to the ESA. The requirements for processing requests for engineering support from DLA are documented in DLAI 3200.1. Every effort shall be made to ensure responses to DLA Form 339s and requests for engineering support are accurate and timely, and DLA shall be notified if the requested timeframe cannot be met, along with an estimated completion date. When DCMA refers deviation and other requests on significant characteristics to the ESA, the ESA should document the disposition of the characteristics as critical characteristics or not.
6. Government Contract Quality Assurance (GCQA) at source shall be required for all CSI procurements, except when not possible, as with procurements from dealers and distributors (see paragraph 14.a.4 below). The GCQA approach shall be sufficient to ensure conformance of all critical characteristics and critical processes identified on the drawing, specification, or technical data package, established in the contract, or otherwise identified using Enclosure (3) of

[Appendix I](#). Critical characteristics and processes may be indicated on the drawing by a black star, flight critical marking, or similar identification. GCQA is not limited to verification of the CSI critical characteristics. When the Service ESA identifies specific CSI quality requirements, the requirements shall be documented in Quality Assurance Provisions (QAPs) or Quality Assurance Letters of Instruction (QALIs) and provided to the procuring activity. GCQA inspections will be performed on surplus offers to ensure product conformance and that all critical characteristics are acceptable. Supplementary Quality Assurance (QA) provisions may be provided where verification of critical characteristics cannot be performed without degradation of the CSI.

7. Local purchase of CSIs is prohibited unless justified by unusual and compelling urgency, as described in Defense Federal Acquisition Regulation Supplement (DFARS) 208.70, Coordinated Acquisition. When CSIs are procured locally, the buying activity shall notify the cognizant Integrated Material Manager (IMM) in accordance with the DFARS. In addition to the DFARS requirements, local purchase of CSIs is not authorized unless approved by the ESA cognizant engineer.

8. Solicitations and contracts for CSIs shall identify the CSIs in the contract. Contract awards shall only be made to sources approved by the ESA cognizant engineer and must reflect any technical and quality assurance requirements established by the ESA. Any commercial contracts for CSIs must contain an appropriate addendum to allow DCMA access to verify product and process conformance on a non-interference basis. Certificates of Conformance (CoCs) for CSIs in lieu of government product verifications are not authorized without ESA approval. Procuring activities shall withhold deviation authority for minor non-conformances on CSIs unless otherwise advised by the ESA. [Section 13](#) of this document provides detailed guidance on contract requirements for CSIs.

9. All Class I ECPs, proposed permanent or temporary modifications, and critical or major non-conformances/deviations on CSIs, shall be reviewed and approved by the ESA cognizant engineer – this specific authority may not be delegated. The head of the ESA or their designated representative must approve exceptions to critical characteristics. Unless delegated to DCMA, the ESA cognizant engineer shall approve all Class II ECPs and minor non-conformances/deviations for CSIs. The ESA may delegate to DCMA approval authority for minor non-conformances/deviations and Class II ECPs for CSIs. Delegation should be considered for Prime Contractors and OEMs for CSIs based upon their knowledge of design intent as well as the impact of specific non-conformances or design changes upon the end function of CSIs. Allowing this disposition by the Prime Contractors and OEMs with DCMA oversight does not preclude the ESA from requiring minor non-conformances/ deviations and Class II ECPs be submitted for their oversight/review/approval as deemed necessary for a specific program. This delegation is granted on a Commercial and Government Entity (CAGE) code (i.e. site-specific) basis. Requests for delegation may come from procuring activities, DCMA, suppliers, or may be internally initiated within the ESA. The local DCMA Quality Assurance Representative (QAR) should be contacted for input into the delegation decision process. Candidate sites should have minimal occurrences of misclassifications or patterns of inappropriate repair or “use-as-is” versus scrap.

10. The Acquisition Method Code (AMC)/Acquisition Method Suffix Code (AMSC) for CSIs shall be assigned based on service policy; and shall be based on direction from the ESA. DFARS Appendix E provides background and definitions related to AMC/AMSC. The ESA may delegate responsibility to the IMM for assignment of AMC/AMSC as deemed appropriate. AMC/AMSC codes of 1G or 2G (i.e., a part is a candidate for full and open competition) shall not be used for CSIs unless specifically approved by the ESA cognizant engineer. In cases where items are designated CSI based solely on installation-critical characteristic(s), use of AMSC of G may be appropriate and should be considered by the ESA cognizant engineer. The ESA shall approve any proposed change to AMC/AMSC assignments from a restrictive code to a less restrictive code for CSIs.

11. To identify and correct non-conforming situations before they become problems to the fleet and to identify and institute process improvements, the Services, DLA, and DCMA shall jointly conduct a periodic assessment of CSI management controls to confirm that the requirements of this document and [Appendix I](#) are properly implemented.

## 12. Quality

A. **SERIALIZATION**: All CSIs require individual serialization on the part as well as the packaging for traceability unless it is not practical due to size, material property, unreasonable or excessive cost, or other requirements as specified by the cognizant Service ESA. When impractical to establish serial numbers on the item itself, CSIs shall have distinguishable marking schemes approved by the Service ESA. The technical documentation shall reflect the appropriate marking scheme. The cognizant Service ESA should institute a serial number control program to ensure unique identification of all CSIs. All serialized and lot numbered CSIs shall be accounted for; this includes material scrapped during manufacturing. Re-branding by suppliers which obscures the original marking (part number, serial number, cage) of the OEM of CSIs is prohibited. Refer to DFARS 252.211-7003 Unique Identification Requirements and DFARS 211.274 Item Identification and Valuation for additional information and guidance regarding CSI serialization.

B. **INSPECTION OF CRITICAL CHARACTERISTICS**: All critical characteristics, which can be non-destructively inspected/tested, shall be subjected to 100% inspection by the contractor or subcontractor unless sampling or Statistical Process Control approaches have been approved by the ESA or DCMA. Critical characteristics that require destructive testing are to be tested on a lot or batch basis, with no skip lots allowed, unless a deviation is granted by the cognizant ESA. In reviewing the request for deviation, the cognizant ESA should take into account the need for the part, product history, completed test results, and quality history of the vendor. All critical characteristic inspections shall be recorded by serial number (or lot number if serialization is not required) and shall include the CSI part number, drawing number, characteristic inspected, actual reading or dimension observed, date of inspection, identity of inspector, and all required inspection certifications.

C. **VARIABILITY REDUCTION METHODS**: Once the suppliers' manufacturing and quality assurance processes demonstrate that the critical processes are statistically in control, stable, and capable, the cognizant Service ESA may allow the contractor to implement a

Statistical Process Control (SPC) program in lieu of 100% inspection. SPC program authority must be specifically approved by the ESA on an exception basis. This approval authority may be delegated to the DCMA in which case the cognizant Service ESA will be informed of any approval or suspension of SPC. At the Government's discretion, 100% inspection may be reinstated if the process controls prove inadequate.

D. CONTRADICTION CRITICAL CHARACTERISTICS: Contradictions between the TDP list of critical characteristics, contractually furnished data, and the drawing/specifications shall not be resolved by the order of precedence paragraph in the TDP. The contractor shall notify the cognizant Service ESA through the Procuring Contracting Officer (PCO), with a copy to the DCMA ACO, immediately and any work pertaining to the critical characteristic in question shall be stopped until a written resolution to the contradiction is issued.

E. NON-CONFORMING MATERIAL: As a rule, only CSIs that fully conform to all characteristics shall be accepted. Exceptions can be made in cases of public exigency, but only when the non-conformances have been reviewed, approved, and justified in writing by the cognizant Service ESA. Non-conformances of critical characteristics shall not be dispositioned "use-as-is" or "repair" through contractor action, although rework to print is acceptable. Requests for deviations of critical characteristics shall be classified critical and require review of the cognizant Service ESA. Action on such a request shall result in a change to the technical data requirements, deletion of the critical characteristic in its entirety, or disapproval of the request. Non-conforming critical characteristics shall not be accepted by Materiel Review Board (MRB) action.

F. DELIVERED NON-CONFORMANCES: Contractors shall notify the PCO immediately of any discovered non-conformances that may exist in previously delivered CSIs. Notification is required whether or not the characteristic in question has been classified as a critical characteristic. Notification shall include a description of the suspected non-conformance, contract number, part numbers (P/Ns), affected serial numbers (S/Ns), or lot numbers, when applicable.

G. INSTALLATION OF CSIs: Modifications of CSIs during installation or repair in order to make the item fit or function are prohibited unless approved by the cognizant Service ESA or unless specifically designed to be tailored at installation (fuel/hydraulic/pneumatic lines, wiring, etc.). CSIs that need to be modified to make them fit or function properly shall not be installed until the problem has been reported to the cognizant Service ESA and dispositioned in accordance with established discrepant material review processes. Prior to installation of replacement CSIs not drawn from "ready for issue" inventory, the ESA shall ensure that all required maintenance actions and configuration changes are in conformance with current fleet technical documentation and that applicable acceptance test procedures have been satisfied.

H. DISPOSAL: When CSIs are no longer required, the CSIs and associated documentation shall be provided to the Defense Reutilization and Marketing Service (DRMS) for disposal as required by references 2 and 18 of [Appendix I](#). When it is not economically practical to send consumable CSIs to DRMS, Military Services shall dispose of the CSIs in accordance with paragraph E.4.b of [Appendix I](#). Prior to disposal, CSIs that are defective, non-conforming, have

exceeded their life or time/use critical limits, or for which there is either no documentation or no reliable documentation regarding the manufacture, acquisition, use, modification, repair, or overhaul shall be mutilated. CSIs that contain military offensive or defensive capabilities shall be demilitarized in accordance with reference 20 of [Appendix I](#). Contracts for the repair, overhaul or modification of aviation systems, subsystems, or equipment shall ensure proper disposal of CSIs. Only CSIs purchased from FAA certificate holders or removed from FAA certificated aircraft with full documentation supporting FAA approval from original approval (design and production) through maintenance/repair and use shall be considered dual use and disposed of with documentation in accordance with references 2 and 13 of [Appendix I](#). CSIs that were originally purchased with an FAA certification (i.e., dual-use) or were received as an installed item on an FAA certificated aircraft will not retain their dual-use status if any subsequent modifications, repairs, engineering changes, deviations were made without FAA approval or if the items were manufactured in a facility that does not have FAA production approval. In such cases, the item is to be considered “military-unique” upon disposal.

### 13. Product Quality Deficiency Report (PQDR)

A. WHEN TO SUBMIT A PQDR: The Joint Instruction ([Appendix I](#)) requires that a PQDR be submitted on a CSI when a defect or non-conforming condition is detected on new or newly reworked government-owned products, premature equipment failures, or products in use that do not fulfill their expected purpose, operation, or service due to deficiencies in design, specification, material, manufacturing, or workmanship. All cross-Service CSI PQDRs will be reported, investigated, tracked, processed, and resolved in accordance with reference 18 of [Appendix I](#). A PQDR submitted specifically on deficiencies relating to critical characteristics of CSI or those characteristics that potentially impact safety will be classified as Category I PQDRs.

B. PQDRs AND MULTIPLE PLATFORMS: If the PQDR item is common to multiple platforms, a copy of the PDQR, or other technical notification of the deficiency, shall be sent to all item users. Initial mitigation of Category I CSI deficiencies will be formally addressed through Technical directives (e.g., Technical Notices, Safety of Flight Messages, Airworthiness Directives, Bulletins, etc.) issued and managed in accordance with Service instructions. The appropriate engineering authority will approve resolution actions associated with Category I PQDR CSI investigations.

C. DEFICIENCIES DISCOVERED BY THE CONTRACTOR: All deficiencies (including repair, maintenance, logistic support, overhaul services, and technical non-conformance of CSIs) discovered by the contractor to potentially affect safety, shall be identified to the Administrative Contracting Officer (ACO), and PCO, within 72 hours of discovery. Such notifications indicate potential safety implications and will result in a Category I PQDR, and will be processed according to Service PQDR policy and procedures.

## 14. CSI Government Contract Quality Assurance (GCQA)

### A. GCQA PLANNING

(1) The DCMA Technical Specialist shall review contracts, QALIs, and any other procuring activity direction involving CSIs to identify technical requirements, inspections, and acceptance criteria; particularly those associated with critical and major characteristics. Where the technical specialist believes an item may be a CSI but is not identified as such or an item may be inappropriately identified as a CSI, the technical specialist will initiate contact with the procuring activity to request guidance.

(2) Where the contract clearly identifies an item as CSI but the technical requirements or customer direction [e.g. QALI or Memorandum of Agreement (MOA)] do not identify critical characteristics, the technical specialist shall apply the Significant Product Characteristics/Features (see [Exhibit B](#)) for CSI criteria to determine the characteristics/features that should be treated as significant during GCQA surveillance activities. The DCMA shall contact the ESA and identify the lack of critical characteristic identification. The ESA shall take action to correct the technical data reflecting critical characteristics. If application of the criteria will result in excessive DCMA resource expenditure, guidance should be requested from the procuring activity. Features/characteristics identified as significant shall be shared with the ESA for potential use in critical characteristic determinations.

(3) GCQA will not be limited to verification of identified CSI critical characteristics (i.e. as identified by drawings, specifications, technical data package, or otherwise within the contract). The following key processes have been identified by the ESAs as important in so far as they pertain to a specific CSI and should be considered by DCMA when identifying “key processes”. Graded Quality Assurance (GQA) surveillance of these processes should be risk based. These processes include: destructive and non-destructive tests (e.g. proof load, pressure, leakage, tensile, operational/functional, etc); special processes (e.g. welding, soldering, shot peen, bonding and curing for composite and honeycomb assemblies, surface coatings and plating, etc.); heat treat; stress relieve; part markings, fabrication and assembly; and special packaging or handling (e.g. control of electrostatic discharge).

(4) DCMA shall request that the procuring activity either provide specific acceptance criteria or require acceptance at destination vice source when the CSI contract is awarded to a dealer or distributor and the applicable drawings, specifications, test or inspection equipment or facilities are not available to the DCMA specialist to verify product conformance.

### B. CSI SURVEILLANCE

(1) DCMA shall perform the appropriate level of GCQA as outlined in DCMA CSI Product Assurance Instructions.

(2) When the contractor is required to perform 100% inspection of critical characteristics, DCMA will verify contractor compliance of this requirement but does not necessarily have to physically perform this same 100% inspection to verify compliance.



C. NON-CONFORMING MATERIAL

(1) DCMA shall perform disposition of minor non-conformances of CSIs (non-critical characteristics) at those Suppliers/CAGEs where such authority has been specifically delegated by the ESA. Any use-as-is or repair dispositions being applied to contractually defined critical characteristics must be forwarded to the procuring activity and subsequently to the ESA for approval. Where the critical characteristic is not contractually identified, but identified through a QALI or other customer direction, any use-as-is or repair disposition to non-conformance of such characteristics must be prior coordinated with the procuring activity. Where DCMA non-conformance data show evidence of trends indicating potential problems with the specific CSI or other related critical products produced by the manufacturer, the specialist shall advise the PCO and the ESA of such.

(2) DCMA shall review ECPs and requests for major and minor deviations for completeness and accuracy. For those actions that DCMA does not have approval authority, DCMA will provide comments and recommendations to the procuring activity.

D. COMMUNICATION WITH PROCURING ACTIVITY

(1) DCMA will advise the procuring activity of all corrective action requests that they issue to the supplier relating to CSIs, including, but not limited to, CSI non-conformances, deficient manufacturing, configuration management, quality management, or supplier management processes. DCMA will also keep the procuring activity aware of the status of contractor activity to resolve the issues identified in the corrective action requests.

(2) DCMA will notify affected procuring activities when they become aware that a contractor has removed a source from the contractors' listing of approved subcontractors or suppliers because of improper or suspect manufacturing, quality management, or configuration management processes. Any impact on critical safety items will be included in the notification.

(3) When DCMA determines that the use of a CoC in lieu of GCQA is in the best interest of the Government, they will provide a recommendation for its use to the procuring activity. If the use of a CoC is then approved by the ESA, DCMA shall assure that the contract has been appropriately modified prior to implementing the CoC.

E. DELEGATIONS

(1) When DCMA anticipates delegating to a Host Nation the GCQA functions for aviation CSIs maintained, repaired, or overhauled at supplier facilities outside the United States, DCMA will obtain concurrence from the affected ESAs. As much as practical, the GCQA delegations should show the functions to be performed by the Host Nation for each aviation program. DCMA and the ESAs will review the effectiveness of the delegation at least every three years.

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## Section 5 CSI Data Management

1. At present, there are multiple automated systems used by DoD aviation activities to manage workload and data associated with CSIs. Often these databases allow only limited access, or are incompatible with other data systems. An essential factor in timely CSI coordination is a means to quickly identify CSIs used by other Services. Currently, limited coordination is being done via person-to-person, telephone or e-mail contact, but a more universal approach is required. A long-term goal is to establish common CSI databases and management information systems that will allow CSI managers in each of the Services, as well as in DLA and DCMA, to have real-time access to the same information regarding CSI technical data, sources, source approval, vendor surveys, Form 339 resolution, and other information that may benefit from DoD-wide coordination.

2. Pending development of common CSI data systems, a data viewer concept is being pursued to allow near-term access to CSI information from all Services, DLA and Inventory Control Points (ICPs). The CSI data viewer is intended as an information source for general use by individual Services, DLA, and DCMA to provide information regarding Service-identified CSIs and their approved sources. A single-portal web services based data viewer is anticipated, with a common approach to search and display the results from each of the three Service's CSI databases. This methodology will allow for independent ownership of the database structure while accomplishing a coordinated environment to share data. A joint working group has been established to compile existing and readily available CSI data and to set longer-range goals to further define and refine CSI data requirements. The point of contact for the joint working group is Alan Burleson, US Army Research Development and Engineering Command (RDECOM), contact information in [Exhibit A](#). Each Service will continue to maintain their own database architecture but will be required to adhere to the web service requirements defined by the joint working group.

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## Section 6 Manufacturing Source Approval Request (SAR) Content and Processing

1. The Competition In Contracting Act of 1984 (CICA), (PL 96-369) established requirements to increase competition in defense procurements. The source approval requirements and processes outlined herein are not intended to restrict competition, but rather to ensure that proposed sources are capable of consistently producing acceptable items while increasing competition for manufacture of CSIs. These processes are also used to qualify sources in cases where the only approved sources (e.g. the Prime Contractor and/or OEM) will no longer quote. The processes used for approving sources for CSIs by the DoD are comparable to Federal Aviation Administration Parts Manufacturer Approval (PMA) procedures.
2. When the procuring activity determines the need and feasibility for an alternative source for a CSI or receives an unsolicited proposal from a vendor, their technicians interface with industry to develop a SAR. A SAR must include all data required to manufacture, identify, and describe the item; indicate if the proposed source has ever supplied the subject or similar item to the Prime Contractor, OEM, or the DoD; and specify any manufacturing or inspection changes that would be necessary if the item is procured from a new source. The ESA will review the request to determine if there is sufficient data available to manufacture the item to the required quality and assess the capability of the prospective source to manufacture the item to the required quality with available technical data. The ESA shall also assess the capability of the prospective source to manufacture and deliver the item in accordance with technical requirements. As a part of this process, Service and DLA logistics organizations and the Defense Contract Management Agency (DCMA) may provide assistance to the ESA in assessing “value added” for CSIs.
3. The following paragraph outlines the typical content requirements for a SAR from a potential source of supply for a CSI. The ESA cognizant engineer should consider all SARs for potential approval based on the data forwarded by the Procuring Activity. Based upon individual service procedures, the ESA cognizant engineer may determine that certain sections of the SAR are not required for their review; however, legal precedents require that all SAR packages be processed consistently. Therefore, if any section is to be excluded, the reason will be stated in Section B of the SAR with prior agreement between the ESA cognizant engineer and the procuring activity.
4. CSI SARs contain the following information:
  - A. COVER LETTER - The content of this letter prepared by the procuring activity should include the following information: proposing vendor's name and CAGE code, SAR Tracking Number/339 Case Number (as applicable), subject part number and National Stock Number (NSN), subject item AMC/AMSC, nomenclature of the subject item, and type/model/series (TMS) in which the item is used. This letter also lists the category of the SAR as defined in paragraphs 6.C and 6.D below.
  - B. SAR SUMMARY - This section allows the originator at the procuring activity to explain any problems/concerns they have encountered in the initial review of the SAR. It also allows them to preclude questions/comments from the ESA relating to deficiencies or concerns that the procuring activity has already addressed but not necessarily documented elsewhere in the SAR.

C. VENDOR CORRESPONDENCE AND BROCHURE - This section contains any correspondence between the procuring activity and the proposing vendor and occasionally from potential sub-vendors. The vendor's brochure may vary but usually gives a description of the company, background, facilities and personnel. A copy of the vendor's brochure will be kept at the procuring activity to include in future SAR submittals to preclude the need for multiple submittals.

D. QUALITY CONTROL DOCUMENTATION - This section provides a synopsis of the proposed vendor's quality program capabilities and reporting system. A statement addressing the vendor's quality system and its application shall be provided by the procuring activity. This section also contains any available DoD technical evaluations of the proposing vendor's production capability, quality assurance procedures, industrial resources, material purchasing, and sub-vendor controls. A copy of the vendor's QA manual will be kept at the procuring activity to include in SAR submittals to preclude the need for multiple submittals. If a copy is required for review, contact the procuring activity.

E. SUBJECT ITEM DRAWINGS - This section provides data required to manufacture, assemble and test the subject item. This information includes drawings (casting, forging, detail, assembly, source controlled, masters, airfoil data), configuration (revision), parts list, any unincorporated Engineering Order (EO), Engineering Change Proposal (ECP), Notice of Revision (NOR), Design Change Notice (DCN), or Change in Design (CID), Requirements Control Card (RCC) and Quality Assurance Document (QAD), etc. (RCC and QAD are Pratt & Whitney peculiar). The subject item drawings will typically include references to materials, processes, specifications, and may include data relating to mandatory inspections and inspection intervals.

F. SUBJECT ITEM SPECIFICATIONS - This section provides a complete listing of specifications identified on the subject item drawings and it provides a copy of the title page of each specification. The list will be presented by specification title and number sequence and will include superseded documents. The specification title page will be used to verify that the proposed vendor possesses all the required specifications.

G. SUBVENDOR INFORMATION - Identifies the sub-vendors, if any, that the vendor intends to use. Sub-vended processes shall be denoted as critical or non-critical. Sub-vendors for critical processes shall be listed in this section and a statement shall be included from the procuring activity (or documents shall be provided by the proposing vendor) verifying that these vendors are currently Prime Contractor approved. If the potential vendor proposes the use of sub-vendors who are not Prime Contractor approved, the procuring activity will inform the ESA in advance of SAR submittal. If the status of a sub-vendor is unknown, the procuring activity will indicate it in this section of the package.

H. ILLUSTRATED PARTS BREAKDOWN (IPB) - Not required, but sometimes used, this section provides a line drawing of the subject part, lists associated part numbers, number of units required per system, and Supply, Maintenance & Recoverability (SM&R) code. This IPB details the physical location of the part in the next higher assembly. When available, the IPB for Category II similar items will also be included in the TDP.

I. SIMILARITIES AND DIFFERENCES BETWEEN SUBJECT AND SIMILAR ITEMS - If the proposing vendor is requesting approval on the basis of their ability to provide items of similar manufacturing complexity (Category II), the SAR must identify the specific differences in materials, coatings, design, manufacturing processes, operating environment, etc. between the similar item and the subject item.

J. QUALITY DEFICIENCY REPORTS (QDRs) - This section contains quality deficiency reports from the field. This information should be provided for the proposing vendor's CAGE code and by part number for the subject (and similar, for Category II proposals) item(s).

K. SIMILAR ITEM DRAWINGS - For Category II proposals, this section provides information detailing the design, manufacture and production of the similar item(s). This information includes drawings (casting, detail, assembly, source controlled, and masters), configuration (revision), parts list, QADs, RCCs, etc. This section should contain the same quality of information as the Subject Item Drawings Section outlined in paragraph E above.

L. PURCHASE ORDERS AND SHIPPING DOCUMENTS - This section contains purchase orders from the Prime Contractor/OEM/Government to the proposing vendor for the subject or similar items. All documents in this section should be dated, and shipping documents should account for all items ordered. This information shall indicate when the supplier last produced the subject item or an item of similar manufacturing complexity. It may indicate how long it took to manufacture the item and, in some cases, may note quality problems that occurred during production. It is important that documented performance is recent in order to adequately reflect the current manufacturing capabilities of the proposed vendor. Therefore, contract performance documentation included in SARs must be submitted no later than three (3) years after the date of last delivery, as evidenced by latest shipping document. The 3-year threshold shall apply on the date the SAR is received by the procuring activity. Should the 3-year period expire prior to SAR review completion, confirmation of continued capability will be addressed. If a contract was terminated, the reason for termination should be included in this section. The data provided in this section shall be for the same contract(s) as those provided in SAR Sections M and N.

M. PROCESS/OPERATION SHEETS (OP Sheets) - This section shall provide a detailed step-by-step account of the procedures necessary in the proper sequence to manufacture the subject or similar item depending on the SAR category, including review and validation of Computer Numerically Controlled (CNC) data. The sheets must indicate operation number, description, tolerance (specification), location, sub-vendors, etc. necessary to control manufacturing operations and be signed/stamped off by in-process operator and/or inspector. For Category I packages, copies of the actual sheets used for production of the subject item must be submitted. For Category II packages, copies of the actual sheets used for production of the similar item must be submitted as well as detailed proposed op sheets for manufacture of the subject CSI in order to demonstrate the proposing vendor's comprehension of the required manufacturing processes. The data provided in this section pertaining to manufacturing history shall be for the same contract(s) as those provided in SAR Sections L and N.

NOTE: Route sheets that may be enclosed in this section are not to be considered a replacement for detailed operation sheets. Lack of detailed process/operations sheets pertaining to manufacturing history in the SAR is cause for disapproval of a vendor's proposal.

N. INSPECTION METHOD SHEETS (IMS) - This section shall provide the actual inspection sheets the proposing vendor has used in production of the subject or similar item depending on the SAR category. This information shall include characteristics to be inspected, special instructions, item, zone, acceptability limits, inspection tooling/method, frequency and inspector's stamp. IMS may be included as an integral part of the OP Sheets in SAR Section M. The data provided in this section shall be for the same contract(s) as those provided in SAR Sections L and M.

O. MATERIAL REVIEW BOARD (MRB)/ITEM QUALITY HISTORY - MRB information should be included from the Prime Contractor and/or proposed supplier including MRB actions, ECPs, and relevant data indicating significant failure history, since the potential manufacturing will be in accordance with that Prime Contractor's policies and procedures. Quality history may also be included. Reviewers should note any deficiencies identified by the Prime Contractor. This data should be considered when making a determination of vendor viability and the need for a vendor survey or pre-award survey.

P. QUALITY RATING WITH PRIME CONTRACTOR - This section provides a Prime Contractor's quality system report for the proposing vendor. This rating must be from the Prime Contractor that is the contractor responsible for the drawing for the subject item, since the potential manufacturing will be in accordance with that Prime Contractor's policies and processes. In the event of no availability of rating from the subject part drawing Prime Contractor, alternate quality ratings from other Prime Contractors will be considered. If the company has not manufactured for the subject part drawing Prime Contractor, the qualification process may be extensive due to the proposing vendor's lack of experience with the proprietary process documents and requirements typically called out in a Prime Contractor's technical data. Quality history may also be included in this section. Reviewers should note any deficiencies identified by the Prime Contractor. This data should be considered when making a determination of vendor viability and the need for a site survey or pre-award survey.

Q. CONTRACT QUALITY ASSURANCE PROVISIONS (QAP) - This section of the SAR differs from the other sections in that the others are information from the contractor to be evaluated/approved by the government while Section Q of the SAR is the QA requirements information the government will incorporate into any resultant contract for the subject item. This section contains the proposed QA elements that are intended to ensure that the manufacturing, inspection, and testing processes of the new source will produce spare parts that are of equal or better quality as the items originally supplied by the Prime Contractor. The ESA review should verify that the QAP specifies all tests and inspections that will be included in the contract and performed by the vendor and/or the government. This section shall be tailored as deemed necessary by the ESA, and may be completed during the SAR review or at contract award, depending on the ESAs' internal procedures.



(1) CRITICAL CHARACTERISTICS AND PROCESSES - This section contains a listing of the critical characteristics and processes necessary for the manufacture of the subject item. The vendor, subject to QAR concurrence, shall identify major and minor characteristics unless defined on applicable drawings and associated specifications.

NOTE: Critical manufacturing processes can be subcontracted only to OEM or DoD approved vendors unless a detailed SAR is approved by the ESA cognizant engineer for a new process source. This situation may require full system/dynamic qualification.

(2) FIRST ARTICLE TEST (FAT) REQUIREMENTS - This section contains FAT requirements, including the testing criteria, testing activity, testing site, sample size, and schedule ([Section 7](#) provides general guidance on application of FAT requirements).

(3) PRODUCTION LOT TEST (PLT) REQUIREMENTS - This section contains PLT requirements, including the testing criteria, testing activity, testing site, sample size, and schedule ([Section 7](#) provides general guidance on application of PLT requirements).

(4) CONTRACT DATA REQUIREMENTS LIST (CDRL) - This section contains contract deliverables related to the performance of the contract. Standard Certification Data/Reports for CSIs include Complete Process/Operations Sheets, Complete Inspection Method Sheets, Material Certifications, Process Certifications, and Request for Deviation.

(5) FATIGUE TESTING REQUIREMENTS FOR QUALIFICATION - This section contains testing requirements, criteria, site, number of samples, and references for conduct of fatigue qualification of CSIs as applicable.

NOTE: Generally, fatigue testing consisting of at least two items is required for qualification of alternate sources for helicopter fatigue-sensitive components.

R. SAR CHECKLIST - In order to ensure a consistent and thorough review of SARs, a detailed checklist will be included to facilitate a structured review of all essential elements with specific annotations to indicate whether or not each element has been reviewed. An example of an acceptable checklist is included in [Exhibit E](#). Each ESA will use their own checklist consistent with their internal procedures; the information provided by the offeror should be the same, irrespective of the Service. If all required information is not provided, contact the POC listed on the SAR cover letter. If the information requested is not provided within the timeframe established in Service-specific guidance, the SAR package will be returned to the originator. The procuring activity includes this checklist in the SAR and shall complete a portion of it prior to SAR submittal. Each reviewer will check the elements they examine to provide a positive confirmation that all of the essential SAR elements are reviewed and to help eliminate duplication of effort by other reviewers.

5. The source approval review for CSI manufacturing focuses on adequacy of technical data, proper identification of critical characteristics, capabilities of manufacturing sources/sub-vendors, proper definition of qualification requirements to ensure equivalent

performance of items, identification of QA requirements, and verification of government/contractor testing capabilities. The general process for handling/routing of SARs follows:

A. The procuring activity informs all interested vendors of basic qualification criteria by providing them with the requirements for source approval. Service and DLA websites for this information are included in [Exhibit F](#). Meetings with manufacturers to answer their specific questions relative to the approval process for alternate sources of CSIs may also be conducted by the procuring activity. SARs from potential sources for CSIs, along with the Form 339 requests when CSI SARs are submitted by DLA, are routed to the ESA cognizant engineer for review and disposition.

B. The ESA is responsible for receiving, tracking, and returning the SARs for their activity and ensuring that precautions are taken to prevent access by unauthorized personnel to any proprietary data in the packages. The SAR shall enter and exit the engineering review process at a single focal point, regardless of the geographical location of the actual reviewers. The ESA cognizant engineer's review may be supported by specialists from quality assurance, reliability and maintainability, manufacturing and production, technical disciplines, logistics, and configuration management. The ESA cognizant engineer reviews the SAR and any comments from assigned specialists and evaluates the engineering characteristics, design change activity, quality assurance, manufacturing history, and field experience with the item. The ESA cognizant engineer then synthesizes the available information, assesses the risks, and makes the approval or disapproval decision. The entire SAR review process shall be accomplished within 180 days, unless negotiated with the IMM.

C. If a new vendor is technically approved through the SAR review process, the ESA will determine any contractor and government quality assurance/test requirements (e.g., FAT, FPL, PLT, mandatory inspection requirements, etc.) and/or test reports that must be specified on the contract data requirements list (CDRL/DD Form 1423) during the SAR review or at contract award.

D. Upon receipt of the ESA disposition of a SAR, the procuring activity then advises the submitter of approval or disapproval.

6. The ESA cognizant engineers are ultimately responsible for ensuring the airworthiness of the components under their cognizance and are responsible for the technical review of SARs for CSIs. The SAR technical review covers three broad functional areas: engineering, manufacturing, and quality assurance.

A. **RESPONSIBILITY** - The technical evaluation is the final decision point for determining whether a source can produce a conforming CSI from the available technical data. The ESA cognizant engineer is responsible for the SAR review, considering the comments provided by any other reviewers, assessing the risks, and approving or disapproving the new source based on their engineering judgment. In addition, the ESA cognizant engineer is responsible for tailoring the QAP to the specific requirements of the SAR item during the SAR review or at contract award.

B. OBJECTIVE - The objective of the technical evaluation is to determine whether the proposing vendor has the capability to consistently produce the item to the required specifications, and to insure that the available technical data is adequate to manufacture the required item. The ESA cognizant engineer determines/verifies the minimum qualification requirements and the QA requirements that proposing vendors must meet in order to manufacture a specific CSI for the DoD. The approval decision must consider both vendor capability and risk. Vendor capability is evaluated based on the SAR review. Risk is evaluated based on an assessment of the items in paragraph 7 below.

C. SAR CATEGORY I - ACTUAL MANUFACTURER PROPOSAL - These proposals are received from vendors who have manufactured the identical (subject) item for the Prime Contractor, OEM, or another Service.

(1) To evaluate these proposals the ESA cognizant engineer must determine if the proposal adequately verifies that the vendor previously manufactured the identical item for the Prime Contractor, OEM, or another DoD activity and still has the capability to manufacture identical items of consistent quality at the required production rates.

(2) The engineering evaluation must ensure that the SAR adequately describes all of the essential manufacturing processes required to produce the subject item; determine if the vendor's manufacturing experience for the item is current; and determine if the SAR shows that the vendor has the capability and equipment to perform all of the required manufacturing processes and adequately control any sub-contracted processes.

(3) If it is determined that the proposed vendor's experience is not current or the proposal does not adequately document the vendor's ability to perform the required processes, the ESA cognizant engineer must specify the deficiencies in their comments, and return the SAR to the procuring activity with a cover letter summarizing the deficiencies.

D. SAR CATEGORY II - SIMILAR ITEM PROPOSAL - These proposals are received from vendors who have not previously manufactured the subject item, but have manufactured items similar in complexity, design, manufacturing processes, materials, and application for the Prime Contractor, OEM, or another Service.

(1) To evaluate these proposals, the ESA cognizant engineer must determine if the similarity proposal: adequately describes all of the essential manufacturing processes required to produce the subject item; documents the vendor's capabilities to perform and/or control the processes needed to produce the subject item (e.g., equipment lists, qualified subcontractors, and qualified personnel); and documents the vendor's ability to produce the similar items with acceptable quality in production quantities.

(2) The ESA cognizant engineer will determine if the similarity SAR satisfactorily demonstrates the vendor's ability to produce the subject item to specifications without compromise of the design intent.

(3) The ESA cognizant engineer will also evaluate item design, qualification, durability, and fatigue/life limiting factors and determine the extent of qualification testing that may be required. Testing shall verify that the item produced by the new source will provide equal life and performance to items currently operating in the field.

(4) When all other options have been exhausted, reverse engineering may be pursued via a CATEGORY II proposal. A reverse engineering proposal is one in which a vendor endeavors to develop the data to replicate an item for which complete data is either not available to the contractor/government or where the Government does not have data rights. In these cases, the contractor will propose to generate all the data necessary to manufacture, test and have the item qualified for acceptance by the government (reverse engineering requires that a new part number be assigned). Reverse engineering is discussed in more detail in [Section 11](#).

7. When the government assumes responsibility for direct procurement of CSIs from sources other than the Prime Contractor, the government assumes certain risks. In effect, the government is acting as Prime Contractor for items that they choose to competitively procure. Liability for failure of these items is no longer a responsibility of the Prime Contractor, but the government.

A. The ESA cognizant engineer must analyze the technical risk of direct procurement from other than the Prime Contractor and determine/verify the qualification requirements and QA requirements needed to reduce that risk to an acceptable level. The risk analysis includes but is not limited to assessment of the following elements:

(1) The criticality and complexity of the manufacturing and inspection processes required to produce the item (analysis of FMECA data may aid in the determination of criticality and characteristics) and sensitivity of the processes to the techniques and skill level of manufacturing personnel;

(2) The item's critical characteristics, required QA controls, and qualification requirements;

(3) The design life limits/expected service life of the item;

(4) The quality history for the component;

(5) Prime Contractor "value-added" in the manufacturing process. Value added is defined as any oversight, process, operation, or technical data provided by the Prime Contractor that would have to be replaced by the Government. Examples include: QA/supply of raw material/forgings; providing data not shown on component drawings such as machining, feed speeds, machining impacts, casting/forging information, design life, etc.; MRB disposition; special tooling and fixtures; master tooling calibration; and providing personnel at the subcontractor's facility to perform engineering and quality management services;

(6) Availability of any special equipment, tooling, fixtures, and/or jigs (may be obtained from the cognizant DCMA);

(7) Review of upcoming design changes through ECPs, changes in design, the component improvement program and engineering development program.

B. The ESA cognizant engineer shall review and refine (as required) the qualification/QAP requirements for the item and include these changes as enclosures to the formal disposition letter.

C. The Defense Federal Acquisition Regulation - Appendix E (Spare Parts Breakout Program) Section E-3-3.4, paragraph (c), steps 32 and 33, permit exceptions to source approval if it cannot be accomplished safely. Specifically, source approval is only required if: a potential new source can satisfactorily perform the quality control responsibilities currently performed by the Prime Contractor, or the government can satisfactorily perform the quality control responsibilities currently performed by the Prime Contractor, or the Prime Contractor will perform the quality control services to the new source for the government.

D. If neither the government nor the potential new source have demonstrated the capability to assume the quality control responsibilities performed by the Prime Contractor during the manufacture of the subject item, and the Prime Contractor will not provide their quality control services to potential new sources of the subject item, alternate or competitive procurement of the item is not feasible.

8. ESA COGNIZANT ENGINEER EVALUATION OF DRAWINGS - Drawing reviews are conducted from a manufacturing perspective to determine if the SAR contains data of sufficient quality to allow a competent manufacturer to produce items that will be of equal or better quality to those previously procured. The following are the sequential steps performed by the ESA in performing a drawing review.

A. Perform a Top-Down Breakdown for the item, to identify all required drawings, parts lists, specifications, etc. noting that each Prime Contractor has unique drawing practices specific to their designs.

B. Determine that all sheets of each drawing are included and are current and legible.

C. Determine if all identified detail and subassembly drawings, parts lists, etc. required to manufacture and test the item are contained in the SAR. If the SAR is for an assembly, verify interface of components for form and fit.

D. Determine if all required drawings for forgings, castings, special/master tools, etc. are referenced in the SAR.

NOTE: Vendors may only use Prime Contractor or DoD approved forging or casting sources for specific forging/casting used to make CSIs.

E. Ensure that the cover pages of all required specifications are included in the SAR, by number and nomenclature.

F. Verify that ALL critical processes are called out in the drawing package by reference to specifications and that vendors for these processes are identified. Only approved sources may be used.

NOTE: The following is United Technologies Corp/Pratt & Whitney peculiar information; if drawings reference QADs they must be included in the SAR. If the QADs are not referenced on drawings, RCCs must be included in the SAR. Any other documents cited on QADs or RCCs must also be included in the SAR.

G. Review the drawings and verify that all required dimensions, instructions and notes are documented. If any discrepancies are detected in drawings, the correction shall be written as part of the specification in any resultant contract or documents referenced in the contract.

H. Review other data and check for discrepancies:

(1) Between the actual drawing revision levels and those cited on other correspondence or purchase orders;

(2) Concerning aircraft usage/application;

(3) Involving part numbers, configuration dash numbers, stock numbers, right or left designation, etc.;

(4) Involving development/ownership and rights to the use of any required special tooling and master models; and

(5) Involving data marked as proprietary and the included documentation demonstrating the rights to use that data.

I. Determine if all documents in the SAR and each sheet thereof, are at the correct revision level and consistent throughout the SAR. If not, identify the correct revision levels and/or engineering changes (ECP, NOR, DCN, ECO, EO, CID etc.) if possible. If the revision level changes while a SAR is under review, it will be necessary to determine the effect of that change on the review in process. The procuring activity will assure that any resultant contract cites the correct revision of the component/assembly drawing.

J. Review any Source Control Drawings (SCDs). SCDs are a special type of drawing, clearly annotated with the legend "Source Control Drawing". SCDs differ from other types of drawings because they identify the only source(s) that the Prime Contractor has qualified and approved to manufacture the item shown on the drawing.

(1) SCDs identify the only commercial or vendor items that exclusively provide the performance, installation, and interchangeable characteristics required for one or more specific critical applications. Quality inspection and approval procedures must be stated on the SCD or in a document referenced on the drawing. It is important to remember that SCDs in most cases do not disclose complete design information.

(2) The use of approved vendors for a SCD item is a drawing requirement just as dimensions, finishes, and process call-outs are. Even for an otherwise competitive procurement, vendors can only procure an item on a SCD from the source(s) listed on the SCD. No other vendor may legally produce that item and assign it the Prime Contractor's part number.

(3) As a general rule, if the prospective vendor is not listed as an approved source, DoD cannot procure the items on the source control drawing from the prospective vendor. The alternative to procuring SCD items from vendors listed on the SCD is for the prospective vendor to submit his item to the Prime Contractor for qualification and then be added to the SCD as an approved source; however, in cases when the Prime Contractor is no longer in production, a proposal may be submitted to the ESA cognizant engineer for consideration.

9. ESA COGNIZANT ENGINEER EVALUATION OF MANUFACTURING PROCESS / OPERATION (OP) SHEETS - The manufacturing operation sheets, which are generally referred to as "process sheets," "operation sheets," or "op sheets", must be reviewed to ensure that they reflect step by step manufacturing procedures for the item produced.

A. If the proposing vendor previously manufactured the identical item for the Prime Contractor (i.e., Category I proposal), the manufacturer must provide complete op sheets, and verify that they are the same op sheets that were used to produce the item for the Prime Contractor. If approval is requested based on similarity (i.e., Category II proposal), complete op sheets for the similar item must be provided. The process operation sheets for the similar item must reflect all of the processes and operations needed to manufacture and inspect the approval item. For either category, a mere summary of manufacturing stations is not sufficient, nor is a summary description of a manufacturing operation such as "mill and drill all holes per blueprint" acceptable. For example, the detailed operation sheets must describe the drilling sequence, type, dimensions, and location of each individual hole.

B. For approvals based on similarity, proposing vendors must also provide proposed operations sheets for the subject item in order to demonstrate the proposing vendor's comprehension of the required manufacturing processes. The ESA will review the proposed process operation sheets for the subject item to ensure that the processes and process sequences proposed appear acceptable to manufacture the subject item.

NOTE: Many vendors consider their op sheets competition sensitive and have been reluctant to disclose this information. Operation sheets are considered proprietary data; therefore, DoD personnel will ensure that adequate safeguards are taken to prevent this or any other proprietary data from being disclosed to third parties. Op sheets are not to be reproduced by the Government.

C. Op sheets provided by vendors must provide detailed manufacturing information including, but not limited to, the operation number and title, machine used and parameters, specifications and tolerances, subcontracted processes, special tooling, and in-process inspection requirements.

D. Op sheets must provide a legend to explain the notations on the sheets. (e.g. \* = critical, S = subcontracted, I = inspect in-process, etc.)

10. ESA QUALITY ASSURANCE REVIEW - Specific QA requirements should be based on guidance specified in DFARS 46. Inspections and testing (including who witnesses, location of where done, etc.) should be limited to only those necessary for quality, reliability and safety and to eliminate non-value added requirements.

A. The ESA must consider the following questions:

(1) Is there sufficient information/proposal to waive the FAT, or can the FAT be waived based on recent production history? If not, is it feasible and cost effective for the FAT to take place at the Contractor's facility vice a government facility?

(2) Is a PLT required? If so, is it feasible and cost effective for the PLT to take place at the Contractor's facility, witnessed and accepted by the DCMA/QAR vice a government facility?

(3) What type and extent of QAR involvement is needed for any required acceptance testing (i.e., should the QAR verify, witness, or perform the acceptance tests)?

B. Based on the answers to these questions, the appropriate testing/QA clauses should be selected and tailored to the specific requirements of the item in question. Where structural fatigue testing is required, the ESA cognizant engineer shall specify the test requirements in the response to the SAR or at time of award.

C. Review the vendor's quality history to assess their ability to produce CSIs at the required quality level. This review should cover the contractor's previous quality performance in producing the required item or any similar items, and/or performance on other government contracts. The QA data should reflect the vendor's ability to perform the required manufacturing operations capability, the quality of vendor personnel and training, the effectiveness of corrective actions, etc. Sources for quality history information include:

(1) Non-conforming material reports;

(2) Material Review Board (MRB) data;

(3) Field data (i.e., QDRs);

(4) Level II/III/IV Corrective Action Request (past and current); and

(5) Deviations.

D. Review the SAR to ensure that it includes a QA requirement for the contractor to provide 100% inspection/verification of the critical characteristics specified in the approved TDP/contract.

E. It may be necessary to specifically identify item characteristics or tests for the Government QAR to inspect/witness. When this is the case, the PCO shall provide the DCMA QAR with a



Quality Assurance Letter of Instruction (QALI), which controls the extent, method, and duration of the inspection. Inspection instructions must be specific and cover the minimum number of inspections/tests that are required to verify the quality of the item. Avoid generalities such as “inspect all characteristics not classified as minor”. Excessive inspection requirements increase costs and/or impose needless workload on the QAR. [Exhibit G](#) contains instructions for issuing a QALI, as well as a sample QALI.

(1) Vendors are contractually obligated to provide components/assemblies that meet all drawing and specification requirements, even if the characteristics on the drawings are not specifically identified as critical or major.

(2) Characteristics identified as critical require 100% verification that they meet the drawing requirements.

(3) The inspection requirements shall ensure that operations are tracked and verified. These include a documented sequence of manufacturing and process operation, and work instructions that identify characteristics. Means for identification of the manufacturing and appraisal status shall be provided at the completion of each pertinent operation (i.e., those that generate, affect, control, or evaluate a characteristic) and provisions for maintaining lot integrity shall be provided. Criteria for acceptance and rejection shall be provided for all critical characteristics. Inspection Method Sheets (IMS) shall be submitted for approval as part of the FAT.

F. Inspection requirements in SARs must be reviewed to:

(1) Verify proper use of a sampling plan based on the criticality of the characteristic to be inspected, with appropriate levels of inspection, sampling, and acceptable quality levels per acceptable non-government standards such as ANSI/ASQC Z1.4- (latest issuance).

(2) Ensure that critical characteristics can be inspected and have clear accept/reject criteria;

(3) Ensure that critical characteristics are not affected by unincorporated drawing changes.

G. Traceability of CSIs is essential. Actual or potential field problems with CSIs must be traceable back to the manufacturer, and the processes/ materials that were used in production. Ensure that marking requirements will permit item traceability to manufacturer and contract.

(1) In addition to traceability to manufacturer and contract, CSIs must be marked with unique serial numbers when required by the ESA cognizant engineer.

(2) If serialization is required, the SAR must specify the method of marking and the location will be per the drawings and MIL-STD-130 (latest issuance), which requires marking of the items with the manufacturer's code, contract number, and design control activity identification, as well as unique serial numbers.

H. All contractor test and inspection data must be maintained as part of the contractor data file. Serialized items must be traceable back to the materials control qualification testing done on the basic forging, billet, etc.

I. Other items affecting QA that require review are: any discrepancies, and inconsistencies among different sections of the SAR; similarity cases where the Prime Contractor of the similar item is different than the Prime Contractor for the subject item may require further analysis to verify true similarity of processes and materials; and performance history of proposed vendors by reviewing field failure data (e.g., PDREP, NAMDRP, EPLS data review), results of FAT/PLT, cross-service complaints, and QA status reports.

11. FINAL ENGINEERING DECISION - After all of the data in the SAR has been reviewed, the ESA cognizant engineer will consider the comments and recommendations of any other reviewers and make a decision, based on professional engineering judgment, whether: the SAR contains complete data; the vendor is a viable alternate source; there are adequate, controllable quality assurance provisions, and critical characteristics specified in the SAR are complete and technically adequate. As part of this decision, all discrepancies or concerns should be documented in the disposition letter to the procuring activity.

## Section 7 Source Management

1. Unless otherwise established by the ESA, the system or subsystem prime contractor is considered an approved source for CSIs due to the knowledge of CSI design intent and function unique to the prime contractors. Additionally, sources identified on source-controlled drawings are considered approved, unless otherwise established by the ESA.

2. The following categories of sources require approval by the ESA:

A. the actual manufacturer (i.e., OEM) that supplies the CSI(s) to the prime contractor where the ESA determines the prime contractor provides no “value added” to the item that couldn’t be performed by the Government;

B. fully licensed manufacturers of the prime contractor or of the OEM that provide substantiation of their licensing arrangement, as validated by and acceptable to the ESA;

C. fully licensed repair/overhaul facilities of the prime contractor or of the OEM that provide substantiation of their repair/overhaul arrangement with the prime contractor, as validated by and acceptable to the ESA;

D. dealers or distributors approved by the ESA who provide traceability (as defined in [Appendix I](#)) that the items they are supplying were produced by the system prime contractor, OEM, or approved alternative source and are unchanged in any way. FAA Advisory Circular 00-56A ([Appendix I](#), reference 10) describes a voluntary system for the accreditation of civil aircraft parts distributors for parts and products installed on type-certificated products. The FAA concluded that ASA-100 ([Appendix I](#), reference 11) and AS7104 ([Appendix I](#), reference 12) meet and/or exceed the accreditation criteria;

E. sources identified on a Qualified Product List (QPL) or Critical Item Procurement Requirements Document (CIPRD) where the ESA coordinated on the approval; and

F. alternate sources approved by the cognizant ESA (which may include FAA certificate/approval holders). Service depots and other organic government facilities may be considered alternate sources for production of CSIs provided they are approved by the ESA.

3. Sources of supply for CSIs must be appropriately approved and managed to ensure that they retain the capability to provide CSI product to the DoD. A source of supply is not considered approved forever when they complete the initial source approval process. A system of controls instituted using site surveys, contract quality assurance requirements, DCMA oversight, and product testing ensures the continued capabilities of approved CSI sources.

4. When an item is designated as a CSI, historical sources of supply for the specific item may be affected if the item has been purchased and is currently in the supply system. In advance of an item being designated as a CSI, the cognizant ESA must provide disposition of historic sources. Where a common use item is used by two or more Services, the disposition process must be coordinated through use of the Common Use Item Coordination Process established in [Section 3](#).

If the proper coordination is not accomplished in advance, the cognizant IMM will typically freeze stock from unapproved sources for CSIs. In cases where material from unapproved sources of supply is in the supply system, a course of action shall be jointly developed by the IMM, life cycle managers for the affected end items, and ESA to minimize impact to the weapon system. When reviewing historic sources for a newly identified common use CSI, the ESA should give consideration to reciprocating sources that are listed as approved by another Service but not necessarily by their own. The ESA should consider waiving full source approval requirements for a source when: (a) the source has been approved in accordance with another Services CSI procedures; and (1) there are no QDRs associated with the common use item from that source; and (2) a satisfactory Vendor Survey has been performed in accordance with Section 9 within the past 5 years; (b) the source has delivered the part to any Service within the past 3 years. This guidance is based upon the similarities between the Services' source approval processes in accordance with this handbook. If the source meets the above requirements, the waiving of First Article Testing should be considered.

5. When a vendor is no longer considered an approved source of supply for a CSI, because the item has recently been determined to be a CSI or due to another specific reason, Federal Aviation Regulation (FAR) 9.207(b) requires prompt notification to be provided to the vendor. This notification shall be provided in writing by the procuring activity via a notification letter. At a minimum, the letter must:

A. Advise that the procuring activity cannot acquire items from that source to satisfy requirements for the subject CSI;

B. Provide the reason(s) the source was removed; and

C. Identify the action(s) required by the source for evaluation to become an approved source for the subject item.

6. Sources of supply that have not provided a specific CSI within a period of three years shall be revalidated as approved sources by the ESA. This revalidation process should include dialogue with the cognizant DCMA QAR. Revalidation is not to be considered synonymous with re-qualification. Prime Contractors and OEMs with design control authority who supply CSIs to the Prime Contractor and have current quality systems acceptable to the government normally will not need revalidation even if they have not delivered or repaired/overhauled the specific CSI within three years. However, revalidation may be considered if there are concerns regarding product quality, manufacturing process changes, the source moves its manufacturing location, or the source has transferred its manufacturing facilities since the last manufacture, or if a new source is being qualified by the Prime Contractor.

7. The ESA may delegate to DCMA approval authority for minor non-conformances, and deviations and Class II ECPs for CSIs. Delegation should be considered for Prime Contractors and OEMs for CSIs based upon their knowledge of design intent as well as the impact of specific non-conformances or design changes upon the end function of CSIs. Allowing this disposition by the Prime Contractors and OEMs with DCMA oversight does not preclude the ESA from requiring minor non-conformances, and deviations and Class II ECPs be submitted for their

oversight/review/approval as deemed necessary for a specific program. This delegation is effected on a CAGE code (i.e. site-specific) basis. Requests for delegation may come from procuring activities, DCMA, suppliers, or may be internally initiated within the ESA. The local DCMA QAR should be contacted for input into the delegation decision process. Candidate sites should have minimal occurrences of misclassifications or patterns of inappropriate repair or “use-as-is” versus scrap.

8. FAT and PLT requirements shall be incorporated into contracts or organic repair work orders when specified in drawings, technical data packages, in response to SAR packages, or when otherwise specified by the ESA. FAT requirements shall be specified by the ESA and any resulting FAT non-conformances dispositioned by the ESA. FAT may be performed at the contractor’s facility witnessed by the ESA or the ESAs' designated government representative (e.g. DCMA QAR or procuring activity quality assurance representative, etc.) thereby minimizing queuing for government inspections. In order to improve delivery schedules, FAT may be accomplished as part of the first production lot, thereby also satisfying any requirements for PLT when successful. With this approach, the contractor assumes the risk of the entire lot being rejected should the FAT be rejected, as any non-conformances would typically be present throughout the entire lot. FAT should be completed within 90 days of asset availability, unless dynamic or fatigue testing is required. Manufacturers are not considered qualified sources for CSIs until successful completion of FAT, unless waived by the ESA. FAT is only intended to verify a vendor's ability to meet the specified technical requirements, not to re-qualify the item's original design. Unless specifically waived by the ESA, FAT shall be required for manufacturers that:

- A. Were not previously approved for the specific item; or
- B. Have not delivered the specific CSI within the past three years to any Service managing the item as a CSI; or
- C. Have unfavorable quality history; or
- D. Have made any changes to the items, processes, or sub-contractors used to manufacture the item successfully in the past.

9. PLT may be performed at a government or commercial test facility on samples from production lot(s) presented to the government for acceptance. Strong consideration should be given to performing PLT at the contractor’s facility when practical, in order to reduce Government costs and delivery lead-times. PLT must be overseen by the ESA or the ESAs' designated government representative. PLT provides an added level of assurance that production items will comply with contract requirements, and indicates the effectiveness of the QA program. ESAs are responsible for review of test requirements to ensure that all critical characteristics will be inspected. PLT shall be implemented for all CSIs unless waived by the ESA.

10. Product Verification Testing (PVT) may be performed at any time, but is specifically performed when CSIs from an unapproved source are found in the supply system. In these cases,

the IMM will freeze stock and notify the cognizant ESA(s). The ESA(s) will define testing requirements to verify that the product conforms to technical requirements and will review and approve the results. If unapproved CSIs have been installed in the field, strong consideration should be given to any field performance history and continued use of installed CSIs. A PVT should consist of a subset of the requirements of a FAT. As most PVTs are performed on items that have been used in the field without any reported QDRs, this typically precludes the need for form/fit and functional testing although other items of a typical FAT (dimensional, metallurgical, flow checks, etc.) should be considered.

## **Section 8 Management of Repair, Overhaul, Maintenance, and Modification of Aviation Critical Safety Items**

1. This chapter provides procedures for uniform management of the repair, overhaul, maintenance, and modification (ROMM) of Aviation CSIs across the tri-Services, to include all levels of maintenance. While the content defines overarching policy to be followed by the tri-Services, each of the Services will develop implementing procedures that address their specific business practices.
2. The procedures contained in this section apply to all acquisition, engineering support, and item management activities that participate in the management of the ROMM of CSIs.
3. Definitions unique to Management of ROMM

### 4. GENERAL

NOTE: One-time manufacture authority shall not preclude the requirement for alternate source qualification.

A. Procurement of commercial ROMM services for Aviation systems, components, assemblies, and sub-assemblies identified as CSIs is restricted to sources that are approved by the Service ESA.

B. The requirement that ROMM contracts for CSIs be awarded to an approved source can only be waived by the Service ESA. Deviation requests from a Service for common use items may only be granted after coordination among all the using Services.

C. The mechanism that will be used by prospective alternate sources to demonstrate their ROMM capabilities is the ROMM SAR, as set forth in the in [Section 8, Paragraph 6](#).

### 5. RESPONSIBILITIES.

A. Each of the Services will identify the activity, normally the IMM activity, which will be responsible for:

- (1) Managing the ROMM Source Approval Program.
- (2) Validating that the acquisition requirement exists.

NOTE: Prospective vendors should be encouraged to contact the appropriate Service activity prior to submitting a SAR to determine if a requirement exists.

(3) Maintenance of ROMM SAR information is documented on the respective Services' SAR instruction website. The Uniform Resource Locators (URLs) for the websites are identified in [Exhibit F](#).

(4) Developing and maintaining a database of approved ROMM sources.

(5) Notifying the ESA when re-evaluation of an approved source is required (e.g., when the source has not repaired/overhauled the specific CSI for the DoD within three years prior to an anticipated solicitation; when there are concerns regarding product quality; when ROMM process changes have occurred subsequent to the source approval, etc).

(6) Notifying the vendor of SAR approval/disapproval.

B. The Service ESA will:

(1) Be the approving authority for alternate sources for ROMM of a CSI.

(2) Evaluate technical requirements in SARs for ROMM of CSI.

(3) Evaluate Government-owned technical data for accuracy, completeness, and the level of access permitted by third party sources.

NOTE: If the technical data for the ROMM of a CSI is not owned by the Government, the prospective source must provide certification-authorizing use of the proprietary data.

(4) Ensure that precautions are taken to prevent access by unauthorized personnel to any proprietary data in the SAR packages.

(5) Develop and maintain a ROMM SAR database.

(6) Reevaluate sources to ensure they remain capable of performing the ROMM for which they were approved, as required.

C. The Acquisition Activity will:

(1) Ensure that contracts for ROMM of CSIs are awarded only to approved sources unless this requirement is waived in accordance with [Section 8, Paragraph 4.B](#) of this Handbook.

NOTE: Requirements on Active Solicitation – Due to time constraints and lead times involved, the Government cannot guarantee expedited processing of SARs submitted in response to a solicitation announcement in the FedBizOpps. Once a solicitation appears in the FedBizOpps, there is not normally enough time to process a SAR for the current solicitation. Pursuant to FAR 9.202(e), the contracting officer is not required to delay a proposed award to provide a potential offeror an opportunity to demonstrate its ability to meet the standards specified for qualification [see FAR 9.202(e)].

(2) Ensure that contracts contain all technical and quality requirements stipulated by the Service ESA.



## 6. SOURCE APPROVAL PROCEDURES.

A. Alternate sources seeking approval for ROMM of CSIs will submit their SAR to the military Services' designated activity –usually the IMM—in accordance with the appropriate Service's procedures.

B. The Service's designated authority (usually the IMM) validates that a requirement exists, or a requirement is projected in the next two succeeding fiscal years, for the item for which source approval is sought. If a requirement cannot be validated, the SAR will be returned to the submitter with instructions to resubmit when and if a future requirement is projected.

C. The SAR will be assigned a unique control/tracking number and will then be reviewed for completeness, in accordance with [Section 8, Paragraph 7](#). If found to be incomplete, the requestor will be notified, by letter, of the deficiencies and the time limit for SAR re-submittal. If the required documentation is not received within the designated time limit, the SAR will be returned to the requestor and the SAR deemed closed/unapproved.

D. If found to be complete, the Services' designated authority (usually the IMM) will:

(1) Request (by memorandum to the Service's quality management activity) product quality and contractor history data, for inclusion in the SAR package, prior to forwarding to the ESA.

(2) Request (via memorandum to the ESA) technical and engineering evaluation of the SAR. The memorandum will include a suspense date for completion of the evaluation and a copy of the SAR will be enclosed.

E. When SARs are received, the ESA will:

(1) Log all SARs into the ROMM SAR database.

(2) Evaluate the ROMM TDP for accuracy, completeness, and the level of access permitted by third party sources. If the technical data for the ROMM of a CSI is not owned by the Government, the prospective source must provide certification, authorizing use of the proprietary data.

(3) Evaluate the SAR for technical accuracy, summarizing the results of the technical/engineering evaluation and formally reporting the results to the Services' designated authority (usually the IMM). In the case that the SAR is incomplete, or that clarification is required, the memo will identify the specific information that is missing or that requires clarification. In the case of a recommendation that the SAR be disapproved, the memorandum will include specific reasons why it should be disapproved.

F. The Service's designated authority (usually the IMM) will contact the requestor, when notified by the ESA that additional information is needed. If the required documentation is not received within the designated timeframe, the SAR will be returned to the requestor and deemed closed/unapproved. Otherwise, in the case of a completed SAR, the Service's designated authority will promptly notify requestors, via letter, of approval or disapproval of the SAR. Letters of disapproval will include specific reasons for disapproval.

G. For approved SARs, the Service's designated authority (usually the IMM) will update the database of approved sources. If there is an open procurement for the subject item, Service's designated authority will notify the Contracting Officer processing the requirement of the newly approved source.

## 7. SAR CONTENT REQUIREMENTS

A. The two categories under which SARs, for the ROMM of CSIs, may be submitted are as follows:

(1) ACTUAL ITEM (Category I) - The item was previously repaired, overhauled, maintained, overhauled for the Prime or OEM.

(2) SIMILAR ITEM (Category II) - The item is similar to an item previously repaired, overhauled, maintained, overhauled for the OEM, Navy, Air Force, or Army.

NOTE: The Services reserve the right to qualify sources for ROMM that do not meet the category I or II requirements, on an as needed basis, as determined by the Item Management Activity and ESA.

B. Detailed requirements for ROMM SAR preparation, content, and submission are set forth on the websites maintained by each of the Services. The URLs for the websites are identified in [Exhibit F](#). As a minimum, the SAR should include the following:

(1) A cover letter that includes the part number (and dash number, if applicable), NSN, and nomenclature, the vendor's name, address, CAGE code, telephone number, and FAX number, and identification of the quality program in use (i.e., MIL-I-45208, MIL-Q-9858, ISO-9001, and OEM quality rating, etc.).

(2) A copy of the results of the latest survey performed by a Government agency and/or the prime contractor. Surveys include site and/or pre-award surveys

(3) A current copy of the quality control manual (if not previously submitted).

(4) A summarization of quality deficiencies experienced by the vendor in the past three years during ROMM.

(5) A brochure that includes a synopsis outlining the vendor's capabilities, facilities, and experience, and a list of all equipment used in the ROMM of the subject part, with the accuracy, size, capability, and precision of the identified equipment.

(6) Evidence that the vendor has written its plan to the appropriate TDP (e.g., the publication number, revision, and date of the TDP), as determined by each Service.

(7) A detailed ROMM plan that addresses all processes that control, produce, or affect a critical characteristic or critical process. Plans must be authenticated by a quality stamp—no blanks accepted. Plans must list all processes/steps in the proper sequence, facility requirements, and include all special processes.

(8) A certification of possession of, or access to, all required special tooling and inspection equipment, proof of calibration, and/or special tooling/test equipment current to latest drawing revision. If “equivalent” tooling is to be utilized in lieu of the tooling specified (in the applicable TDP), complete technical description of the tooling is required, and must be sufficient to determine equivalency. The vendor shall specify availability of in house test equipment, whether it has to be purchased, built, or Government furnished. The vendor shall indicate if no special tooling or inspection equipment is required.

(9) Certification of vendor’s rights to use the technical data (for the subject item) signed by a person authorized to represent the vendor. If proprietary data is involved, the vendor shall supply a signed statement from the owner of that data that gives the vendor the right to specifically use the data. This requirement also applies to the use of data the Government possesses but does not have the right to use in competitive ROMM.

(10) Names, telephone numbers, CAGE codes, and addresses of all subcontractors/vendors to be used and vendor/subcontractor part numbers, if applicable.

NOTE: Subcontractors/vendors used for special processes and operations designated as critical characteristics, must be Government-approved sources.

(11) Copies of purchase orders or shipping documents, and proof of acceptance of ROMM services for either the qualification or equivalent part(s) from the OEM or a DoD agency in the last three years.

(12) A detailed comparative analysis of the differences and similarities between the equivalent part(s) and the qualification part for which approval is being sought. This analysis should include tooling, processes, testing, part function, facilities, etc.

(13) Identification of acceptance test/inspection procedures vendor intends to incorporate, to include independent test labs (including name) vendor intends to use.

(14) Specify if test/repair procedures require development or modification.

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## Section 9 Vendor Surveys

1. All CSIs must be obtained from approved and qualified sources of supply. The Services and DLA conduct site surveys at facilities providing, or proposing to provide, services related to the repair, overhaul or manufacturing of CSIs. The qualification of alternate sources for CSIs has required the individual Services to assume vendor qualification responsibilities to ensure that only capable sources provide these critical items. Site surveys are general surveys that provide confidence to the Services that a source has the capability and quality systems in place to repair, overhaul or manufacture CSIs. Pre-award surveys are typically performed to address issues specific to a procurement. Whenever possible, a coordinated effort should be made to conduct a joint survey when more than one Service anticipates using a source. In instances where other Services have previously qualified a source, relevant information from that Service should be reviewed as well.

2. SITE SURVEYS - Site surveys are critical to the integrity of the alternate source qualification process and are location/CAGE code-specific. They allow insight into a facility's capabilities; answer basic questions relating to the repair, overhaul, manufacture, inspection, production, testing, and delivery of CSIs; and provide indication of what level of government supervision will be required to ensure that quality items are delivered. While the site survey is an important function of the approval process, lack of a site survey should not be the sole determining factor for rejection of a SAR package from a potential alternate source.

A. Site surveys for CSI manufacturers will be performed:

(1) Prior to contract award for vendors who have not previously repaired, overhauled or manufactured CSIs;

(2) As required by the ESA cognizant engineer for vendors who have not repaired, overhauled or manufactured and delivered the actual CSI or similar CSIs in production quantities within the past three years; or

(3) If there has been a change in company location, ownership, and/or name since the last delivery of the actual or similar CSI and the ESA cognizant engineer determines that documentation provided by the company to describe the nature of the change is not sufficient.

B. Site surveys may also be required as the result of a CSI SAR review. The decision to perform a site survey shall be included in the disposition letter from the ESA cognizant engineer or on the DLA Form 339 response. In these cases, the company cannot be added as an approved source of supply until the site survey is completed, however, approval of the technical content of the SAR can be accomplished.

C. The lead agency for the site survey (survey initiator) will negotiate specific survey dates with the vendor to minimize disruption to the source/potential source. The survey shall typically last no more than three working days and shall be completed prior to approval and contracting, unless specifically authorized by the ESA. As appropriate, the lead agency shall coordinate scheduling of surveys with other Services.

D. The site survey team will minimally consist of engineering and quality assurance personnel from the Services. Other personnel may be required to support a survey if there are specific details that need to be addressed (e.g., availability of specific tooling, equipment, jigs, repair overhaul issues, etc.). The lead agency will coordinate travel and lodging arrangements, gather input from all survey team members, and publish the formal site survey report.

E. A formal report of each survey will be prepared by the lead agency within 10 days of the completion of the survey. The report will consolidate the comments, observations and recommendations of all team members, and provide a schedule for follow-up actions (if required). Copies of the formal report will be provided to team members and sent to the vendor via the local DCMA office. A copy of the report and any corrective actions will be included in future SARs from the vendor. Working papers will be retained by the survey lead for reference to support future SAR submissions from the vendor.

F. Site survey teams shall conduct pre- and post- survey contractor briefings. Any concerns or findings shall be shared with the company at the exit brief. The company shall be given 30 days to address any major concerns.

G. Whenever possible, the individual Services and DLA should strive to coordinate site surveys for common vendors. Surveys conducted by prime contractors can be complimentary to DoD site surveys and pre-award surveys, and when available, the results from prime contractor surveys should be considered in determining if, when, and how to conduct a survey.

3. DoD UNIVERSAL SITE SURVEY CHECKLIST - [Exhibit H](#) contains a DoD Universal Site Survey Checklist that can be tailored for a variety of survey requirements including source approval, site surveys, pre-award surveys, Supplier Interface and Oversight Program (SIOP) surveys, etc. The checklist may be tailored for a particular inspection, and should be provided to the vendor prior to the visit. The checklist is comprised of three main parts:

A. Part 1 contains an introduction with instructions for completing the checklist. It also contains general questions about the facility (location, size, points of contact, DoD contracts/parts, etc.), as well as a form for listing all visit participants.

B. Part 2 is a seven-page checklist with a comprehensive list of questions to be considered during a site survey. The checklist outlines the minimum areas to be addressed and should be completed as fully as possible so that it can serve as a record of review to help preclude duplicate effort for other purposes (e.g., even though a site survey may have been initiated for a source approval request, it may also suffice as a CSI or quality program review). The checklist contains four sections:

(1) Section 1 Production/Contract History - General company history, capabilities, facilities, etc. To be completed for all reviews.

(2) Section 2 Production Engineering and Planning - To be completed for source approval, site survey, pre-award survey information, SIOP visit.

(a) Section 2.1 Production Planning - Addresses tooling, machinery capabilities, long lead-time items, processes and contract review.

(b) Section 2.2 Production Control - Addresses control of materiel through the production process.

(c) Section 2.3 Production/Manufacturing Methods and Processes - Addresses capabilities and control of in-house special processes and subcontractors.

(d) Section 2.4 Engineering Staffing and Capabilities - Addresses technical data control and expertise.

(3) Section 3 Industrial Resources - Covers the contractor's physical capacity to deliver the product to the terms of the contract. To be completed for source approval, site survey, pre-award survey information.

(4) Section 4 Quality Assurance Program Compliance - Contains general and complete overall quality program requirements to be completed for Quality System Audits, FAT, PVA, PLT, PVT, SIOP visit, Pre-/Post-Award Survey.

C. Part 3 is a Finding Report, which contains two forms – one for individual findings, and one to be used as a “summary” of findings discovered during the visit. Instructions and definitions are detailed. These forms may also be used to track follow-up actions and corrective actions, if desired.

D. In an effort to make past Site Surveys available to all services, the Army has agreed to serve as a joint repository for all completed DoD surveys. Upon completion of the site survey checklist, the Introduction, Checklist, and Finding Report(s) are to be scanned in as an Adobe Acrobat file (“.pdf” suffix), with the Survey Number as the file name, and e-mailed to AE-K-TTS@amrdec.army.mil for publication.

4. PRE-AWARD SURVEYS - Pre-award surveys for potential sources of CSI repair, overhaul or manufacture will be performed for item specific issues (i.e., more complex items, problematic items, etc.) and for vendors who have previously repaired, overhauled or manufactured CSIs in production quantities for DoD but the actual item requires operations/processes/inspections not demonstrated by the vendor. Pre-award surveys will also be completed for vendors whose SAR includes information that is incomplete or unclear including change in capabilities, specialized staff, manufacturing or quality problems, or issues unresolved from a previous survey.

When a pre-award survey is required as the result of a SAR review, the decision to perform the survey shall be included in the disposition letter from the ESA cognizant engineer and a letter must be issued to DCMA documenting the QALI requirements. [Exhibit I](#) contains a DCMA Pre-award Survey Request Form (SF1403).

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## Section 10 Government Manufacturing of Critical Safety Items

1. Service aviation depots and other Government organic facilities may be authorized by the ESA to manufacture aviation CSIs. In order to be considered for CSI manufacturing, Government manufacturing facilities must have extensive organic production facilities; resident aviation engineering staff; an established ESA-approved quality program; and an established CSI management program approved by a Service ESA.
2. Service aviation depots and other Government organic facilities may be authorized to manufacture CSIs via two methods. Alternate Source Qualification is used for routine, recurring production and is process oriented to ensure airworthiness and repeatability via process controls and documentation. One-Time Manufacturing is used when there is an urgent need for a limited quantity of CSIs to meet immediate production or fleet operational requirements and there is no approved source or the turnaround time from approved sources is unacceptable. One-time manufacturing is item oriented to ensure airworthiness via conformance with design requirements; repeatability of process is not required.
3. Alternate Source Qualification may be granted once the Service ESA confirms a Service aviation depot or other Government organic facility has met all of the requirements established for alternate source qualification. An abbreviated SAR review process may be used, however, at a minimum, a manufacturing plan must be reviewed and approved by the ESA that includes:
  - A. Product level drawings or equivalent, identifying critical characteristics
  - B. Manufacturing process sheets and proper quality assurance requirements
  - C. Identification of raw material and tracking method during manufacturing
4. Prior to approval of a Service aviation depot or other Government organic facility for alternate source qualification, a FAT must be accomplished. Following the successful completion of a FAT, any proposed changes to the source's manufacturing plan must be reviewed and approved by the ESA.
5. Non-aviation depot Government organic facilities are required to submit a formal SAR for ESA review and approval in accordance with [Section 6](#) of this Handbook in order to become an approved alternate source for recurring production unless Service unique procedures provide other guidance.
6. The ESA CSI source management office shall be notified when a Service aviation depot or other Government organic facility has satisfied the alternate source qualification criteria for a CSI. This will allow the ESA source management office to include the depot/facility on the approved sources list for a specific CSI.

7. Authority for One-Time Manufacturing of a CSI may be granted by the ESA to a Service aviation depot or other Government organic facility only when the below conditions are satisfied.

A. There is an urgent need for a limited quantity of CSIs to fill an immediate requirement for depot production or fleet operational requirements and no previously approved source exists or can deliver the items within the required time; and

B. The ESA has established the technical requirements (i.e., design requirements, manufacturing processes, quality requirements, testing requirements, etc) necessary to assure acceptability of the manufactured items; and

C. The cognizant ESA engineering, quality, and production personnel have provided written concurrence that the CSIs manufactured under this authority meet (or exceed) original manufacturer requirements, that traceability of the CSIs is satisfactory, and that the CSIs are safe for flight and ground operations and does not present a safety hazard to personnel.

D. If a CSI produced under the one-time manufacturing authority does not meet original manufacturer requirements or has not been fully qualified, the Service ESA shall establish and ensure publication of applicable operating procedures, restrictions, and limitations as well as applicable maintenance, inspection, tracking, and disposal requirements.

8. During One-Time Manufacturing, quantities in excess of the immediate need may be manufactured where additional items are necessary for testing (e.g., first article, fatigue strength, other destructive tests) or the economics of production or item usage indicate this is clearly advantageous to the government. The authority for one-time manufacture shall not be used to circumvent alternate source qualification requirements for repeat or routine production. This one-time manufacture requirement does not apply to items produced to support research, development, test, or evaluation. The parts produced in accordance with this process shall be coded, tracked, and disposed of as military unique CSIs.

## Section 11 Reverse Engineering

1. Reverse engineering is the process of duplicating an item, functionally and dimensionally, by physically examining and measuring existing items to develop the technical data (physical and material characteristics) required for competitive procurement. Normally as part of a product development plan, reverse engineering will not be cost effective unless the items under consideration are urgently required to maintain Fleet readiness, are of a high dollar value, or are procured in large quantities. Such items may be reverse engineered if an economical savings over the acquisition life cycle is demonstrated and if other methods of acquiring the necessary technical data for competitive re-procurement are either more costly or not available.

2. When competition is obstructed by restricted or deficient technical data packages (TDPs), the technical documentation required for production purposes may be developed through reverse engineering. However, reverse engineering shall be considered only after all other methods for obtaining the item or the necessary technical data have been explored and were unsuccessful and significant cost savings can be demonstrated, or where mission readiness is severely impacted (e.g., in the case of component obsolescence or diminishing manufacturing sources). A review by representatives from the impacted program office, the procuring activity, and appropriate engineering personnel may be useful in conducting this analysis. The decision to pursue a reverse engineering effort must be authorized by both the head of the contracting activity and the cognizant engineer, following DFARS 217.7503, Acquisition of Parts When Data Is Not Available. Reverse-engineered CSIs must comply with the requirements of [Appendix I](#). Coordination among Services is required when reverse engineering common use items.

3. Prior to beginning a reverse engineering effort for a CSI, a detailed plan of action called a Reverse Engineering Management Plan (REMP) [refer to MIL-HDBK-115, US Army Reverse Engineering Handbook (Guidelines and Procedures)] must be developed involving all parties within the government to ensure that responsibilities, timelines, and the resources required are well understood. Because of the nature of reverse engineering, significant testing may be required to validate the reverse engineered product. The cognizant engineer is responsible for validating that all aspects of the proposed reverse engineered design, materials, critical characteristics, and critical manufacturing processes fully satisfy requirements. Additionally, the cognizant engineer shall approve the REMP and conduct or otherwise oversee all FAT of a reverse engineered CSI the first time an award is made using the reverse engineered design.

4. All documentation gathered for reverse-engineering purposes must be carefully screened by the Government/Tasking Agency to ensure that no restricted or proprietary data is included. Any additional data subsequently requested by reverse engineering personnel from sole-source or Prime Contractor vendors must be delivered via the Government/Tasking Agency, to preclude inadvertent access to restricted or proprietary data. The technical data developed through reverse engineering contracted and paid for by the Government should be delivered to the Government with unlimited rights. When a subassembly has been reverse engineered and one or more pieces within the subassembly remain sole source for economic or other reasons, it/they remain as limited rights piece(s).

5. Unauthorized disclosure or access to proprietary data for competitive procurement purposes disqualifies the activity from conducting reverse engineering efforts. In the case where the reverse engineering effort is performed by contractor support, if the contractor gains access to restricted data concerning a specific candidate, that contractor is liable if he performs a reverse engineering function for that candidate. However, the Government may opt to select a different contractor who has not had access to the restricted data to perform the reverse engineering function for the candidate item in question.

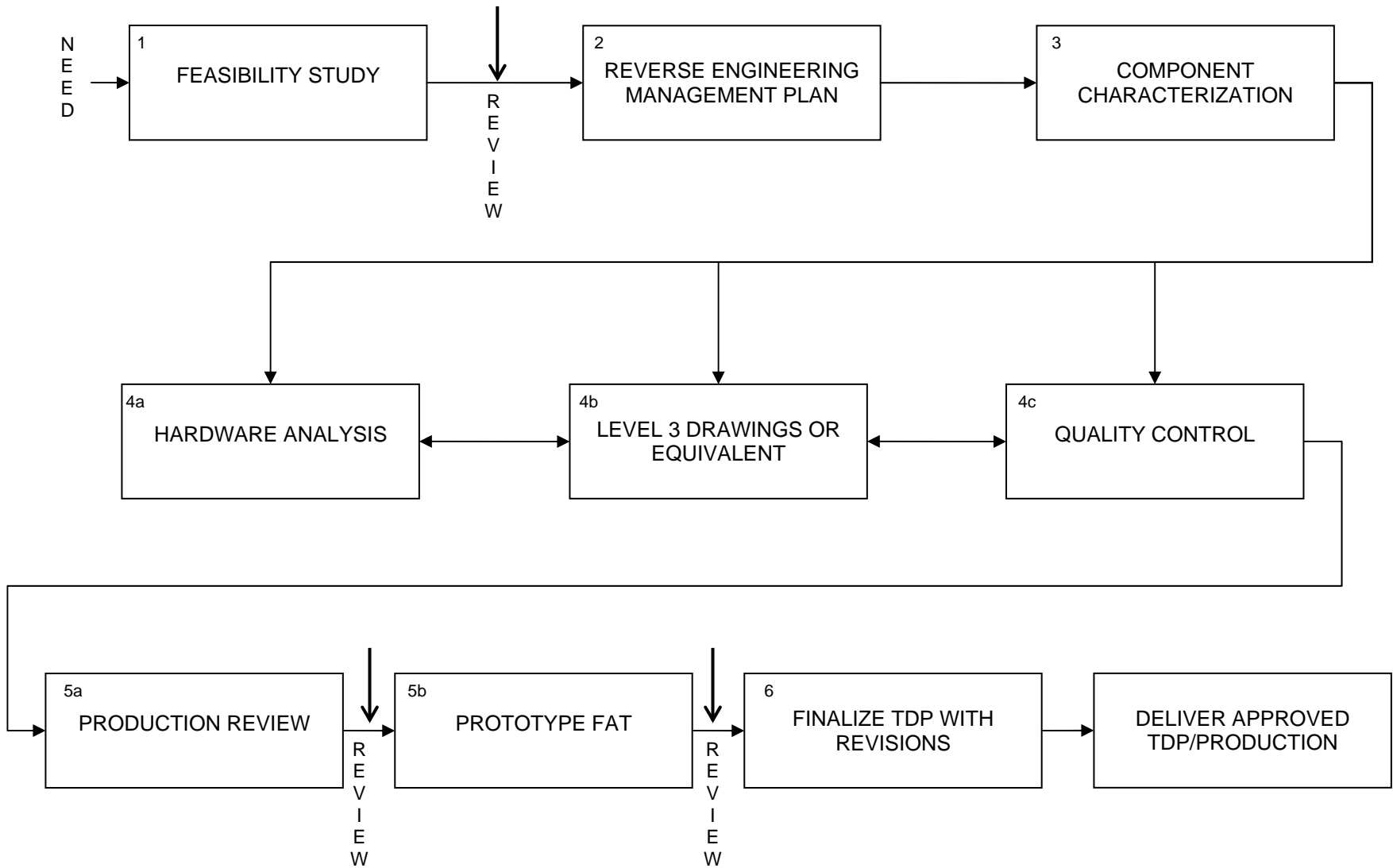
6. Reverse engineering candidates with existing patents, with patents pending, or patents applied for require formal Government authorization [in accordance with MIL-HDBK-115, US Army Reverse Engineering Handbook (Guidelines and Procedures)] for the contractor to reverse engineer such items (including piece-parts or components). Prior to initiating reverse engineering efforts in these cases, appropriate legal counsel should be obtained.

7. As a result of the reverse engineering effort, product improvements or Value Engineering Changes may be recommended. These alternatives may be considered during the Reverse Engineering Process and may be incorporated prior to completion of the process as approved by the cognizant engineer.

8. Reverse engineering process guidelines follows on [page 11-4](#):

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Reverse engineering process guidelines follows on [page 11-4](#)

# REVERSE ENGINEERING PROCESS



11-4

## Reverse Engineering Process

The nominal Reverse Engineering Process is depicted in the accompanying diagram, and detailed procedures for each numbered block are described below. As indicated on the flowchart, program reviews should be performed at the end of each principal phase of the Reverse Engineering Process to assure compliance to the process and to evaluate the need for continuing reverse engineering on the item.

1. A feasibility study is required to answer functional/economic questions. Data required include a criticality determination, availability of an existing OEM TDP; determine if a substitute item is available; determine item criticality, missing data requirements, and testing requirements; and prepare a preliminary Reverse Engineering Cost-Estimate and Schedule.
2. A Reverse Engineering Management Plan is then required for each candidate to document the urgency; to ensure that a logical sequence of events approved by the ESA is followed to prevent delays or misinterpretations in the overall program objectives; and to define who will fund the effort
3. Data gathering is required for each candidate to ensure functional integrity is maintained for proper item clarification. To this end a thorough data analysis of the OEM TDP and other alternate data sources needs to be conducted to determine what data are missing; identify sample items (e.g., A or F condition) for analysis; resolve any proprietary data issues; and a thorough review of the testing requirements need to be accomplished.
4.
  - a. Hardware Analysis is performed to develop the missing data required for Level 3 Drawings or their equivalent.
  - b. Level 3 Drawings or Computer Aided Design/ Computer Aided Manufacture (CAD/CAM) (e.g., ProE) TDPs are the result of the Reverse Engineering Process and contain the documented parameters necessary to reproduce the selected candidate. Recorded parameters necessary to define the nominal design and establish tolerances may include dimensions, materials, electrical requirements, and other specifications.
    - c. In addition, a Quality Control analysis is performed and documented on the Level 3 drawings (or equivalent) and candidate production representative units to certify their compliance with original candidate specifications. Quality Assurance Provisions, Quality Control Documentation and a Certificate of Conformance are all items to be considered. Besides determining producibility, consideration should be given to Value Engineering or other Product Improvement ideas to correct deficiencies found in the initial component analysis.
5.
  - a. A Production Review is performed to determine and approve/disapprove the economics of producing the reverse engineered item and whether it should be manufactured organically or outsourced to a vendor. This review will result in a “Build To” TDP from which a prototype unit can be manufactured for FAT.
  - b. After successful FAT completion, a review is conducted to finalize the TDP with any revisions.
6. The final TDP is formulated and delivered to the Government/Tasking Agency reflecting the reverse engineering of the candidate item, which is a government owned deliverable. An ESA-approved PLT involving test of a production unit may be required to determine if the reverse engineered item meets all required specifications. Finally, the packaging and preservation [Packaging, Handling, Storage & Transportation (PHS&T)] should be addressed for completeness.

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## Section 12 Training

1. Initial and refresher training are required to ensure that all personnel involved with CSIs as part of their job duties are kept abreast of current processes and issues. Points of contact for training should be established for each activity involved with the management or processing of CSIs.
2. Training may be tailored to accommodate the needs of each location, but at a minimum, initial training should include a review of the CSI requirements of the Public Law, the DFARS, the Joint Instruction ([Appendix I](#)), this Handbook, and any other Service implementing policies or guidance. Refresher training should be conducted at regular intervals to ensure all personnel involved with CSIs remain current on relevant policies and processes.
3. ESA engineers are a critical link in the CSI management process. Proper training of these engineers is essential to maintaining common processes throughout the DoD and will ensure personnel involved in CSI management can learn from the experiences of other people performing similar tasks. The head of each ESA will develop a program to train ESA engineers to perform their duties based upon satisfactory completion of initial and refresher training.
4. Training can serve an additional role in the continuous improvement of this Handbook. Issues, uncertainties, and exceptions raised during CSI training should be forwarded to the relevant activity POC in [Exhibit A](#) for consideration during future updates to this Handbook.

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## Section 13 Contract Requirements/Clauses

1. This section outlines the additional contractual activities that are required in the manufacture of CSIs. Typically, the degree of added quality assurance controls included in solicitations/contracts will vary based on the type of procurement being contemplated (repair, new spares, surplus, etc) and on the source receiving the award. Sole source procurements for CSIs to contractors having product design authority (OEM/Primes) may not necessitate the inclusion of many additional requirements, as in-house Critical Item Management Plans and practices may already cover the majority. However, for competitive procurements, including sources approved under the Alternate Source Qualification (ASQ) program, it is an essential DoD practice to include all of the appropriate additional requirements.

2. The following paragraphs outline the various areas of coverage that may be required in DoD contracts for CSIs. [Exhibit J](#) provides specific sample text for contract requirements/clauses that may be used/tailored to implement these requirements. The [Contract Requirements/Clause Matrix](#) provided at the end of this section provides guidance on which requirements may be necessary for a contract action based upon the effort being contracted and the entity with which it is being contracted.

A. **CSI PROCUREMENT RESTRICTIONS**: DoD technical and quality personnel associated with the procurement and management of CSIs must be aware that, as directed by [Appendix I](#), it is DoD policy that CSI procurements are made only from approved sources. An approved source is defined as one that has successfully passed all the qualification requirements established by the ESA for that item. Contracting methods such as “full and open competition” (AMC/AMSC code of 1G or 2G in Data Element D025E and D025F from DFARS Appendix E) are not authorized unless approved by the ESA.

B. **CONTRACT CRITICALITY IDENTIFIER**: A very simple, but effective tool is to clearly mark the front page of the solicitation/contract with the words “Critical Safety Item”. Within the aerospace industry, this definition raises the alertness level and makes everyone involved with the manufacturing, inspection, and packaging of the item aware of its application. Within DoD, this designation alerts personnel associated with contract oversight and administrative functions. As a result of this designation and to mitigate risk, Government QARs may perform additional contract oversight during various product-manufacturing stages (in-process) or during the final inspection and acceptance phase.

C. **TESTING REQUIREMENTS**: These requirements are normally imposed by the ESA and are used to demonstrate that a contractor is capable of producing an item or during production to randomly test a unit to determine that the entire production lot quantity meets established technical requirements.

(1) **First Article Testing (FAT)**: The FAT (FAR Clause 52.209-3, First Article Approval – Contractor Testing or 52.209-4, First Article Approval – Government Testing) is the testing and evaluation of the first article for conformance with specified contract requirements/clauses before production. Testing of FAT may take place at a Government or a commercial laboratory or at the contractor’s facility. Waiver of FAT can only be authorized by the ESA, via the PCO.

(2) Production Lot Testing (PLT): The PLT is the testing of a sample randomly selected from a contractor's lot. Testing of a PLT may take place at a Government or a commercial laboratory or at the contractor's facility. Waiver of PLT can only be authorized by the ESA, via the PCO.

(3) Product Verification Audit (PVA): The physical examination, functional testing, disassembly, inspection, re-assembly, and re-setting of an item so that full determination of conformance to specifications can be verified. The audit will also include correction of defect(s) noted during the audit. PVAs are used on dynamic assemblies where proper build-up of components is of concern, and predominately on maintenance and overhaul efforts in lieu of FAT. The PVA governing document is US Army Aviation and Missile Command (AMCOM) Regulation 702-2.

(4) Statement of Work (SOW): Additional testing requirements such as form, fit, function, interchangeability, endurance, performance may be found in the contractual SOW narrative, or in the SOW technical data such as Depot Maintenance Work Requirements (DMWRs) or Technical Data Packages (TDPs).

(5) Material Testing at Government Laboratory: Some special commodities (Life Support Systems, Weapon Launchers, Aircraft Launching and Arresting Equipment, Critical Application Bearings) may require additional testing or inspection at a designated Government Testing facility or laboratory. This requirement is normally specified by the ESA and should be included in the solicitation.

#### D. MANAGERIAL QUALITY REQUIREMENTS:

These are requirements that cause the contractor to establish and maintain an in-house system or program for controlling product quality. Recently, DoD has authorized the use of commercial specifications and standards addressing quality and metrology requirements.

(1) Quality System: When procuring CSIs activities should invoke the FAR higher quality inspection clause at 52.246-11, Higher-Level Contract Quality Requirement, in conjunction with the standard inspection clause at 52.246-2, Inspection of Supplies – Fixed Price. When the Higher Quality Requirement Clause is invoked, the contract shall also indicate in the clause which higher-level quality standard will satisfy the Government's requirement. Examples of higher-level quality standards are ISO-9001:2000 and SAE AS9100(A). These managerial specifications require contractors to establish and maintain a written quality program that provides control of quality in-process as well as end-item inspection. Some of the elements covered under a managerial quality program are: Contract Review, Drawings and Document Control, Purchasing, Product Identification and Traceability, Special Process Control, Inspection and Testing, Control of Non-conforming Product and Corrective Action, Personnel Training, Records, Inspection and Testing Status, Control of Measuring and Test Equipment, and Statistical Techniques.

(2) Quality Assurance Provisions (QAPs): The procuring Services and/or agencies may have specific CSI unique Quality Assurance requirements, such as the Army Quality

Engineering Standards or DLA QAPs. These will be applied as appropriate on a case-by-case basis.

(3) Calibration: Measuring and Test Equipment used in a facility to inspect and test a product has to be properly maintained, calibrated and traceable to National Institute of Standards & Technology (NIST) standards. Contracts for CSI shall indicate which calibration standard will satisfy the Government's requirement. Examples of calibration standards are ISO-10012-1 and ANSI/NCSL Z540. These documents outline calibration frequency and status, records, environmental controls, adequacy of measurement standards, calibration procedures and out-of-tolerance conditions.

(4) Audits: Audits will be utilized to assure proper implementation of CSI requirements, not only at the Contractor's facility but also at any of their subcontractors and suppliers. Contracts will include a requirement for the contractor to perform self-audits of their compliance to CSI requirements. Additionally, FAR 52.246-2, Inspection of Supplies – Fixed Price, will be imposed to establish the Government's rights to audit the contractor. In cases of weapon system acquisition, multi-year contracting, a formal CSI Program established as a contractual requirement, or when other circumstances warrant, specific SOW language to formalize Government auditing may be established by inclusion in the contract.

(5) Warranty: When deemed appropriate and cost effective, procurement for CSIs should include a warranty clause. DoD policy and guidance for warranties can be found in FAR Part 46.7, DFARS Part 246.7 and in agency specific instructions. At a minimum, each solicitation should cite a General Supply Warranty FAR Clause 52.246-17, Warranty of Supplies of a Noncomplex Nature, or 52.246-18, Warranty of Supplies of a Complex Nature; these clauses allow material to be returned to a contractor for a period of six to twelve months following final shipment. Extended warranty clauses used in major acquisitions, repair and overhaul, Performance Based Logistics (PBLs) and commercial contracts should be individually tailored for a specific program and negotiated accordingly.

E. ENGINEERING/TECHNICAL REQUIREMENTS: These are specific hardware related requirements and actions, which the contractor must perform in order to demonstrate product conformance to the contract technical requirements.

(1) Configuration Management: In order to control changes to a base-lined item and its related documentation, it is important that DoD contracts include configuration management requirements. This requirement is essential when procuring CSIs since it requires contractors to submit all ECPs and product Deviations to the Government for review and evaluation. It should be noted that for contractors having product design authority (OEM/Primes) the ESA may delegate Class II (minor changes) and Type II (minor deviations) to DCMA. An example of the configuration management clause is contained in [Exhibit J](#).

(2) Technical Data Requirements: During the performance of a modification or development type contract, technical data that is created or modified must properly reflect the criticality of items and processes. It is therefore important that contract requirements/clauses

include language that addresses compliance with this requirement whenever this type of procurement is being contemplated.

(3) Frozen Manufacturing Plan: Following the qualification of an item or after successfully passing FAT it is essential that a contractor does not make any significant changes to the manufacturing plans (operation sheets, inspection method sheets, sources used for special processes) used to produce the testing specimen. Contract should state that following qualification and authorization to enter into production all manufacturing plans are considered frozen (locked in) and that any changes must be reviewed by the Government, failure to do so may require re-qualification or retesting of the item.

(4) Parts Marking/Serialization: Following Engineering Investigations (EI) or Category I QDRs, it may become necessary to purge the supply system or direct the fleet to remove field installed parts. In addition, as part of EIs, it may be necessary to review manufacturing and inspection records for the item in question. To successfully identify this material, it is important that parts be clearly marked and serialized. All CSI should require individual serialization or identification (where practical) by lot number. Some CSIs require traceability from the raw material to the finish product whereas for others serial number assignment upon product completion may be acceptable. In addition, records retained during the manufacturing process must reflect part serialization.

(5) Level of Inspection: When critical characteristics are identified on the drawings or by the ESA, the contract should clearly state that all critical characteristics shall be 100% inspected unless approval to use sampling or SPC has been authorized by the ESA. DCMA or the procuring activity should be encouraged to recommend contractors where sampling or SPC should be considered. For serialized parts requiring traceability from the raw material to the finished product, the contract should also state that "actual readings" for each unit must be recorded. For parts not individually serialized or assigned serialization upon lot/batch completion, a pass/fail inspection criteria is acceptable provided the number of accepted/rejected units is recorded. If the contract were left silent, these critical characteristics might only be inspected on a sampling basis.

(6) Control of Non-conforming Material: Any non-conformances affecting CSIs shall be reviewed and dispositioned by the ESA. The contract should clearly state that all critical, major and minor non-conformities be forwarded to the ESA via the PCO. However, DCMA may perform disposition of minor non-conformances of CSIs when authority for disposition has been delegated by the ESA.

(7) Disposal of Non-conforming Material: In order to prevent the inadvertent release of defective material, it is important that the contract clearly states the method that this material is to be controlled. For CSI the requirement should be to mutilate the material therefore preventing any future use.

(8) Sourcing and Procurement: When contractors responsible for design and/or delivery of aviation systems or platforms/equipment (such as aircraft, engines, guns and missiles, ground communications and electronics systems, and test equipment) require a new source of supply for

a CSI, the contractor shall complete all qualification testing required during the original qualification of the approved source(s). Reductions in such testing shall be submitted to the PCO for Government review and approval. If a contract is left silent the contractor may perform only what's deemed necessary or use product similarity for approval of a new source.

(9) Records Retention: Presently the FAR requires contractors to retain copies of all records generated for a period of three years after final payment (FAR 4.703). For manufacturing records related to CSI, it has been determined that a period of at least ten years, after the contractor ceases to manufacture the part, applies. Records may be maintained in any suitable format, but the media used shall be appropriate to ensure durability and readability over the required storage period. Records shall be stored in a protective environment to ensure availability and readability over the entire period of storage. Furthermore, at the end of this period, or in the event of relocation or shutdown, all records should be offered to the PCO prior to disposal.

F. SUPPLIER NOTIFICATIONS: This section addresses requirements typically not clearly addressed in contracts. It is essential that the Government be officially notified when a company relocates manufacturing facilities, develops a new source, removes a supplier for quality reasons, or undergoes a business status change (loss of a licensing agreement, bankruptcy, etc.).

(1) Supplier Removal: Historically, contractors have not notified their customers when a supplier is removed for quality reasons. However, past experience with CSIs has shown that having this type of information as it become available is extremely important. It provides an opportunity for DoD to determine what action, if any, needs to be taken in regard to the affected material. Key suppliers would be those performing special processes [Non-destructive Technique (NDT), plating, heat treat, welding, etc.] or manufacturing finished products.

(2) Relocation of Manufacturing Facilities: As a result of company mergers and acquisitions, many contractors evaluate their operational organization and determine ways of closing or consolidating facilities. Past experience indicates that any significant changes in the manufacturing location may impact the quality of a product and therefore may require re-qualification. By obtaining this information, DoD can determine the best approach to take based on the facts presented. A sample checklist is included in [Exhibit K](#).

(3) Business Status Change: Business status changes can have an impact on product quality and deliveries. Changes such as company bankruptcy, licensing agreement expirations, mergers, and acquisitions all need to be evaluated for impact on operations.

G. GOVERNMENT CONTRACT ADMINISTRATION: JALC policy clearly states that Government Contract Quality Assurance (GCQA) shall be required for all CSI procurements. There is also an entire section within this document that addresses DCMA actions and responsibilities concerning CSIs.

(1) Government Inspection at Source: There are many reasons for having GCQA performed at source. Since there are other methods of accepting product, it is important that when GCQA is to be performed at source the contract invoke the Standard Inspection Clause

(52.246-2). This clause authorizes Government access in a facility. In addition to accepting product in behalf of the Government, DCMA QARs perform many activities that affect the quality of a product. The following are some of the QAR key activities:

- Assure that supplies tendered for acceptance by the contractor comply with technical and quality contractual requirements.
- Review contracts for inappropriate technical/quality requirements.
- Perform in-process and final product audits and inspections.
- Perform in-plant process proofing.
- Delegate Government Source Inspection (GSI) on sub-contracts.
- Perform periodic reviews of the Quality/Inspection System.
- Accept material on Government behalf by signing the Material Inspection and Receiving Report.
- Review ECPs for classification (Class I or II), concur with Class II (minors) when so delegated in the contract and contractor has design authority. Provide comments/recommendations on Class I (majors).
- Review Deviations for proper classification (Type I or II) approve Type II (minors) when so delegated in the contract and the contractor has MRB authority. Provide comments/recommendations on Type I (majors).
- Issue Corrective Action Requests (CARs) and, when required, escalate Corrective Action
- Oversee QDR investigation support and provide feedback to action points.
- Issue QDRs on defective Government-Furnished Material (GFM).
- Monitor and control condition of Government-Furnished Equipment (GFE).
- Witness receiving inspection and control of Government Owned Material.
- Perform or witness FAT at contractor's facilities.
- Represent the Government during contractual disputes.
- Provide technical/quality assurance support to buying commands.

(2) Specific QAR Guidance/Instructions: When the buying command (PCO) wants the QAR to perform some specific actions, a QALI is prepared and sent by separate correspondence to the DCMA office responsible for contract administration. Refer to [Exhibit G](#) for specific guidelines on preparing a QALI and an example of one.

#### H. OTHER CONTRACTING METHODS:

(1) Procurement of Surplus Materials: When offers for surplus material are received, technical personnel need to evaluate the offer and determine if the material is acceptable for use. In order to accomplish this task, personnel should refer to internal agency instructions. As a minimum, the following factors should be considered:

- Origin of the materials
- Traceability, including manufacturing records
- Condition/Configuration (Revision)
- Cost of Test & Evaluation (T&E) to determine acceptability
- Availability of technical data and testing facilities



[Exhibit L](#) contains a clause and checklist for Surplus procurements

(2) Performance Based Logistics: PBLs are typically long-term contracts for commercial support of military products (e.g., systems, benchstock, platforms). Refer to [http://akss.dau.mil/dag/Guidebook/IG\\_c5.3.asp](http://akss.dau.mil/dag/Guidebook/IG_c5.3.asp) for additional information. Prior to contracting for PBLs, all CSIs must be identified, along with the technical criteria to be used for repair/manufacturing. Additional areas of technical consideration, over and above those used for typical contracts, include:

- Parts Obsolescence Management
- Escape/Exit Clauses
- Tailoring of Government Oversight
- Contractor Technical Support (Field Reps)
- CSI Management Plan

(3) Licensing Agreements: Licensing agreements are vehicles that are used by OEMs/primes to authorize another entity to support a system or program. When these agreements impact CSIs, it is important to determine the scope of the agreement and the relationship between the licensee and the OEM/prime. Technical personnel should not assume that a licensee is an approved/qualified source until an evaluation is performed by the Service ESA to determine the impact of the agreement on an individual item basis. Each licensing arrangement must be individually reviewed for acceptability.

(4) Commercial Acquisition: Under acquisition reform, procuring activities may have to purchase products or Services under commercial terms (FAR Part 12). If the acquisition involves a CSI, technical personnel should be aware that unless otherwise specified, government rights are limited to those stated in the FAR clause at 52.212-4, Contract Terms and Conditions - Commercial Items. However, in order to allow for expanded government oversight the FAR authorizes use of an addendum to modify this clause. An example of an addendum is included in [\(Exhibit M\)](#). It should be noted that inclusion of the FAR clause at 52.146-2, Inspection of Supplies - Fixed Price, is not permissible when the clause at 52.212-4, Contract Terms and Conditions - Commercial Items, is used.

(5) Distributors: For certain commodities, manufacturers will not start up production lines for small quantities; therefore, they will produce a large quantity of parts and make it available through their authorized distributors. Procurement of CSIs from authorized distributors is allowed in accordance with [Appendix I](#).

Contract Requirements/Clause Matrix <sup>(1)</sup>															
	Applicable Contractor Clauses/ Requirements	Reference <sup>(6)</sup>	New Spares Sole Source (OEM/ Prime)	New Spare Competitive	Repair/ Overhaul Sole Source (OEM/ Prime)	Repair & Overhaul (R&O) Competitive	Surplus Offers	Sole Source PBLs	Competitive PBLs	Commercial Acquisition	Distributor	Licensee Products	QPL <sup>(2)</sup> & CIPRD	Source Control Drawings	SDD <sup>(4)</sup> & System Upgrade
A	Contract Identified as CSI	2.B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
B	Government Inspection at Source	2.G.1 Ex J 2.1	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
C	Higher Quality Requirement	Ex J 2.2	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
D	Calibration Requirement	2.D.3 Ex J 2.3	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
E	Standard Warranty Clause	2.D.5 Ex J 2.7	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
F	Markings/ Serialization	2.E.4 Ex J 2.4	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
G	Audits	2.D.4 Ex J 5	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
H	Retention of Records	2.E.9 Ex J 8.3	✓	✓	✓	✓	3	3	✓	3	✓	✓	✓	✓	✓
I	Purchasing Records	Ex J 8.2	✓	✓	✓	✓	3	3	✓	3	✓	✓	✓	✓	✓
J	Traceability	Ex K 8.1	✓	✓	✓	✓	3	3	3	3	✓	✓	✓	✓	✓
K	100% Inspection of critical characteristic	2.E.5 Ex J 6	✓	✓	✓	✓		✓	✓	3		✓		3	3
L	Frozen Planning	2.E.3 Ex J 4	✓	✓	✓	✓		✓	✓			✓	✓	✓	

Contract Requirements/Clause Matrix <sup>(1)</sup>															
	Applicable Contractor Clauses/ Requirements	Reference <sup>(6)</sup>	New Spares Sole Source (OEM/ Prime)	New Spare Competitive	Repair/ Overhaul Sole Source (OEM/ Prime)	Repair & Overhaul (R&O) Competitive	Surplus Offers	Sole Source PBLs	Competitive PBLs	Commercial Acquisition	Distributor	Licensee Products	QPL <sup>(2)</sup> & CIPRD	Source Control Drawings	SDD <sup>(4)</sup> & System Upgrade
M	Control of Non-conforming Materials	2.E.6 Ex J 7	✓	✓	✓	✓	✓ 5	✓	✓	✓ 5	✓ 5	✓	✓	✓	✓
N	Configuration Management	2.E.1 Ex K 11	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓
O	Request for Notifications	2.F Ex J 9	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
P	Statement of Work	2.C.4			✓	✓		✓	✓	3					✓
Q	Qualification of New Source	2.E.8 Ex J 10	✓		✓			✓	✓	✓		✓	✓	✓	✓
R	FAT	2.C.1	3	✓	3	✓		3	3		3	3		3	3
S	PVA	2.C.3			3	✓		3	3		3	3		3	3
T	PLT	2.C.2	3	✓									✓		
U	Material Testing at Government Lab	2.C.5 Ex J 12					✓				3				3
V	Tech Data Delivery Requirements	2.E.2 Ex J 3						✓	✓						
W	Quality Assurance Provisions (QAPs)	2.D.2	3	3	3	3	3	3	3	3	3	3	3	3	3
X	Addendum to 52.212-4 Clause	2.H.4 Ex M								✓					

Contract Requirements/Clause Matrix <sup>(1)</sup>														
Applicable Contractor Clauses/ Requirements	Reference <sup>(6)</sup>	New Spares Sole Source (OEM/ Prime)	New Spare Competitive	Repair/ Overhaul Sole Source (OEM/ Prime)	Repair & Overhaul (R&O) Competitive	Surplus Offers	Sole Source PBLs	Competitive PBLs	Commercial Acquisition	Distributor	Licensee Products	QPL <sup>(2)</sup> & CIPRD	Source Control Drawings	SDD <sup>(4)</sup> & System Upgrade
<b>NOTES</b>														
(1) For work performed by organic depots, some of these requirements may apply as determined by the customer.														
(2) Refer to SD-6 Provisions Governing Qualification														
(3) The applicability of this clause will need to be assessed on a contract-by-contract basis														
(4) System Design and Development (SDD) and Upgrade contracts require the development and delivery of technical data.														
(5) Only paragraph 7.3 "DELIVERED NON-CONFORMANCES" applies for this block.														
(6) References of the form 2.E.3 are paragraph numbers in Section 13. References preceded by "Ex" are to Exhibits (exhibit letter and paragraph number follow).														

## **Appendix I Joint Service CSI Instruction**

At the time of publication of this Handbook, the Joint Instruction had not been finalized. For a copy of the signed Joint Instruction, please contact your Service POC as identified in [Exhibit A](#).

A draft version of the Joint Instruction, as it existed at the time of publication, is attached below.

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SECNAVINST 4140.XX  
AFI 20-XX  
AR 95-XX  
DLAI 3200.4  
DCMA INSTCSI(AV)  
NAVAIR-4.1C  
DD MM YY

## **MANAGEMENT OF AVIATION CRITICAL SAFETY ITEMS**

### **A. REFERENCES**

1. Public Law No 108-136 “National Defense Authorization Act for Fiscal Year 2004”, Section 802, Quality Control In Procurement Of Aviation Critical Safety Items And Related Services.
2. DoD 4140.1-R, DoD Supply Chain Material Management Regulation, Section C8.5, DoD Aviation Critical Safety Item (CSI)/Flight Safety Critical Aircraft Part (FSCAP) Program
3. ASME Y14.100, 2000 Engineering Drawing Practices
4. ASME Y14.24, 1999 Types and Applications of Engineering Drawings
5. ASME Y14.35M, 1997 Revision of Engineering Drawings and Associated Documents
6. ASME Y14.34M, 1996 Associated Lists
7. DoD-STD-2101, Classification of Characteristics
8. DFARS-Appendix E, DoD Spare Parts Breakout Program
9. FAA Order 8110.42A, Parts Manufacturer Approval Procedures
10. FAA AC 00-56A, “Voluntary Industry Distributor Accreditation Program”
11. Aviation Supplier Association, ASA-100, “Quality System Standard”
12. SAE Aerospace Standard AS7104, NADCAP Requirements for Accreditation of Full Distributors
13. FAA AC 20-142, Eligibility and Evaluation of U.S. Military Surplus Flight Safety Critical Aircraft Parts, Engines, and Propellers

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14. DFARS 208.70, Coordinated Acquisition
15. FAR 46, Quality Assurance
16. DFARS 246, Quality Assurance
17. DFARS 217.7503, Acquisition of Parts When Data Is Not Available
18. DLAR 4155.24/AR702-7/SECNAVINST 4855.5A/AFR 74-6, Product Quality Deficiency Report Program
19. DOD 4160.21-M, Defense Material Disposition Manual
20. DOD 4160.21-M-1, Defense Demilitarization Manual
21. DLAI 3200.1/PAM 715-13/NAVSUPINST 4120.30A/AFI 21-405/MCO 4000.46, Engineering Support For Items Supplied By Defense Logistics Agency and General Services Administration, dated 31 Oct 94

Encl: (1) Definitions

(2) Example Format for One-Time Manufacturing Approval

(3) Significant Product Characteristics/Features for CSIs

**B. PURPOSE.** This instruction:

1. Establishes policy, procedures, and assigns responsibilities for the life-cycle management of replenishment items critical to aviation safety as required by and implements the Department of Defense (DoD) Critical Safety Item/Flight Safety Critical Aircraft Part (FSCAP) program as required by reference 1 and 2.

2. Addresses requirements governing the initial determination of item criticality and subsequent changes to this determination; coding and tracking of aviation Critical Safety Items (CSIs); the process for ensuring the adequacy of technical data and proposed changes; the process for approving sources of supply and repair/overhaul; the surveillance process assuring that approved sources retain required capabilities; authorities for one-time organic manufacture of CSIs under exigent circumstances; and requirements for disposing of CSIs when no longer needed by military aviation.

**C. APPLICABILITY AND SCOPE.** This instruction:

1. Applies to Program Executive Officers (PEOs), commanders of system acquisition and logistics organizations, program managers, and other agencies or commercial entities providing procurement, repair, or overhaul services to aviation materiel. The provisions included herein should be incorporated in contracts to commercial sources for the acquisition or logistics support, repair or overhaul CSIs or systems that incorporate CSIs.

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2. Covers aviation CSIs used in fixed and rotary wing aircraft, unmanned air vehicles, Aircraft Launch and Recovery Equipment (ALRE), aviation weapons and equipment, and associated aviation support equipment

3. Does not apply to commercial aircraft or subsystems purchased and maintained in accordance with Federal Aviation Administration (FAA) regulation, unless required by the Service ESA. This instruction applies to those portions of the commercial aircraft or subsystems modified or maintained to meet unique military requirements.

4. Does not apply to items provided through the foreign military sales program for foreign owned and operated aircraft, systems, or equipment when (a) the aircraft or item being acquired or modified is not in the active DoD inventory and the U.S. military no longer has engineering expertise on the aircraft or item, or (b) the foreign customer directed the use of suppliers or configurations not approved by the US military Services.

D. DEFINITIONS. See enclosure 1.

E. PROCEDURES.

1. Criticality Determinations and Identification:

a. Criticality determinations for each new replenishment item shall be established by the cognizant Service Engineering Support Activity (ESA) prior to initial supportability analysis to allow adequate support planning for CSIs. During initial provisioning/cataloging or approval of a design change notice, the cognizant Service logistics organization shall validate that the criticality determination has been accomplished and is accurately documented. The criticality determination shall be recorded in all appropriate databases.

b. An item shall be identified as CSI when failure of that item could result in loss or substantial damage to the air vehicle or weapons system, or death or serious injury to personnel. Damage sufficient to create a Class A accident or a mishap of severity category I constitutes "substantial damage". Items determined by the system prime contractor to be a "flight safety part," "flight critical part," or similar terminology shall be designated as CSIs unless determined otherwise by the Service ESA. Items determined as "structurally significant," "fracture critical or "safety of flight structure" shall be identified as CSI.

c. All CSIs shall be considered to be FSCAP in accordance with reference 2. The Service organization responsible for assuring airworthiness (i.e., operational safety, suitability, and effectiveness) will be the "Aircraft Airworthiness Authority" for these items. The CSIs shall be identified as FSCAP with the applicable criticality code in the Federal Logistics Information System (FLIS) by the Integrated Material Manager (IMM) having management responsibility for the item. CSIs not currently identified as FSCAP in the FLIS system shall additionally be recorded as such.

d. For a common use new replenishment item or when an existing common use replenishment item is assessed for criticality, the IMM shall coordinate the criticality determination with affected Service ESAs and shall reflect the most stringent determination in the logistics files. When the common-use item is determined to be CSI in some applications but non-CSI in others,



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the IMM may establish separate National Stock Numbers when it is economically advantageous to do so.

e. Drawings and associated technical data for new replenishment items shall clearly identify that the item is CSI. Drawings and technical data shall identify the critical and major characteristics, critical processes, and inspection and other quality assurance requirements. Drawing practices for CSIs shall be in accordance with references 3 through 6. Critical and major characteristics for CSIs shall be established in accordance with reference 7 and shall clearly be identified on the drawings and associated documentation.

f. Where legacy drawings for CSIs do not clearly identify the item as a CSI, or do not identify the critical characteristics/ processes, the cognizant Service ESA shall determine whether there are sufficient other protections in place (e.g., application of enclosure (3)) to assure successful procurement or repair/overhaul of the CSI. If not, the ESA shall update the drawings to identify the critical characteristics and/or processes.

g. Items determined to be CSIs shall be identified as such to the designated logistics manager for inclusion in the supportability analysis candidate listing to ensure adequate support planning. Additions to the initial list of CSIs shall also be provided to the logistics manager as changes occur throughout the life cycle of the equipment.

h. All CSIs shall be documented, by National Stock Number (NSN) and/or Part Number (P/N), in the maintenance plan. CSIs shall be identified using a Special Maintenance Item Code (SMIC) of "H" or "J," and a Criticality Code of "F" or "E." in accordance with MIL-PRF-49506

i. Approved sources of supply or repair/overhaul shall be identified for each CSI at the time the criticality determination is established or as soon afterwards as practical.

j. The cognizant Service organization for each CSI shall assign the appropriate Acquisition Method Codes (AMC)/Acquisition Method Suffix Codes (AMSC) based on the cognizant Service ESA criticality determination. AMCs and AMSCs are used to instruct the contracting officer on the suitability of an item for competitive procurement in accordance with reference 8.

k. AMC/AMSC codes of 1G or 2G (i.e., a part is a candidate for full and open competition) shall not be used for CSIs unless reviewed and approved by the ESA.

l. The cognizant Service ESA shall approve any proposed change to AMC/AMSC assignments from a restrictive code to a less restrictive code for CSIs.

m. Criticality determinations for existing items shall be revalidated by the Service ESA whenever there are changes to the item's configuration, manufacturing or repair/overhaul processes, or sources of supply or repair/overhaul, or when there is a request for waiver or deviation.

n. CSIs shall have serial numbers on the item and on the packaging in accordance with reference 2, unless impractical or determined otherwise by the Service ESA. When impractical to establish serial numbers on the item itself, CSIs shall have distinguishable

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marking schemes approved by the Service ESA. The technical documentation shall reflect the appropriate marking scheme.

## 2. Sourcing:

a. CSIs shall be purchased or repaired/overhauled only from sources approved by the Service ESA. The objective is to achieve competition among approved CSI suppliers and their products and to ensure that potentially new CSI suppliers and their products are effectively evaluated prior to delivery of CSIs to the Services. The source approval requirements established by this instruction are comparable to the Parts Manufacturer Approval (PMA) procedures established by FAA in reference 9. Unless otherwise established by the cognizant Service ESA, only the following categories of sources shall be considered approved:

(1) the system or subsystem prime contractor;

(2) the actual manufacturer (i.e., Original Equipment Manufacturer (OEM)) that supplies the CSI(s) to the prime contractor where the Service ESA determines the prime contractor provides no “value added” to the item that couldn’t be performed by the Government. The Service and DLA logistics organizations and the Defense Contract Management Agency (DCMA) shall provide assistance to the Service ESA in assessing “value added” for CSIs;

(3) fully-licensed manufacturers of the prime contractor or of the OEM that provide substantiation of their licensing arrangement, as validated by and acceptable to the Service ESA;

4) fully-licensed repair/overhaul facilities of the prime contractor or of the OEM that provide substantiation of their repair/overhaul arrangement with the prime contractor, as validated by and acceptable to the Service ESA;

(5) dealers or distributors approved by the Service ESA who provide traceability (as defined in enclosure (1)) that the items they are supplying were produced by the system prime contractor, OEM, or approved alternative source and are unchanged in any way. FAA Advisory Circular 00-56A (reference 10) describes a voluntary system for the accreditation of civil aircraft parts distributors for parts and products installed on type-certificated products. The FAA concluded that ASA-100 (reference 11) and AS7104 (reference 12) meet and/or exceed the accreditation criteria;

(6) sources identified on a Qualified Product List (QPL) or Critical Item Procurement Requirements Document (CIPRD) where the ESA coordinated on the approval. Sources identified on source controlled drawings shall be considered approved, unless determined by the ESA to be otherwise. Any additional quality assurance provisions established by the ESA for the aforementioned sources or situations shall be incorporated in contracts; and

(7) alternate sources approved by the cognizant Service ESA (which may include FAA certificate/approval holders). Service depots and other organic government facilities

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may be considered alternate sources for production of CSIs provided they are approved by the Service ESA to satisfy the requirements of this instruction.

b. When dual use CSIs are purchased from other than FAA certificate/approval holders (Production Approval Holders, PMA Holders, Technical Standard Order Authorization Holders, Certificated Repair Stations) or their approved suppliers, or the documentation supporting procurement or repair from one of these sources does not exist or is unavailable, the CSIs are not to be considered FAA approved (references 2 and 13).

c. Alternate sources shall be revalidated by the Service ESA to ensure they remain capable of delivering satisfactory items if they have not delivered or repaired/overhauled the specific CSI to the DoD within 3 years of an anticipated solicitation. Similarly, alternate sources shall be reevaluated if there are concerns regarding product quality, manufacturing process changes, the source moves its manufacturing location, or the source has transferred its manufacturing facilities since the last manufacture. Companies that are having severe financial difficulties should also be reevaluated to ensure they can and will continue to provide acceptable CSIs. Only the Service ESA can determine whether reevaluation should be waived or the extent to which reevaluation should be relaxed.

d. System prime contractors and OEMs (1) with design responsibility from the system prime contractor for the preparation and technical currency of engineering drawings, (2) who supply the CSIs to the prime contractor, and (3) have current quality systems acceptable to the Government normally will not need reevaluation even if they have not delivered or repaired/overhauled the specific CSI within 3 years. However, reevaluation may be considered if there are concerns regarding product quality, manufacturing process changes, the source moves its manufacturing location, or the source has transferred its manufacturing facilities since the last manufacture, or if a new source is being qualified by the prime contractor, there are financial concerns with the system prime contractor or OEM, or if a new source is being qualified by the prime contractor.

e. Proposed changes to approved sources' manufacturing processes, methods, controls, manufacturing locations, or manufacturing facilities that were used to demonstrate the approved sources' capabilities shall be reviewed and approved by the Service ESA prior to accepting delivery of the CSI. Solicitations and contracts for CSIs shall require the contractor to formally notify the procuring activity of any proposed change to any prior approval factor evaluated by the Service ESA. Dual use parts or products subjected to this paragraph are no longer FAA-approved in accordance with reference 13.

f. Sources for CSIs approved by one Service that have common usage with other Services shall be recognized across all Services provided:

(1) the defined item requirements meet the most stringent requirements required of the item by an individual Service (as determined by the each Service ESA for assigned items);

(2) the source qualification requirements of the original approving Service were comparable to or greater than those required by each Service;

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(3) each Service ESA had the opportunity to review all information that supported the request for approval and the determination that the source was acceptable and the other Services' ESA concurred in the conclusions; and

(4) there is compliance with the procedural requirements of this instruction; .

g. Unless otherwise authorized by the Service ESA, offers of surplus material (as defined in enclosure (1)) of CSIs shall only be considered for procurement provided the Service ESA has approved documentation substantiating the below criteria. Government contract quality assurance inspections will be performed on the surplus offers to ensure the criteria are met and all critical characteristics identified on the component drawings, in the solicitation or contract, in the Quality Assurance Letter of Instruction, or as established by enclosure (3) are acceptable. Supplementary quality assurance provisions may be provided where verification of critical safety characteristics cannot be performed without degradation of the CSI.

(1) the proposed item was originally manufactured by an approved source at the time of manufacture and the manufacturer's approval for that item has not subsequently been revoked; and

(2) the item is unused in any way; and

(3) the item is not repaired, recycled, remanufactured, reconditioned, or has not been previously dispositioned as nonconforming by the system or subsystem prime contractor, OEM, other supplier or the Government; and

(4) the surplus item fully conforms to all critical characteristics as identified in item technical data requirements, contract, or other ESA instruction (i.e., the item's critical characteristics are not discrepant in any way); and

(5) the remaining shelf life or other time critical aspects of the item are acceptable to the Service ESA; and

h. Local purchase of CSIs is prohibited unless justified by unusual and compelling urgency, as described in reference 14. Local purchase of CSIs is not authorized unless approved by the Service ESA. When CSIs are procured locally, the buying activity shall notify the cognizant IMM.

i. Prior to installation of replacement CSIs not drawn from "ready for issue" inventory (e.g., obtained from aircraft recovery sites or other salvage/cannibalization activities), the ESA shall ensure that all required maintenance actions and configuration changes are in conformance with current fleet technical documentation and that applicable acceptance test procedures have been satisfied.

j. Service depots and other Government organic facilities are authorized to manufacture CSIs in accordance with the following:

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(1) Alternate Source for Recurring Production: Depots and other government organic facilities are candidates to be alternate sources for routine, repetitive, production lot manufacturing of CSIs provided the Service ESA confirms they meet all the requirements established for alternate source qualification.

(2) One Time Manufacture: Depots and other Government facilities are authorized to manufacture CSIs in limited quantities (one or a few) on a “one-time basis” without undergoing the full alternate source qualification process only when the Service ESA confirms the below conditions are satisfied. Execution of all phases of one-time manufacture processing shall be done on an emergency basis and will be given high priority. Quantities in excess of the immediate need may be manufactured where additional items are necessary for testing (e.g., first article, fatigue strength, other destructive tests, etc.) or the economics of production, part usage and production processes indicate this is clearly advantageous to the government. This authority for “one-time manufacture” shall not be used to circumvent alternate source qualification requirements for repeat or routine production. This one-time manufacture requirement does not apply to items produced to support research, development, test, or evaluation. The parts produced in accordance with this process shall be coded, tracked, and disposed of as military unique CSIs. Criteria for authorization of “one-time” manufacture of CSIs:

(a) there is an urgent need for a limited quantity of items to fill an immediate requirement for depot production or fleet operational requirements and no previously approved source (contractor or organic) exists, or approved sources cannot deliver the parts within the required time; and

(b) the Service ESA has established the technical requirements (i.e., design requirements, manufacturing processes, testing requirements, inspection requirements, etc.) necessary to assure acceptability of the manufactured item, and that the time and expense required to produce and conduct the necessary tests/evaluations supports the decision to manufacture and test the item on a one-time basis; and

(c) the items are produced with equivalent or better manufacturing processes, controls, quality, and traceability as parts manufactured by the formally approved equipment manufacturer; and

(d) the quality and manufacturing attributes of CSIs produced under this “one-time manufacturing” authority are traceable through formal contemporaneous documentation from point of origin of raw materials to finished goods; and

(e) cognizant engineering, quality, and production personnel reviewed the CSI technical data, complete depot (or other cognizant facility as applicable) controls, serial number tracking process, and required tests and inspections to ensure they are current, complete, accurate, and capable of meeting the original manufacturer and/or Service ESA’s requirements; and

(f) first article testing is satisfactorily accomplished; and

(g) assessments and testing of static and fatigue strength and limitations as well as other tests are conducted, when required by the Service ESA; and

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(h) the Service ESA (including cognizant design engineering, quality, and production personnel) have signed their approval that the parts manufactured under this one-time manufacturing authority meet or exceed original manufacturer requirements, that traceability on the item is satisfactory, and that the item is safe for flight and ground operations and does not present a safety hazard to personnel. Enclosure (2) provides example forms for one-time manufacturing approval documents. When a CSI produced under the one-time manufacturing authority does not meet original manufacturer requirements or has not been fully qualified, the ESA shall establish and ensure publication of applicable operating procedures, restrictions, and limitations as well as applicable maintenance, inspection, tracking, and disposal requirements.

### 3. Quality:

a. All Class I Engineering Change Proposals (ECPs) or proposed Permanent or Temporary Modifications (as defined in enclosure (1)) on CSIs shall be reviewed and approved by the cognizant Service ESA. All Class II ECPs for CSIs shall be approved by the cognizant Service ESA unless delegated by Service ESA.

b. As a rule, only CSIs that fully conform to all characteristics shall be accepted. Exceptions can be made in cases of public exigency, but only when the nonconformances have been reviewed, approved, and justified in writing by the cognizant Service ESA. All CSI nonconformances (critical, major, and minor) and all Requests for Deviations or Waivers associated with CSIs shall be approved by the cognizant Service ESA using quality assurance practices in accordance with references 15 and 16. The ESA may delegate to DCMA approval of Class II Engineering Change Proposals (ECPs). Procuring activities shall withhold waiver authority for minor nonconformances on CSIs unless otherwise advised by the ESA. The approval authority for critical or major nonconformances shall not be delegated. Additionally, exceptions to critical characteristics must be approved by the head of the Service ESA or their designated representative. Where the CSI is used by more than one Service (i.e., the item is a common-use CSI), nonconformances shall be coordinated across the using Services ESAs. Nonconformances to critical characteristics of common-use CSIs must be approved by the head of each affected Service ESA or their designated representative.

c. Rebranding (i.e., remarking or relabeling) which obscures the marking of the OEM of CSIs by suppliers is prohibited.

d. Government contract quality assurance (GCQA) at source shall be required for all CSI procurements. The GCQA approach shall be sufficient to ensure conformance of all critical characteristics and critical processes identified on the drawing, specification, technical data package, otherwise established in the contract, or enclosure (3). Critical characteristics and processes may be indicated on the drawing by a black star, flight critical marking, or similar identification. GCQA is not limited to verification of the CSI characteristics identified as critical. The cognizant Contract Administration Office shall perform quality assurance activities in accordance with references 15 and 16. Certificates of Conformance (CoCs) for CSIs in lieu of government product verifications are not authorized without Service ESA approval.

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e. When specific CSI quality requirements are identified by the Service ESA, quality assurance letters of instruction (QALIs), quality assurance provisions (QAPs), criteria for the special inspections, process verifications, or similar requirements shall be developed and provided to the procuring activity.

f. When DCMA anticipates delegating to a Host Nation the GCQA functions for aviation CSIs maintained, repaired, or overhauled at supplier facilities outside the United States, DCMA will obtain concurrence from the affected ESAs. As much as practical, the GCQA delegations should show the functions to be performed by the Host Nation for each aviation program. DCMA and the ESAs will review the effectiveness of the delegation at least every 3 years.

g. First Article Testing (FAT), Production Lot Testing (PLT), and Product Verification Audits (PVA) shall be incorporated into the contract or organic repair work order (e.g., program notice, task order, etc.) when specified in drawings, technical data packages, in response to Source Approval Request (SAR) packages or when otherwise specified by the Service ESA. As a rule, waiver of FAT or PVA should be considered, provided the manufacturer:

- (1) was previously approved for that item; and
- (2) has successfully manufactured and delivered the specific CSI within the past 3 years; and
- (3) has no unfavorable quality history; and
- (4) has not made any changes to the item, processes, manufacturing location or sub-contractors used to manufacture the item successfully in the past.

h. Reverse engineering shall be considered only after all other methods for obtaining the part or the necessary technical data have been unsuccessful and significant cost savings can be demonstrated or where mission readiness is severely impacted. Reverse engineering decisions shall be authorized by both the head of the contracting activity and the Service ESA, in accordance with reference 17. Source approval and quality assurance policies established by this instruction shall apply to all reverse engineered CSIs. Coordination among Service ESAs is required for common use CSIs.

(1) The Service ESA shall validate that all aspects of the proposed reverse engineered design, materials, critical characteristics, and critical manufacturing processes fully satisfy requirements.

(2) The Service ESA shall approve and/or conduct the FAT of a reverse engineered CSI the first time an award is made using the reverse engineered design.

i. CSIs are candidates for competition or breakout from the prime contractor only when the screening requirements outlined in reference 8 have been considered.

j. Modifications of CSIs during installation or repair in order to make the item fit or function are prohibited unless approved by the Service ESA. CSIs that need to be modified to make them

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fit or function properly shall not be installed until the problem has been reported to the cognizant Service ESA and dispositioned in accordance with established discrepant material review processes.

k. In the repair/overhaul of aviation systems and equipment, only conforming CSIs purchased from sources approved by the Service ESA shall be used. This is regardless of whether the repair/overhaul is performed by the Government or a contracted entity.

l. Product Quality Deficiency Reports (PQDRs) shall be submitted, investigated, tracked, processed, and recorded in accordance with reference 18, where deficiencies are identified or suspected on CSIs. PQDRs shall be submitted on CSIs where there is a defect or nonconforming condition detected on new or newly reworked government-owned products, premature equipment failures, or products in use that do not fulfill their expected purpose, operation, or service due to deficiencies in design, specification, material, manufacturing, and workmanship. Deficiencies relating to critical characteristics or those that potentially impact safety shall be classified as Category 1 PQDRs.

m. Technical directives (e.g., Technical Notices, Safety of Flight Messages, Airworthiness Directives, Bulletins, etc.) shall be issued and managed in accordance with service instructions where an engineering investigation or QDR investigation indicates that action is required to address a deficiency associated with a CSIs.

n. CSIs that were originally purchased with an FAA certification/approval (i.e., dual-use FSCAP) or were received as an installed item on an FAA-certificated aircraft will not retain their dual-use status if any subsequent modifications, repairs, engineering changes, waivers or deviations were made without FAA approval or if the items were manufactured in a facility that does not have FAA production approval. In such cases, the item is to be considered "military-unique FSCAP" upon disposal. Such parts should be marked or renumbered prior to disposal to prevent potential commingling with civil part.

#### 4. Disposal

a. When CSIs are no longer required by each service's aviation activity the CSIs and associated documentation shall be provided to the Defense Reutilization and Marketing Service (DRMS) for disposal as required by reference 2 and in accordance with reference 19. When it is not economically practical to send consumable CSIs to DRMS, military Services may dispose of the CSIs in accordance with paragraph E.4.b.

b. Prior to disposal, CSIs that are defective, nonconforming, have exceeded their life or time/use critical limits, or for which there is either no documentation or no reliable documentation regarding the manufacture, acquisition, use, modification, repair, or overhaul shall be mutilated. CSIs that contain military offensive or defensive capabilities shall be demilitarized in accordance with reference 20.

c. Only CSIs purchased from FAA certificate/approval holders or removed from FAA certificated aircraft with full documentation supporting FAA approval (design and production) through maintenance/repair and use shall be considered dual use FSCAP and disposed of with documentation in accordance with references 2 and 13.



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d. Contracts for the repair, overhaul or modification of aviation systems, subsystems, or equipment shall ensure proper disposal of CSIs.

**5. Management and Oversight**

a. Technical data necessary for the design, manufacture, procurement, repair, or overhaul of CSIs shall be verified and validated by the Service ESA. The ESA shall ensure that copies of new Technical Data Packages (drawings and associated documentation) are approved prior to provisioning and are submitted to the appropriate technical data repositories in accordance with internal procedures.

b. The Service ESAs shall develop, maintain, and distribute or provide access to a current listing of CSIs, which includes identification of all approved sources of manufacture, supply, or repair/overhaul for each CSI.

c. All Services and DLA shall comply with reference 21.

d. All Services responses to requests for engineering support shall be accurate and every effort shall be made to respond in the time requested. Requestors shall be notified if the requested timeframe cannot be met and will be supplied with an estimated completion date.

e. In the event of concerns regarding specific requests for engineering support that cannot be resolved at the working level in a timely manner, the issue shall be elevated within the respective Service and DLA organizations for resolution.

f. The Services, DLA, and DCMA shall establish and conduct training programs to ensure personnel involved with CSIs are fully aware of management responsibilities and requirements.

g. The Services, DLA, and DCMA shall jointly conduct an annual assessment of CSI management to confirm that this instruction is properly implemented, to identify and correct nonconforming situations before they become problems to the fleet, and to identify and institute process improvements.

**F. RESPONSIBILITIES**

1. The Joint Aeronautical Commanders' Group (JACG) Aviation Engineering Board (AEB) is responsible for developing, coordinating, and managing the policies, processes, training and reviews associated with CSIs.

2. The Service ESAs are responsible for the design integrity and operational safety, suitability, and effectiveness of aviation systems and equipment and have authority to delegate this responsibility. For the purpose of complying with references 1 and 2, the Service ESAs are the "Design Control Activity" and the "Aircraft Airworthiness Authority" for their cognizant aircraft. The Service ESAs are responsible for:

a. Obtaining the support, priority, and timely and accurate responses towards implementing this instruction from the chief engineers of the various programs.

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b. Properly identifying or confirming the criticality and the associated critical characteristics, manufacturing processes, and quality assurance requirements of each CSI when an item is newly introduced into the inventory or whenever there is a proposed change to a CSI, its manufacture, or its supply or repair/overhaul source.

c. Developing, maintaining, and distributing or providing access to a current listing of CSIs, which includes identification of prime contractors, OEMs, and alternate sources of manufacture, supply, or repair/overhaul for each CSI.

d. Coordinating with the other using Service ESAs on all procurement and quality actions that affect common use items designated as CSI by any Service ESA.

3. The Logistics Organizations (Services and DLA) are responsible for ensuring that:

a. Logistics personnel are effectively trained on CSI responsibilities.

b. CSIs and the associated documentation are effectively coded, acquired, maintained, and managed for applicable equipment.

c. Technical documentation acquired to support or maintain an aviation system subsystem, equipment, or component adequately identifies CSIs and/or associated critical characteristics or processes. Service logistics organizations shall ensure that technical documentation is maintained and provided to or made accessible to the organizations responsible for acquiring, maintaining, repairing, or overhauling the systems or equipment.

d. Engineering support is requested when evaluating alternate sources for CSIs and on all issues involving potential design manufacturing and configuration changes on CSIs (e.g., Class I ECPs, waivers or deviations, reverse engineering proposals).

e. ESA determinations are requested on the criticality of items not previously determined.

f. Solicitations and contracts for CSIs properly identify the items as critical safety, that contract awards are made only to approved sources approved by the Design Control Activity, and that the contracts reflect the technical requirements established by the Design Control Activity.

g. Contracts for the acquisition or logistics support of aviation systems, subsystems, equipment, or components require the prompt notification to potentially affected procuring activities and DCMA of defective CSIs or of deficient CSI manufacturing processes that potentially impact safety.

h. Contracts for the acquisition or logistics support of aviation replenishment items require the prompt notification to potentially affected procuring activities and DCMA of subcontractors or suppliers who are removed from the contractor's approved supplier system as a result of improperly manufactured, tested, processed or documented (e.g., certifications, test or inspection reports, etc) aviation CSIs;

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i. Cataloging data and Federal Logistics Information System (FLIS) data for CSIs they manage accurately reflect items as critical safety by listing the Criticality Code (in accordance with MIL-PRF-49506 in current data systems.

j. Advice, assistance, and recommendations concerning criticality determinations and related issues are provided to the ESA.

4. The Service depots and other organic industrial facilities are responsible for ensuring the implementation of this instruction by responsible maintenance activities and commercial contractors supporting repair and overhaul.

5. Service Acquisition Commanders, Aviation Program Executive Officers (PEOs) and/or Program Managers that provide procurement or repair/overhauling services for aviation products shall:

a. Support the ESAs in identification of current CSIs for their programs;

b. Assign engineers to respond to requests for engineering support on CSIs in a timely manner;

c. Provide sufficient funding to ensure that all CSIs are identified sufficiently early enough during the acquisition cycle, or when developing Design Change Notices (DCNs), to provide the required information to impact support planning. When such information was not previously provided, PEOs/Program Managers shall fund for developing such information when subsequently needed;

d. Include contractual provisions that require prime contractors to conduct analyses and identify CSIs using Criticality Code (in accordance with Mil-Prf-49506) and their associated critical/major characteristics and processes prior to provisioning/cataloging. Contractual provisions shall ensure this information is either distributed to or accessible by the Government;

e. Ensure that contracts for acquisition or logistics support include provisions that require the contractor to adhere to the policies of this instruction and that CSIs are only provided by sources approved by the Service ESA;

f. Ensure that contracts for the acquisition or logistics support of aviation systems, subsystems, or equipment require the prompt notification to potentially affected procuring activities and DCMA of subcontractors or suppliers who are removed from the contractor's approved supplier system as a result of improper manufacturing, testing, processing or certifying parts and equipment;

g. Ensure that technical documentation delivered to the Government for use in reprocurments clearly identifies CSIs and their associated critical characteristics and processes; and

h. Ensure that repair and rework specifications (e.g., Standard Depot Level Maintenance, Phased Depot Level Maintenance, and Integrated Maintenance Concept specifications) comply with this instruction.

6. DCMA shall:

a. Review contracts involving CSIs to identify technical requirements, inspections, and acceptance criteria, particularly those associated with critical and major characteristics. Where a DCMA technical specialist believes an item may be a CSI but is not identified as such or an item may be inappropriately identified as a CSI, the technical specialist will initiate contact with the procuring activity to request guidance. Where the contract clearly identifies an item as CSI but the technical requirements or customer direction (e.g. QALI or MOA) do not identify critical characteristics, the technical specialist shall apply the criteria in enclosure (3) to determine the characteristics/features that should be treated as significant during Government Contract Quality Assurance (GCQA) surveillance activities.

b. Perform GCQA in accordance with references 14 and 15, including the necessary product inspection, test, or verification to ensure CSIs presented for acceptance meet technical requirements of the contract. GCQA shall include requirements established by QALIs. GCQA shall include critical characteristics identified on the drawings, specifications, technical data packages, or as otherwise established by the contract. Where critical characteristics are not otherwise defined GCQA shall include significant product characteristics/features as defined through application of the criteria in enclosure (3).

i. GCQA is not limited to verification of the CSI characteristics identified as critical. The following key processes have been identified by the ESAs as important in so far as they pertain to the specific CSI. The following processes should be considered when identifying "key processes". GQA surveillance of these processes should be risk based. These processes include: destructive and nondestructive tests (e.g. proof load, pressure, leakage, tensile, shot peen, operational/functional, etc); special processes (e.g. welding, soldering, bonding and curing for composite and honeycomb assemblies, surface coatings and plating, etc.); heat treat; stress relieve; part markings, fabrication and assembly; and special packaging or handling (e.g. control of electrostatic discharge).

c. Advise the procuring activity of corrective action requests issued by DCMA to the supplier relating to nonconforming CSIs, CSI critical characteristics, or deficient manufacturing, configuration management, quality management, or supplier management processes. Advise procuring activities of contractor responses and status of corrective actions relating to defective CSIs or CSI processes.

d. Notify affected procuring activities when DCMA becomes aware that a contractor removes a source from the contractor's listing of approved subcontractors or suppliers because of improper or suspect manufacturing, quality management, or configuration management processes and there may be an impact on critical safety items.

e. Advise the procuring activity of recommendations for use of a Certificate of Conformance (CoC) in lieu of GCQA. DCMA shall assure that the contract has been appropriately modified prior to implementing an ESA approved CoC.

f. Perform disposition of minor non-conformances of CSIs when authority for disposition has been delegated by the ESA. Delegations are issued on a Supplier/CAGE basis. Any use-as-is or repair dispositions being applied to contractually defined critical characteristics must be forwarded

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to the procuring activity and subsequently to the ESA for approval. Where the critical characteristic is not identified on the drawing, specification, technical data package, or otherwise specified in the contract, but identified through a QALI or other customer direction, any use-as-is or repair disposition to nonconformance of such characteristics must be prior coordinated with the procuring activity. Where DCMA has minor non-conformance decision authority for CSIs, the specialist shall advise the ESA of any evidence or trends indicating potential problems with the specific CSI or other related critical products produced by the manufacturer.

g. Review ECPs and requests for major and minor waivers or deviations for completeness and accuracy. Provide comments and recommendations to the procuring activity.

h. Request that the procuring activity either provide specific acceptance criteria or require acceptance at destination vice source when the CSI contract is awarded to a dealer or distributor and the applicable drawings, specifications, test or inspection equipment or facilities are not available to the DCMA specialist to verify product conformance.

**ENCLOSURES**

1. Definitions
2. Samples of One-Time Manufacturing Approval
3. Significant Product Characteristics/Features for CSIs

**DISTRIBUTION:**

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## DEFINITIONS

Accident, Class A. A mishap where the resulting total cost of damages to Government and other property is of an amount \$1 million or more; a DoD aircraft is destroyed; or an injury and/or occupational illness results in a fatality or permanent total disability

Acquisition Method Code (AMC). A single digit numeric code, assigned by a DoD activity, to describe to the contracting officer and other government personnel the results of a technical review of a part and its suitability for breakout.

Acquisition Method Suffix Code (AMSC). A single digit alpha code, assigned by a DoD activity, that provides the contracting officer and other government personnel with engineering, manufacturing, and technical information further describing suitability/non-suitability for breakout.

Actual Manufacturer. An individual, activity, or organization that performs the physical fabrication processes that produce the deliverable part or other items of supply for the government. The actual manufacturer must produce the part in-house. The actual manufacturer may or may not be the prime contractor or Original Equipment Manufacturer (OEM).

Aircraft Airworthiness Authority. A term used in reference 1 (DoD Regulation 4140.1-R) section C8.5 to describe the military organization responsible for determining the safety, suitability and effectiveness of parts that go into aviation systems. For the purpose of this instruction, the Aircraft Airworthiness Authority for each respective service are the Naval Air Systems Command, Assistant Commander for Research and Engineering (AIR-4.0) for the Navy; US Army Aviation and Missile Command (AMSAM-RD-AE) for the Army; and Designated Air Force Single Manager for a Weapon System for the Air Force. The term Aircraft Airworthiness Authority is synonymous with Design Control Activity and Engineering Support Activity.

Airworthiness. For the purpose of this instruction, airworthiness is the demonstrated capability of an aircraft or aircraft subsystem or component to function satisfactorily when used within prescribed limits.

Alternate Item. An item other than the approved part number cited in the Acquisition Identification Description (AID). To be approved, the alternate item must be identical to, or be physically, mechanically, electrically, and functionally interchangeable with the product cited in the AID.

Alternate Source. An offeror (Government or contractor) other than the Prime contractor or OEM to provide the identical part numbered item.

Alternate Source Qualification (ASQ). The formal process for requesting, evaluating, and approving the capability of alternate sources to repeatedly and acceptably manufacture or repair/overhaul CSIs.

Enclosure (1)

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Approved Dealer/Distributor. A dealer or distributor (as defined in this instruction) that has been approved by the ESAs to deliver specific aviation CSIs to the military. Typically, approved dealers and distributors are formally sanctioned by the prime contractor or Original Equipment Manufacturer (OEM) to buy, sell, and distribute the prime contractor or OEM's products. Such dealers/distributors typically are reviewed, audited, approved, and monitored by the prime contractor or OEM to assure the parts supplied are identical to those originally supplied to them. Parts provided by such dealers/distributors typically carry the same warranty and protections as if the items were purchased directly from the prime contractor or OEM.

Bulletin. A Technical Directive that directs a one-time inspection of equipment, contains related instructions, and disseminates administrative or management information as related to maintenance of weapon systems.

Catastrophic Mishap. See Mishap Severity Category I, Catastrophic.

Class A Accident. See Accident, Class A

Common Use Item. For the purpose of this instruction, a common use item is a part, assembly, subsystem, or store used in different military aviation systems (e.g., "types") or a part, assembly, subsystem, or store that is unique to a specific aviation system used by multiple Military Services.

Consumable Item. Any item or substance that, upon installation, loses its identity and is normally consumed in use or cannot be economically repaired.

Critical Application Item (CAI). An item that is essential to weapon system performance or operation, or the preservation of life or safety of operating personnel, as determined by the military services. The subset of CAIs whose failure could have catastrophic or critical safety consequences (Category I or II as defined by MIL-STD-882) is called CSIs.

Critical Characteristic. Any feature throughout the life cycle of a Critical Item, such as dimension, tolerance, finish, material or assembly, manufacturing or inspection process, operation, field maintenance, or depot overhaul requirement that if non conforming, missing, or degraded may cause the failure or malfunction of the Critical Item.

Critical Item Code (CIC). A code that identifies items determined to have critical application in accordance with DLAR 3200.3. This code identifies items essential to the preservation of life in emergencies or essential to end item or system performance, the failure of which would adversely affect the successful accomplishment of a military operation.

Critical Item Procurement Requirements Document (CIPRD). A document managed by DLA for standard parts which are sometimes used in critical applications and described by military or nongovernmental specifications where a QPL does not exist. CIPRDs identify the top-tier procurement document for the specific National Stock Numbered and/or Part Numbered items covered, product technical requirements; reference documents; special quality assurance, packaging, traceability, or certification requirements; qualification procedures, sources approved by the Service ESAs, and approving Service ESAs.

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Criticality Code (CC). A code that indicates that an item has been assessed and documented in the TDP as being technically critical by reason of tolerance, fit restrictions, application, nuclear hardness properties or characteristics which affects identification of the item. The codes are defined by MIL-PRF-49506

Critical Deviation. See Deviation, Critical.

Critical Mishap. See Mishap Severity Category II, Critical.

Critical Safety Characteristic. Any feature, such as tolerance, finish, material composition, manufacturing, assembly or inspection process or product, which if nonconforming or missing could cause the failure or malfunction of the critical safety item.

Critical Safety Item (CSI). A part, assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapons system that contains a characteristic any failure, malfunction, or absence of which could cause a catastrophic or critical failure resulting in the loss or serious damage to the aircraft or weapons system, an unacceptable risk of personal injury or loss of life, or an uncommanded engine shutdown that jeopardizes safety. Damage is considered serious or substantial when it would be sufficient to cause a "Class A" accident or a mishap of severity category I. The determining factor in CSIs is the consequence of failure, not the probability that the failure or consequence would occur. For the purpose of this instruction "Critical Safety Item", "Flight Safety Critical Aircraft Part", "Flight Safety Part", "Safety of Flight Item", and similar terms are synonymous. The term Critical Safety Item shall be the encompassing term used throughout this instruction.

Critical Waiver. See Waiver, Critical.

Dealer. Any business organization that sells, conveys, or otherwise transfers a product (not his own) to another party. The dealer performs no manufacturing or testing and may sell a manufacturer's product without the manufacturer's control or knowledge.

Defect. Any nonconformance of a unit or product with specified requirements. Defects shall normally be grouped into one or more of the following classes but may be grouped into other classes or subclasses within these classes.

Defect, Critical. A defect that constitutes a hazardous or unsafe condition, or as determined by experience and judgment could conceivably become so, thus making the aircraft, system, or equipment unsafe for flight or endangering operating personnel.

Defect, Major. A defect, other than critical, that could result in failure or materially reduce the usability of the unit or part for its intended purpose.

Defect, Minor. A defect that does not materially reduce the usability of the unit or part for its intended purpose or is a departure from standards but which has no significant bearing on the effective use or operation of the unit or part.



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Demilitarization. The act of destroying the military offensive or defensive advantages inherent in certain types of equipment or material. The term includes mutilation, dumping at sea, scrapping, melting, burning, or alteration designed to prevent the further use of this equipment and material for its originally intended military or lethal purpose and applies equally to material in unserviceable or serviceable condition that has been screened through an Inventory Control Point and declared excess or foreign excess.

Design Control Activity. The systems command of a military department that is specifically responsible for ensuring the airworthiness of an aviation system or equipment in which an aviation Critical Safety Item will be used. For common use CSIs, there will be multiple Design Control Activities. Design Control Activity is synonymous with Aircraft Airworthiness Authority and Engineering Support Activity.

Deviation. A written authorization, granted after contract award and prior to the manufacture of the item, to depart from a particular performance or design requirement of a contract, specification, or referenced document, for a specific number of units or a specified period of time. Deviations are intended only as one-time departures from an established configuration for specified items or lots and are not intended to be repeatedly used in place of formal engineering changes.

Deviation, Critical. A deviation is designated as critical when the deviation consists of a departure involving safety or when the configuration documentation defining the requirements for the item classifies defects in requirements and the deviations consist of a departure from a requirement classified as critical.

Deviation, Major. A deviation is designated as major when the deviation consists of a departure involving health, performance, interchangeability, reliability, survivability, maintainability, or durability of the item or its repair parts; effective use or operation; weight; or appearance (when a factor) or when the configuration documentation defining the requirements for the item classifies defects in requirements and deviations consist of a departure from a requirement classified as major.

Deviation, Minor. A deviation is designated as minor when it consists of a departure that does not qualify as Critical or Major or when the configuration documentation defining the requirements for the item classifies defects in requirements and the deviations consist of a departure from a requirement classified as minor.

Direct Purchase. The acquisition of a part from the OEM, including a prime contractor who is an actual manufacturer of the part.

Disposal. The process of reutilizing, transferring, donating, selling, destroying, or other ultimate disposition of personal property.

Dual Use Product/Part. Any product or part manufactured for civil application by an FAA Production Approval Holder (PAH) which is also procured under U. S. military contract. The product or part has the identical part number and configuration as its civil counterpart; it was manufactured using the same FAA-approved design and manufactured under the FAA production approval. These could also include any product (or part thereof) originally produced for the military which currently holds a

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normal, utility, acrobatic, or transport type certificate (TC) issued under section 14 Code of Federal Regulations 21.27

Engineering Change. A change to the current approved configuration documentation of an item at any point in the life cycle of the item.

Engineering Change Proposal (ECP). The documentation by which a proposed engineering change is described, justified, and submitted to a) the cognizant design control authority for approval or disapproval of the design change in the documentation and b) to the procuring activity for approval or disapproval of implementing the design change in units to be delivered or retrofit into assets already delivered.

Engineering Change Proposal, Class I. For the purpose of this instruction, a Class I Engineering Change Proposal is a formally recommended change to an item's configuration that would affect form, fit, function, performance, reliability, maintainability, survivability, weight, balance, moment of inertia, interoperability, interchangeability, or interface characteristics, electromagnetic characteristics, other critical or major characteristics identified in technical documentation, or cost.

Engineering Change Proposal, Class II. For the purpose of this instruction, a Class II Engineering Change Proposal is an ECP that does not meet the requirements for a Class I ECP.

Engineering Critical. A term used to describe a part so crucial that independent malfunction or failure could be catastrophic and result in personal injury or loss of life, jeopardize a military mission, or loss of military weapons system or equipment. Engineering critical parts require special documentation, controls, and testing beyond normal requirements.

Engineering Support. Engineering and technical assistance, including developing, validating and approving technical data, Technical Data Packages (TDPs) and engineering criteria, engineering representation, or providing technical guidance and decisions required in the management of an item or approving sources of manufacture, repair, or overhaul.

Engineering Support Activity (ESA). The Military Service organization assigned responsibility and authority to perform and approve engineering and quality assurance actions necessary to evolve detail design disclosures for systems, subsystems, equipment, and components exhibiting attributes essential for products to meet specific military requirements. During the operational phase, it includes any engineering activity, the results of which would add to or alter the design of equipment in such a manner, or to such an extent, as to change its operational capabilities or its design attributes of performance, reliability, maintainability and parts interchangeability, or to render it capable of alternative or additional use. For the purpose of this instruction, the ESA is the Service's Aircraft Airworthiness Authority and Design Control Activity.

Engineering Support Activity Focal Point. Entry and exit point for DLA Form 339, Request for Engineering Support, activity within each Service. The ESA Focal Point interfaces directly with DLA and ensures DLA Form 339 requests are forwarded to the correct and proper ESA. The ESA Focal Point also provides records and tracks associated timeliness and quality metric data. The ESA Focal Point is identified in DoD 4100.39-M, Vol. 10, Chapter 4, Table 104. Unless delegated by

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the ESA, the ESA Focal Point has no authority on CSIs for determining item criticality, approving engineering changes, approving nonconformances, or approving sources of supply.

Extended Engineering Effort. A DLA request for engineering support that, upon review by the ESA, requires the use of dedicated resources to work a defined requirement, has an end product clearly specified by DLA, and incurs a one-time negotiated charge.

Failure. The event, or inoperable state, in which any item or part of an item does not, or would not, perform as previously specified.

First Article. Pre-production models, initial product samples, test samples, first lot samples or pilot lots used to evaluate full conformance to the specified contract requirements.

First Article Test (FAT). Contractually required testing and inspection of a supplier's pre-production, production, or "production-representative" specimens to evaluate whether the supplier can manufacture fully conforming products prior to the Government's commitment to receive subsequent production items. First Article Testing does not necessarily assess manufacturing processes and controls nor does it assure the effectiveness of a supplier's quality system. First Article Testing is not synonymous with qualification testing.

Flight Safety Critical Aircraft Part (FSCAP). Any aircraft part, assembly, or installation containing a critical characteristic whose failure, malfunction, or absence may cause a catastrophic failure resulting in loss or serious damage to the aircraft or an uncommanded engine shutdown resulting in an unsafe condition. For the purpose of this instruction "Critical Safety Item", "Flight Safety Critical Aircraft Part", "Flight Safety Part", and "Flight Safety Critical Part" are synonymous. The term Critical Safety Item shall be the encompassing term used throughout this instruction.

Fully Licensed Manufacturer. An actual manufacturer with current, formal authorization by the prime contractor to produce critical items on behalf of the prime contractor. To be fully licensed, the prime contractor must have reviewed and approved the suppliers' manufacturing processes, manufacturing controls, technical documentation, quality and inspection capabilities, and item support practices. Licensing must assure that the prime contractor shall provide technical assistance to the customer, when requested, for parts manufactured by the supplier under the license agreement.

Fully Licensed Repair/Overhaul Facility. A repair/overhaul facility with current, formal authorization by the prime contractor or OEM to repair/overhaul CSIs on behalf of the prime contractor. To be a fully licensed repair/overhaul facility, the prime contractor must have reviewed and approved the facility's repair/overhaul processes and controls, technical documentation, quality and inspection capabilities, and item support practices. Licensing must assure that the prime contractor shall provide technical assistance to the customer, when requested, for items, equipment, or systems repaired/overhauled by the facility under the license agreement.

Government Contract Quality Assurance (GCQA). Government Contract Quality Assurance means the various functions, including inspection, performed by the Government to determine whether a contractor has fulfilled the contract obligations pertaining to quality and quantity. GCQA is the

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process by which Government develops and applies efficient plans for performing the various quality assurance actions necessary, including inspection and written direction from the contracting office, to verify whether the supplies or services conform to contract quality requirements

Hazard. Any real or potential condition that can cause injury, illness, or death to personnel; damage to or loss of a system, equipment, or property; or damage to the environment.

Inspection. Evaluation by observation and judgment accompanied as appropriate by measurement, testing or gauging to assess the conformance of supplies and services to contract requirements.

Integrated Material Manager (IMM). Any DoD activity or agency that has been assigned wholesale integrated material management responsibility for the Department of Defense and participating Federal agencies. IMM responsibilities include cataloging, requirements determination, procurement, distribution, overhaul, repair and disposal of materiel.

Life Support Item. All man-mounted or aircraft installed equipment and components designed to protect, sustain, or save human lives are categorized as life support. This includes, but is not limited to, ejection systems, crew seats, passenger seats, emergency escape slides, parachutes, life rafts and preservers, survival kits, emergency radios and beacons, aircrew helmets, oxygen masks, goggles, visors, chemical defense equipment, and selected clothing and uniform items.

Local Purchase. The direct purchase of an item covered by the DoD Coordinated Acquisition Program (DFARS 208.70) by other than the organization assigned Coordinated Acquisition Program contracting responsibility or Integrated Material Management responsibility (as established in DoD 4140.26-M).

Major Characteristic. A characteristic that analysis indicates is not critical but is likely, if defective, to result in failure of the end item to perform a required mission.

Material Review Board (MRB). The formal contractor-government board established for the purpose of reviewing, evaluating, and disposing of specific nonconforming supplies or services, and for assuring the initiation and accomplishment of corrective action to preclude reoccurrence.

Military Unique FSCAP. Any FSCAP specifically and uniquely designed and manufactured for the U.S. military, for which there is no corresponding FAA-approved type design or PAH engine, propeller or part produced for civil application. "Breakout" products or parts, produced specifically for military use by a manufacturer other than an FAA PAH using military-provided designs/drawings and specifications, are also considered military unique.

Mishap. An unplanned event or series of events resulting in death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Mishap Risk. An expression of the impact and possibility of a mishap in terms of potential mishap severity and probability of occurrence.

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Mishap Severity. An assessment of the consequences of the most reasonable credible mishap that could be caused by a specific hazard.

Mishap Severity Category I, Catastrophic. A mishap that could result in death, permanent total disability, loss exceeding \$1 million, or irreversible severe environmental damage that violates law or regulation.

Mishap Severity Category II, Critical. A mishap that could result in permanent partial disability, injuries, or occupational illness that may result in hospitalization of at least three personnel, loss exceeding \$200 thousand but less than \$1 million, or reversible environmental damage causing a violation of law or regulation.

Modification. For the purpose of this instruction, any alteration, addition, or removal of aircraft or aircraft engine structure, components, equipment, computer software, or primary instrumentation. Routine maintenance is exempt from this definition.

Modification, Permanent. A term used by the Air Force and described in Air Force Instruction 63-1101 to describe a proposed permanent change to the form, fit, function or interface of a configured item to either correct material deficiencies, improve reliability and maintainability, improve performance, add or remove capability, or correct a deficiency which could endanger the safety or health of personnel or cause loss or extensive damage to systems or equipment.

Modification, Temporary. A term used by the Air Force and described in Air Force Instruction 63-1101 to describe a proposed temporary change an item for flight or ground test purposes or to support accomplishment of a specific mission. Temporary modifications are often used to add or remove equipment in order to temporarily change the configuration of a configured item for a special mission or to support research, development, test, and evaluation (such as to evaluate the effectiveness of the change on selected equipment prior to authorizing a permanent modification).

Mutilation. The act of making material unfit for its originally intended purposes by cutting, tearing, scratching, crushing, breaking, punching, shearing, burning, neutralizing, etc.

Nonconformance. The failure of an item to meet a defined characteristic or process.

Nonconformance, Critical. A nonconformance that is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the supplies or services or one that is likely to prevent performance of a vital agency mission. Critical nonconformance includes departures from specified requirements in any critical characteristic or process or departures from unspecified requirements where the consequences would be catastrophic or critical.

Nonconformance, Major. A nonconformance other than critical that is likely to result in failure or to materially reduce the usability of the supplies or services for their intended purpose. Major nonconformances involve items which depart from contract requirements and typically affect one or more of the following major areas: performance, durability, interchangeability, effective use or

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operations, weight or appearance (where a factor), health or safety.

Nonconformance, Minor. A nonconformance that is not likely to materially reduce the usability of the supplies or services for their intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the supplies or services. Minor nonconformances are departures from contract requirements and do not affect any of the criteria specified as major nonconformance.

One-Time Manufacture. A limited quantity of material which is used to fill an immediate requirement to support depot production demands and/or fleet operating forces, to be manufactured locally only after concerted efforts to expedite requirements from other sources have failed.

Original Equipment Manufacturer (OEM). For the purpose of this instruction, an OEM is the individual, activity, or organization that performs the physical fabrication processes that produce the deliverable part or other items of supply for the prime contractor. The OEM must produce the part in-house. The OEM may or may not be granted design responsibility by the prime contractor for preparation and technical currency of drawings and technical data.

Overhaul. The process of disassembly sufficient to inspect all the operating components and the basic end article. It includes the repair, replacement, or servicing as necessary, followed by the reassembly and bench check or flight test. Upon completion of the overhaul process, the component or end article will be capable of performing its intended service life or service tour.

Permanent Modification. See Modification, Permanent

Prescribed Limits. For the purpose of this instruction, the full authorized range or envelope of operating, environmental, and sustaining criteria or characteristics for the safe and reliable use of the aircraft system, subsystem, or associated equipment as determined by analysis, tests, and operating experiences.

Prime Contractor. A contractor having responsibility for design and/or delivery of a system, subsystem, or equipment such as aircraft, engines, ships, tanks, vehicles, guns and missiles, ground communications and electronics systems, and test equipment.

Production Lot Testing (PLT). Tests and examinations performed on items randomly selected from a contract, production line, or inventory to verify the items fully conform to all applicable requirements and are suitable for use. Product Lot Testing may be performed by the Government, at a Government designated testing laboratory, or by the contractor as established in the contract.

Product Verification. See Inspection.

Product Verification Audit. The physical examination, functional testing, disassembly, inspection, re-assembly and re-setting of an item so that full determination of conformance to specifications can be verified.

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**Provisioning.** The process of doing the technical planning necessary to establish the item support plan, piece by piece and assembly by assembly; establishing the minimum levels or echelons responsible for repair/overhaul; identifying the kind and type of support equipment requirements, handbooks, manuals, and other maintenance publications; determining the basic factory and field training requirements; and providing for the establishment of inventory management records.

**Qualified Product List (QPL).** A list of products that have met the qualification requirements stated in the applicable military, federal or non-government specification, including appropriate product identification and test or qualification reference with the name and plant address of the manufacturer and distributor, as applicable.

**Rebranding.** The remarking, relabeling, or repackaging of an item with a distributor's own product identification as opposed to that of the actual manufacturer.

**Repair.** Necessary preparation, fault correction, disassembly, inspection, replacement of parts, adjustment, reassembly, calibration, or tests accomplished in restoring items to serviceable status.

**Repairable Item.** A durable item which, when unserviceable, can be economically restored to a serviceable condition through regular repair procedures.

**Replenishment Part.** A repairable or consumable part purchased after provisioning for replacement; replenishment of stock; or use in the maintenance, overhaul, and repair of equipment such as aircraft, engines, ships, tanks, vehicles, guns and missiles, ground communications and electronic systems, ground support, and test equipment. As used in this instruction "part" includes subassemblies, components, and subsystems.

**Reverse Engineering.** The process by which serviceable parts are examined, analyzed, and tested to determine precisely from what materials they are made and how they were manufactured in order to enable manufacture of parts that exactly duplicate the examined parts. The expected result of reverse engineering is a complete Technical Data Package, including design and manufacturing data, verification requirements, and the associated qualification and proofing requirements suitable for procurement of the item by new sources.

**Safety.** Freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

**Shelf-Life Item.** An item of supply possessing deteriorative or unstable characteristics to the degree that a storage time period or condition(s) must be assigned to assure that it shall perform satisfactorily in service.

**Source Approval Request (SAR).** A vendor proposal that includes all of the technical data required for a competent manufacturer to manufacture a critical safety item to a level of quality that is equal or better than the OEM part.

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Source Control Drawing. A drawing that provides an engineering description and acceptance criteria for purchased items that also establishes design activity imposed qualification testing and provides performance, installation and interchangeability specific characteristics required for critical applications. It includes a list of approved manufacturers, the manufacturers' item identifications, and acceptance criteria for items, which are interchangeable in specific applications. The source control drawing establishes item identification for the controlled item(s). The approved items and sources listed on a source control drawing are the only acceptable items and sources.

Special Maintenance Item Code (SMIC). Codes which indicate any special maintenance category applicable to the item. The codes are defined by MIL-PRF-49506.

Stores. For the purpose of this instruction, any device intended for internal or external carriage, mounted on aircraft suspension and release equipment, and which may or may not be intended to be separated in flight from the aircraft. Stores include missiles, rockets, bombs, nuclear weapons, mines, fuel and spray tanks, torpedoes, detachable fuel and spray tanks, dispensers, pods, targets, chaff and flares including external dispensing equipment, and suspension equipment (racks, pylons).

Surplus Material. Material that was originally purchased and accepted by the U.S. Government and subsequently sold or disposed of by the Defense Reutilization and Marketing Service (DRMS).

System or Subsystem Prime Contractor. See Prime Contractor.

Technical Data. Data required for the accomplishment of logistics and engineering processes in support of the contract end item. It includes drawings, operating and maintenance instructions, provisioning information, specifications, inspection and test procedures, instruction cards and equipment placards, engineering and support analysis data, special purpose computer programs, and other forms of audiovisual presentation required to guide personnel in the performance of operating and support tasks.

Technical Data Package. A technical description of an item adequate for supporting an acquisition strategy, production, engineering and logistics support. The description defines the required design configuration and procedures required to ensure adequacy of item performance. It consists of all applicable technical data such as drawings and associated lists, specifications, standards, performance standards, quality assurance requirements, software and packaging details.

Technical Manual. A publication containing a description of equipment, weapons, or weapon system(s) with instructions for effective use. Included are one or more of the following sections: instructions covering initial preparation for use, operational instructions, modification instructions, maintenance instructions, parts lists or parts breakdown, and related technical information or procedures, exclusive of those of an administrative.

Temporary Modification. See Modification, Temporary.

Test. The determination of one or more characteristics according to a procedure.



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Traceability. Documented evidence that the item to be supplied was/will be manufactured and/or maintained by the prime contractor, approved manufacturer, or FAA certificate/approval holder is identical to the product that was initially manufactured, and is in full compliance with all specifications, drawings, storage, packaging, and handling requirements, and other associated requirements. Documentation is required to demonstrate, to the government's satisfaction, the Government's ability to obtain all information necessary to trace the items back through the manufacturing and inspection process in the event of the item failure. The manufacturing process information includes, date and place of actual manufacturing and additional information as appropriate, such as verification of all aspects of material, manufacture, special processes, personnel certifications, assembly, inspection, installation, and repair.

Value Added. Additional services or support provided by the prime contractor on CSIs to ensure items purchased from OEMs or items repaired/overhauled from support facilities fully satisfy operational requirements for the designed service life of the component.

Verification. Confirmation through the provision of objective evidence that specified requirements have been fulfilled.

Waiver. A written authorization granted after contract award to accept an item, that during production, or after having been submitted for inspection or acceptance, is found to depart from contract or specified configuration requirements. Waivers are intended only as one-time departures from an established configuration for specified items or lots and are not intended to be repeatedly used in place of formal engineering changes.

Waiver, Critical. A waiver shall be designated as critical when the waiver consists of acceptance of an item having a nonconformance with contract or configuration documentation involving safety or when the configuration documentation defining the requirements for the item classifies defects in requirements and waivers consist of a departure from a requirement classified as critical.

Waiver, Major. A waiver shall be designated as major when the waiver consists of acceptance of an item having a nonconformance with contract or configuration documentation requirements involving health, performance, interchangeability, reliability, survivability or maintainability of the item or its repair parts, effective use or operation, weight, or appearance (when a factor) or when the configuration documentation defining the requirements for the item classifies defects in requirements and the waivers consist of a departure from a requirement classified as major.

Waiver, Minor. A waiver shall be designated as minor when the waiver consists of acceptance of an item having a nonconformance with contract or configuration documentation which does not involve any of the factors of a critical or major waiver or when the configuration documentation defining the requirements for the item classifies defects in requirements and the waivers consist of a departure from a requirement classified as minor.

Wholesale. The highest level of organized DoD supply, and as such, procures, repairs, and maintains stocks to resupply the retail levels of supply.

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**AIRWORTHINESS CERTIFICATION FORMAT  
ONE-TIME MANUFACTURED CRITICAL SAFETY ITEM**

COMPONENT PART NUMBER \_\_\_\_\_

NOMENCLATURE \_\_\_\_\_

PROCESS PLAN NUMBER \_\_\_\_\_

QUANTITY PRODUCED \_\_\_\_\_ SERIAL NUMBER(S) \_\_\_\_\_

**DIRECTOR OF RESOURCES FOR MATERIAL**

Director of Resources for Material certifies correctness of NSN/purchased critical safety item sub-components.

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

Signature

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name

The responsible Research and Engineering Department Head signature certifies airworthiness of this component/ part.

PRODUCTION HEAD \_\_\_\_\_ DATE \_\_\_\_\_

Signature

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name

QUALITY HEAD \_\_\_\_\_ DATE \_\_\_\_\_

Signature

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name

COGNIZANT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

Signature

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name

RESEARCH AND ENGINEERING  
LEVEL 2 DEPARTMENT HEAD \_\_\_\_\_ DATE \_\_\_\_\_

Signature

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name

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USE AND INSTALLATION AUTHORIZATION FORMAT  
OF MANUFACTURED CRITICAL SAFETY ITEM

COMPONENT PART NUMBER \_\_\_\_\_

NOMENCLATURE \_\_\_\_\_

DRAWING NUMBER AND REVISION \_\_\_\_\_

DRAWING CAGE CODE \_\_\_\_\_

END ITEM (e.g. H-53, F-404, etc.) \_\_\_\_\_

PROCESS PLAN NUMBER \_\_\_\_\_

PROCESS  
PLANNER \_\_\_\_\_

Print Name

Signature

Date

QUALITY  
ORGANIZATION  
HEAD \_\_\_\_\_

Print Name

Signature

Date

MANUFACTURING  
HEAD \_\_\_\_\_

Print Name

Signature

Date

SYSTEM  
SAFETY  
ENGINEER \_\_\_\_\_

Print Name

Signature

Date

COGNIZANT  
ENGINEER \_\_\_\_\_

Print Name

Signature

Date

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VERIFICATION OF NSN / PURCHASED MATERIAL FORMAT  
FOR MANUFACTURED CRITICAL SAFETY ITEM

MATERIAL PART NUMBER \_\_\_\_\_

MATERIAL STOCK NUMBER \_\_\_\_\_

THE ABOVE MATERIAL IS VERIFIED TO BE ACCURATE AS ORDERED

MATERIAL SHIPPING / RECEIVING SECTION (\_\_\_\_\_)

NIF STORE SECTION (\_\_\_\_\_)

PRODUCTION SHOP SUPPORT CENTER (\_\_\_\_\_)

LAB ANALYSIS REPORT NUMBER \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

PRINTED NAME \_\_\_\_\_ CODE \_\_\_\_\_

MATERIAL ENGINEER \_\_\_\_\_  
Print Name Signature Date

THE ABOVE MATERIAL IS VERIFIED RECEIVED AS ORDERED AND STORED

AT: \_\_\_\_\_

Location

UNTIL READY FOR ASSEMBLY.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

PRINTED NAME \_\_\_\_\_ CODE \_\_\_\_\_

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**Significant Product Characteristics/Features for CSIs**

This guidance applies to items contractually identified by the cognizant ESA as CSI, but without defined critical characteristics. Although the ESAs are working to formally define critical characteristics, there will always be an outstanding population of CSIs without defined critical characteristics. The following criteria is being made available for DCMA to use when critical characteristics are not otherwise defined in the technical data package, contract, or specific instructions provided by the procuring activity. The intent of these criteria is to define those significant product characteristics/features that the DCMA QAR will focus on where there is absence of ESA defined critical characteristics. GCQA shall not be limited to verification of the significant product characteristics/features identified through these guidelines, see paragraph F.6(b).

This enclosure is applied by comparing the contractual technical requirements e.g. drawing characteristics to the criteria below. Any characteristics meeting these criteria would be considered as significant product characteristics/features for GCQA purposes only. Application of these criteria does not impose any additional contractual requirements on the supplier.

**The criteria is not intended to bar the QAR from requesting guidance from the procuring activity when there is a belief the item is misidentified as a CSI, believes the ESA should provide specific critical characteristics due to the nature of the particular CSI, no product characteristics meet the criteria, or application of the criteria would result in excessive resource expenditure.**

**Typical Significant Characteristic Criteria for CSIs (if not otherwise specified in the contract, technical data package or customer direction):**

- Diametrical and linear dimensions having a total tolerance of “.001” or less.
- Any other (not diametrical and linear dimensions) geometric features with a total tolerance of “.002” or less (e.g. run out, perpendicularity, parallelism, concentricity).
- Surface finishes having a value of “16 RMS” or less.
- Threads specified to class 3 or greater or classified as Safety Critical.
- Angular dimensions with total tolerance range of 1 degree (60 minutes), or less.
- Test Methods & Acceptance Criteria for Nondestructive Testing (e.g. magnetic particle, liquid penetrant, radiographic inspection, ultrasonic, eddy current, etc.).
- Hardness requirements (e.g. Rockwell requirements) and shot peen requirements.
- Material physical properties and material certifications.
- Dynamic balancing of rotating units and static balancing of flight control surfaces.
- Flow checks for blades and vanes.
- Spray pattern requirements for fuel nozzles (incl. afterburner rings).
- Weight checks.

Enclosure (3)

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## Appendix II Acronyms

ALRE	Aircraft Launch and Recovery Equipment
AMC	Acquisition Method Code
AMSC	Acquisition Method Suffix Code
AMCOM	Aviation and Missile Command
ASQ	Alternate Source Qualification
ATP	Acceptance Test Procedure
AWIS	Airworthiness Impact Statement
CA	corrective action
CAD	Computer Aided Design
CAGE	Contractor and Government Entity
CAI	Critical Application Item
CAM	Computer Aided Manufacture
CAR	Corrective Action Request
CC	critical characteristic
CCB	Contractor Control Board
CDRL	Contract Data Requirements List
CI	Critical Item
CICA	Competition in Contracting Act
CID	Change in Design
CIM	Critical Item Management
CIPRD	Critical Item Procurement Requirements Document
CNC	Computer Numerically Controlled
CoC	Certificate of Conformance
CQA	Contract Quality Assurance
CSI	Critical Safety Item For this Handbook CSI refers to AVIATION CSIs. Design Control Activity Design Control Activity is synonymous with Aircraft
DCA	Airworthiness Authority and Engineering Support Activity (ESA).
DCMA	Defense Contract Management Agency
DCN	Design Change Notice
DFARS	Defense Federal Acquisition Regulations Supplement
DLA	Defense Logistics Agency
DMWR	Depot Maintenance Work Requirement
DoD	Department of Defense
DRMS	Defense Reutilization and Marketing Service
DRN	Data Record Number
DSN	Defense Switched Network
ECO	Engineering Change Order
ECP	Engineering Change Proposal

EDM	Electro-Discharge Machining
EI	Engineering Investigation
EMC	Electromagnetic Compatibility
EO	Engineering Order
ESD	Electro-Steam Drilling
ESA	Engineering Support Activity. Engineering Support Activity is synonymous with Aircraft Airworthiness Authority and Design Control Activity (DCA).
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FAT	First Article Test
FAX	Facsimile
FLIS	Federal Logistics Information System
FPL	First Piece Layout
FMECA	Failure Modes Effects and Criticality Analysis
FMS	Foreign Military Sales
FOD	Foreign Object Damage
GCOA	Government Contract Quality Assurance
GFE	Government-Furnished Equipment
GFM	Government-Furnished Material
GQA	Graded Quality Assurance
GSI	Government Source Inspection
ICP	Inventory Control Point
IMM	Integrated Material Manager
IMS	Inspection Method Sheet
IPB	Illustrated Parts Breakdown
JALC	Joint Aeronautical Logistics Commanders
JSSG	Joint Service Specification Guide
LED	Local Engineering Directive
LES	Local Engineering Specification
LPS	Local Process Specifications
MCR	Manual Change Revision
MEO	Maintenance Engineering Orders
MOA	Memorandum of Agreement
MRB	Material Review Board
MT&E	Measurement and Test Equipment
NAVICP	Naval Inventory Control Point
NAMDRP	Naval Aviation Maintenance Discrepancy Reporting Program
NCMR	Non-conforming Material Report
NDE	Non-destructive Evaluation



NDI	Non-destructive Inspection
NDT	Non-destructive Technique
NIST	National Institute of Standards & Technology
NOR	Notice of Revision
NSN	National Stock Number
OEM	Original Equipment Manufacturer (same as Prime Contractor)
OP Sheet	Manufacturing Process/Operations sheet
P/N	Part Number
PBL	Performance Based Logistics
PCO	Procurement Contracting Officer
PDREP	Product Deficiency Reporting and Evaluation Program
PHS&T	Packaging, Handling, Storage & Transportation
PLT	Production Lot Test
PMA	Parts Manufacturer Approval
POC	Point of Contact
PQDR	Product Quality Deficiency Report
PVA	Product Verification Audit
PVT	Product Verification Test
QA	Quality Assurance
QAD	Quality Assurance Document
QALI	Quality Assurance Letter of Instruction
QAM	Quality Assurance Manual
QAP	Quality Assurance Provisions
QAR	Quality Assurance Representative
QDR	Quality Deficiency Report
QPL	Quality Products List
QM/P	Quality Manual/Procedure
R&O	Repair & Overhaul
RCC	Requirements Control Card
RDECOM	Research, Development, and Engineering Command
REMP	Reverse Engineering Management Plan
RES	Request for Engineering Support
ROMM	Repair, Overhaul, Maintenance, Modification
S/N	Serial Number
SAR	Source Approval Request
SCD	Source Control Document
SDD	System Development & Demonstration
SIOP	Supplier Interface & Oversight Program
SM&R	Supply, Maintenance & Recoverability

SOW	Statement of Work
SPC	Statistical Process Control
TDBD	Top Down Breakdown
TDP	Technical Data Package
T&E	Test & Evaluation
TMS	Type/Model/Series
URL	Uniform Resource Locator

**EXHIBIT A Points of Contact**

<b>NAME</b>	<b>ORGANIZATION</b>	<b>EMAIL</b>	<b>PHONE</b>
Randy Buckner	Army (AMCOM)	<a href="mailto:randy.l.buckner@us.army.mil">randy.l.buckner@us.army.mil</a>	256-319-5324
Alan Burleson	Army (AMCOM)	<a href="mailto:alan.burleson@amrdec.army.mil">alan.burleson@amrdec.army.mil</a>	256-319-5338
Jeff Allan	Navy (NAVAIR)	<a href="mailto:jeffrey.allan@navy.mil">jeffrey.allan@navy.mil</a>	301-342-2246
Fran Carson	Navy (NAVAIR)	<a href="mailto:frances.carson@navy.mil">frances.carson@navy.mil</a>	301-342-2241
Hector Gagot	USAF (AFMC)	<a href="mailto:hector.gagot@wpafb.af.mil">hector.gagot@wpafb.af.mil</a>	937-257-5448
Bud Boulter	USAF (AFMC)	<a href="mailto:albert.boulter@wpafb.af.mil">albert.boulter@wpafb.af.mil</a>	937-257-6630
Marsha Johnson	DLA (DSCR)	<a href="mailto:marsha.johnson@dla.mil">marsha.johnson@dla.mil</a>	804-279-5834
William Finkel	DLA (DLAHQ)	<a href="mailto:william.finkel@dla.mil">william.finkel@dla.mil</a>	703-767-2663
Brian Walters	DCMA (DCMAW)	<a href="mailto:brian.walters@dcma.mil">brian.walters@dcma.mil</a>	602-594-7864

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## EXHIBIT B Critical Safety Item Critical Characteristics Checklist

Purpose: To provide a methodology for use by ESA/Prime Contractor/Original Equipment Manufacturer in determining what characteristics of new procurement items or in service items are critical in accordance with \_\_\_\_\_

Part Number: \_\_\_\_\_

NSN: \_\_\_\_\_

Nomenclature: \_\_\_\_\_

Drawing CAGE: \_\_\_\_\_

Drawing Revision: \_\_\_\_\_

### Critical Characteristics:

Critical Characteristics are any feature throughout the life cycle of a Critical Item (CI), such as dimension, tolerance, finish, material or assembly, manufacturing or inspection process, operation, field maintenance, or depot overhaul requirement that if non-conforming, missing or degraded may cause the failure or malfunction of the Critical Item. Critical characteristics will be defined for CSIs, and may be defined for CAIs. Critical Characteristics are sub-divided into manufacturing, depot, or installation critical, as follows:

a. Manufacturing Critical Characteristic (M): Any feature established at a new manufacture such as dimension, finish, material or assembly, manufacturing or inspection process, special process (i.e. heat treat, brazing/welding, plasma, shot peening, non-destructive testing, chemical cleaning, grit blast, plating and paint), installation, or operation (acceptance test), which if non-conforming, missing or degraded could cause the failure or malfunction of the CI.

b. Depot Critical Characteristic (D): Any feature during maintenance/overhaul/repair such as dimension, finish, material, assembly, inspection process, special process (i.e. heat treat, brazing/welding, plasma, shot peening, non-destructive testing, chemical cleaning, grit blast, plating and paint), installation, operation (acceptance test), or depot overhaul/repair requirement which, if non-conforming, missing or degraded during maintenance/overhaul/repair could cause the failure or malfunction of the CI.

c. Installation Critical Characteristic (I): Any feature such as proper assembly/orientation, installation sequence or technique, use of special tools/fixtures, hardware, safety wire, or torque which, if non-conforming, missing or degraded, could cause the failure or malfunction of the CI. Installation Critical does not imply that the part simply must be installed. Sometimes, the only plausible way a part can fail is through improper installation. In the case that a piece part has proper installation as its only critical

characteristic, consideration should be given to designating the next higher assembly as CSI with the appropriate critical installation characteristic(s).

The cognizant engineer will identify critical characteristics for the identified CIs, and will categorize each as a manufacturing, depot, or installation characteristic. When identification of critical characteristics is performed for a common use item, the ESA cognizant engineer shall coordinate the critical characteristics with engineering counterparts for each affected DoD Aviation system and shall ensure that records reflect the most stringent requirements. The critical characteristics for an assembly will be the sum of the critical characteristics of the subcomponents and critical characteristics created in the assembly process, if any.

Difference between Critical Characteristics and other characteristics:

Characteristics that are not critical must still conform to all applicable technical specifications. They are SAMPLED for conformance and, if non-conforming, subject to Material Review Board disposition. Critical Characteristics must conform to technical specifications, are inspected/verified 100% and, if non-conforming, most probable disposition after engineering review is scrap. Per [Appendix I](#), non-conformances in Critical Characteristics must be approved by the cognizant Service ESA.

Critical Characteristics are bounded by two parameters:

- The pursuit of flight safety: Will the failure, malfunction, or absence of a critical characteristic cause a catastrophic or critical failure?
- The pursuit of cost containment, turn around time or scrap reduction: If a characteristic does not meet the above flight safety test, it is not critical.

Sanity check: If you are willing to accept a non-conformity in a critical characteristic, seriously question whether it is critical.

Before listing a characteristic as critical, determine whether or not an inspector has the capability of measuring it. Consider both the inspection methodology and acceptance criteria. If that capability does not exist, it must be resolved by alternate methods, alternate characteristics, etc.

If FMECA and derivation of critical characteristics reveals drawing dimensions, tolerances, specifications or instructions that are clearly inappropriate, change them in the appropriate technical documentation. Do not identify an unrealistic requirement as a critical characteristic only to be faced with a non-conformancy during the manufacturing/repair process.

A critical characteristic should be an inspectable characteristic of the part. Possible examples of typical critical characteristics are listed below; this list is not an all-encompassing list and critical characteristics are not only limited to the items below.

**Examples of Acceptable Critical Characteristics:**

- a. Critical component dimensions
  - (1) Diametrical or linear dimensions having a total tolerance of 0.001 inch or less
  - (2) Angular dimensions with total tolerance range of 1 degree (60 minutes), or less.
  - (3) Any other (not diametrical and linear dimensions) geometric features with a total tolerance of .002" (e.g., run out, perpendicularity, parallelism, concentricity) or less.
- b. Surface finishes having a 16 value or less
- c. Thread characteristics
  - (1) Threads specified to class 3 or greater. (Safety critical threads)
- d. Dynamic balancing
  - (1) Dynamic balancing of rotating units and static balancing of flight control surfaces.
  - (2) Dynamic and static balancing of aircraft components.
- e. Flow checks for blades and vanes.
- f. Spray pattern requirements for fuel nozzles (including afterburner rings).
- g. Weight checks.
- h. Material
  - (1) Composition
  - (2) Physical Properties
  - (3) Hardness requirements (e.g. Rockwell requirements)
  - (4) Grain Direction
  - (5) Composites
- i. Processes
  - (1) Heat Treat/Stress Relief
  - (2) Bake (stress relief or hydrogen embrittlement)
  - (3) Plating/coating/sealing/bonding
  - (4) Case/Core Hardening (carbonizing, nitriding, etc.)
  - (5) Welding/brazing/diffusion
  - (6) Cleaning/stripping
  - (7) Casting/Forging/forming
  - (8) Peening (e.g., intensity, coverage, set-up)
  - (9) Machining/grinding
  - (10) Proper assembly, (e.g. sequence, torque, locking retaining features, alignment, stack up and orientation).
  - (11) Staking
- j. Non-destructive Testing
  - (1) Test Methods and Acceptance Criteria for Non-destructive Testing (e.g. magnetic particle, liquid penetrant, radiographic inspection, ultrasonic, eddy current, etc.).
- k. Proof Testing
- l. Fatigue Testing
  - (1) Component performance checks.
  - (2) Electrical bonding.
  - (3) Electromagnetic Compatibility (EMC) testing.

Even with the examples given above, a desired result should be given (e.g., heat treat should result in a certain hardness and possibly conductivity).

**Examples of Unacceptable Critical Characteristics:**

- a. Evidence of balance accomplishment must be maintained on file.
- b. Evidence of inspection accomplishment must be maintained on file.
- c. Material traceability must be maintained on file.
- d. Evidence of oil passage inspection accomplishment must be maintained on file.

NOTE: In a-d above, since the critical characteristic is not a feature of the part but is the existence of a piece of paper, a Material Review Board (MRB) of that feature is no longer prohibited. Further, they do not require that the parts be compliant, or that the records/evidence contain useful information, only that some form of evidence shows that a part was inspected. Finally, if there is a fire in the facility where that record is maintained, evidence of inspection no longer exists; we have non-conforming Critical Characteristics on our aircraft, and are technically required to ground the fleet.

- e. Re-temper after Nital Temper Etch Inspection is required. (This applies to presence or absence of the re-temper operation only, not the details of the re-temper process).
- f. Bake after (Cadmium, Chromium, Tin, and Nickel) plate required. (This applies to presence or absence of the bake operation only, not the details of the bake process).

NOTE: In e-f above the critical characteristic does not require any compliance to specification, only that the temperature of the part be somehow raised after processing. Incidentally, Nital Etch is typically used to identify undesired hard spots and over tempering. This should be a relief bake, not a re-temper operation.

- g. Shot peen set up approval required. (This applies to shooting sketch approval only).

NOTE: The critical characteristic in g does not require any compliance to specification (e.g., coverage, size of shot, intensity).

- h. No MRB action permitted below minimum Rockwell hardness.

NOTE: The critical characteristic in h does not account for the possibility of a part being too hard.

- i. Armament alignment (bore sight)
- j. Software safety inhibits to armament firing
- k. Calibration of electronics
- l. Sensor sensitivity
- m. Gyro drift
- n. Stray voltage checks
- o. Conformal coating after manufacture/assembly/repair
- p. Electro Magnetic Interference (EMI)/Environmental seals
- q. Buy From OEM Only



List all Critical Characteristics, including the location on drawing (Drawing Zone) of each.

Characteristic:	_____	Drawing Zone:	_____
Characteristic:	_____	Drawing Zone:	_____
Characteristic:	_____	Drawing Zone:	_____

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## **EXHIBIT C Critical Manufacturing Process List**

This exhibit lists typical critical manufacturing processes, and elements of those processes, which meet the definition of a critical manufacturing process. If only certain steps or procedures of a manufacturing process are critical, only those steps or procedures should be identified as critical instead of the entire process. Quality Assurance Procedure (QAP) documents developed for CSIs shall identify critical manufacturing processes using this list as a guide. If item review identifies other manufacturing processes that are considered critical, the design control activity cognizant engineer must identify the processes in the QAP document.

### **1. Chemical Cleaning Processes:**

- A. Degreasing compounds used.
- B. Cleaning and/or etching compound used.
- C. Cleaning and/or etching compound controls (i.e., storage, contamination, temperature used, cycle time used).
- D. Method of neutralizing after chemical cleaning.
- E. Cleaning sequence used.
- F. Pre or post cleaning preparation.

### **2. Mechanical Cleaning Processes Using Energized Media (Vapor Blast, Dry Grit Blast, Tumbling and Allied Processes):**

- A. Cleaning media used (Type,  $Al_2O_3$ , Sand, Shot, etc.).
- B. Size of cleaning media used.
- C. Method of applying energy to media (e.g., air pressure, mechanical, etc.).
- D. Liquid vehicle used (water, additives, etc.).
- E. Cleaning sequence and operating parameters used.
- F. Pre or post cleaning preparation.

### **3. Welding Processes:**

- A. Geometry of weld joint.
- B. Preparation of weld joint including cleaning.
- C. Control and type of coverage and backup atmosphere used.
- D. Weld sequence and schedules used.
- E. Type and control of filler material used (size, form, chemistry, cleaning).
- F. Pre or post cleaning preparation.

### **4. Brazing Processes:**

- A. Surface preparation used (cleaning, etching, etc.).
- B. Fit up and/or joint geometry.
- C. Location of and form of alloy used.
- D. Flux media used.
- E. Brazing temperature and time cycle used.

- F. Furnace temperature and control of atmosphere used (vacuum, etc.).
- G. Brazing sequence used.
- H. Flux removal process used.
- I. Stop-off system used including compounds and their control.
- J. Pre-braze furnace control and preparation.

**5. Soldering Processes:**

- A. Joint preparation used (tinning, dip, etc.).
- B. Fit up of joint geometry.
- C. Flux media and system used.
- D. Soldering method used (dip, resistance, etc.).
- E. Pre and post preparation and cleaning.
- F. Soldering alloy used.

**6. Casting Processes:**

- A. Melting practice used.
- B. Mold or investment constituents used (wax, sand, etc.).
- C. Number and position of items per mold.
- D. Pouring temperatures used.
- E. Mold cooling techniques used.
- F. Gating and riser locations used.
- G. Casting method used (permanent, mold, sand mold, centrifugal, etc.).
- H. Mold temperature and control used.
- I. Melting or casting atmosphere used (vacuum, inert gas, etc.).
- J. Number and location of chill bars used.
- K. Source and kind of raw material used.
- L. Post casting treatment used (chemical, mechanical, etc.).

**7. Forging Process:**

- A. Forging Temperature used.
- B. Number of and temperature of reheats used during forging.
- C. Number of strikes or amount of reduction per strike and reheats.
- D. Total percentage of reduction during the forging process.
- E. Type of forging die used.
- F. Forging method used (drop forge, pressure forge, ring rolling, etc.).
- G. Cropping method used.
- H. Billet size or shape used.
- I. Source and / or process of ingot to billet conversion process used.
- J. Die insulation and / or lubricant used.
- K. Canning or blockdown process used.
- L. Post forging treatment process used.
- M. Forging press rate.

**8. Heat Treatment and Surface Hardening Processes:**

- A. Preheat treat cleaning process used.
- B. Preheat treat coating used.
- C. Furnace preparation, atmosphere, and control used.
- D. Furnace temperatures and / or time cycles used.
- E. Heat treat sequence used.
- F. Cooling cycles and / or cooling rates used.
- G. Quenching media and control used.
- H. Use and control of sub zero stabilization processes.

**9. Peening Processes:**

- A. Type and size of media used.
- B. Type of equipment used.
- C. Control of peening parameters (pressure, nozzle size, impingement angle, etc.).
- D. Almen strip placement for intensity control.

**10. Electrochemical Machining Processes (Cavity Sinking, Drilling, Grinding, etc.):**

- A. Electrolyte and Electrode:
  - (1) Type and control of electrolyte used.
  - (2) Type of electrode used.
- B. Operation
  - (1) Feed and speed rates used.
  - (2) Operating voltage limits and controls.
  - (3) Sequence of operations.
  - (4) Operation pressure of electrolyte.
  - (5) Electrolyte operation temperature limits.
  - (6) Sludge build-up rate and limits.

**11. Electro-Discharge Machining (EDM):**

- A. Dielectric Fluid and Electrode:
  - (1) Type of dielectric fluid used.
  - (2) Type of electrode used.
- B. Operation:
  - (1) Type of feed rate used (vibrating, rotating, pulsing, etc.).
  - (2) Voltage, frequency, polarity, wave shape, spark duration, and related parameters used.
  - (3) Sludge build-up rate and limits.
  - (4) Control of dielectric fluid (temperature, contamination, etc.).

**12. Electro-Stream Drilling (ESD):**

- A. Electrolyte:
  - (1) Type of and control of electrolyte used.
- B. Operation:
  - (1) Feed rate used.
  - (2) Operating voltage and control parameters used.
  - (3) Tool design and/or nozzle diameter used.
  - (4) Sequence of operation.
  - (5) Electrolyte operating temperatures and pressures used.

**13. Metal Electroplating Processes:**

- A. Plating parameters and control (voltage, current, agitation rate, etc.).
- B. Solution makeup and control limits.
- C. Pre and post plating processes (heating, chemical cleaning, etc.).
- D. Use and evaluation of test specimens.
- E. Stripping and re-plating procedures.
- F. Anode and fixture control.

**14. Protective Finishing Processes:**

- A. The application and control of:
  - (1) Hot Dip Coating
  - (2) Metal Spraying
  - (3) Oxide Coating
  - (4) Phosphate Coating
  - (5) Paints, Varnishes, Lacquers, Enamels
  - (6) Rust Inhibitors
  - (7) Ceramic Coatings
  - (8) Silicates
  - (9) Epoxies
  - (10) Plastics
- B. Pre and post item treatment processes.
- C. Coating testing procedures.
- D. The control and thermal processes when used.
- E. Stripping and recoating processes.

**15. Metal Forming Processes:**

- A. Die control.
- B. Pre-, in process, or post-heat treatment controls.
- C. Process sequence.
- D. Die lubricant used and control.

**16. Stress-free Grinding Processes:**

- A. Speeds and feed used.
- B. Type of abrasive used.
- C. Type and control of coolant used.

**17. Tooling:**

- A. Use of low melting point (high volatile) material where impurities could remain.
- B. Equipment that could affect item properties such as dies, winding machines, etc.
- C. Temporary tooling which could affect chemical, electrical, physical or mechanical properties of the material.

**18. Laser Drilling:**

- A. Maximum charge voltage or beam output energy.
- B. Number of pulses per hole.
- C. Internal packing material.

**19. Process/Operation Sequence:**

- A. Process/operation sequence which, if changed or adjusted, could result in a change in the physical, chemical, electrical, or mechanical properties.

**20. Composite Construction Processes:**

- A. Bonding Adhesives:
  - (1) Type of adhesive used.
  - (2) Adhesive application method used.
  - (3) Form of adhesive used.
  - (4) Source of adhesive supply.
  - (5) Type of adhesive primer used.
  - (6) Acceptance and re-qualification requirements.
  - (7) Storage control of adhesive (shelf life, storage temperature, etc.).
- B. Bonding - Cleaning:
  - (1) Cleaning solution type, strength, time and temperature control.
  - (2) Pre and post cleaning item controls.
- C. Bonding - Processing:
  - (1) Bond times, temperatures, pressure and atmosphere controls.
  - (2) Bond facility and controls (clean room, etc.).
  - (3) Item handling controls.
- D. Bonding - Tooling:
  - (1) Tool configuration and control
  - (2) Tool qualification and re-qualification.

**21. Manufacture of Metal Power Compacts:**

- A. Melting
- B. Atomizing
- C. Screening
- D. Out-gassing
- E. Blending
- F. Transfer technique
- G. Container filling
- H. Preform manufacture
- I. Filling procedures
- J. Cleaning procedures
- K. Hot isostatic pressing

**22. Electrical Component Processes:**

- A. Coil winding
- B. Molding
- C. Potting
- D. Swaging
- E. Crimping and staking
- F. Curing
- G. Water-proofing
- H. Insulating
- I. Splicing



**EXHIBIT D Common Use Item Coordination Sheet And Instructions**

<b>TRACKING NO.</b> - - -	<b>Common Use Item Coordination Sheet</b>	<input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
<b>TITLE:</b> _____ <b>NSN:</b> _____ <b>P/N:</b> _____ <b>PRIMARY CAGE:</b> _____ <b>ISSUE DATE:</b> _____ <b>CLOSURE DATE:</b> _____ <b>ISSUE ORIGINATOR:</b> <b>POC:</b> _____ <input type="checkbox"/> Army <input type="checkbox"/> Navy <input type="checkbox"/> Air Force <input type="checkbox"/> DLA		
<b>SERVICES AFFECTED:</b>  <input type="checkbox"/> Army <input type="checkbox"/> Navy <input type="checkbox"/> Air Force <input type="checkbox"/> DLA	<b>CATEGORY:</b>  <input type="checkbox"/> CSI/CC Determination <input type="checkbox"/> Alternate Source Qualification <input type="checkbox"/> First Article Test <input type="checkbox"/> Site Survey <input type="checkbox"/> CSI Alert <input type="checkbox"/> Coordination of Approved Sources <input type="checkbox"/> Other _____	
<b>339 No. (if applicable):</b> _____  <b>PLATFORM/SUBSYSTEM:</b> _____		
<b><u>ISSUE DESCRIPTION:</u></b>  		
<b><u>RECOMMENDED CLOSURE:</u></b>  		

TRACKING NO. - - -		<b>Common Use Item Coordination Sheet</b>		<input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED		
<b>ASSESSMENT:</b>						
<p>Army</p> <p>Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur            POC Phone: _____      <input type="checkbox"/> Non-Concur            POC e-mail: _____      <input type="checkbox"/> Not               Applicable</p> <p>Help POC: Ronie Taylor  <a href="mailto:Ronie.taylor@us.army.mil">Ronie.taylor@us.army.mil</a>            256-319-5320</p> <p>(If non-concur,            provide rational in            "Review            Comments"            section)</p>	<p>Air Force</p> <p>Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur            POC Phone: _____      <input type="checkbox"/> Non-Concur            POC e-mail: _____      <input type="checkbox"/> Not               Applicable</p> <p>Help POC: Hector Gagot  <a href="mailto:Hector.gagot@wpafb.af.mil">Hector.gagot@wpafb.af.mil</a>            937-257-5448</p> <p>(If non-concur,            provide rational in            "Review            Comments"            section)</p>					
<p>Navy</p> <p>Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur            POC Phone: _____      <input type="checkbox"/> Non-Concur            POC e-mail: _____      <input type="checkbox"/> Not               Applicable</p> <p>Help POC: Jeff Allan  <a href="mailto:Jeffrey.allan@navy.mil">Jeffrey.allan@navy.mil</a>            301-342-2246</p> <p>(If non-concur,            provide rational in            "Review            Comments"            section)</p>	<p>DLA</p> <p>Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur            POC Phone: _____      <input type="checkbox"/> Non-Concur            POC e-mail: _____      <input type="checkbox"/> Not               Applicable</p> <p>Help POC: Marsha Johnson  <a href="mailto:Marsha.johnson@dla.mil">Marsha.johnson@dla.mil</a>            804-279-5834</p> <p>(If non-concur,            provide rational in            "Review Comments"            section)</p>					
<b>INTRASERVICE PROGRAMS AFFECTED AND ASSESSMENT:</b>						
Service/Program	POC	Phone	Date	Concur	Non-concur	Not Applicable
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>TRACKING NO.</b>	<b>Common Use Item Coordination Sheet</b>	<input type="checkbox"/> <b>OPEN</b> <input type="checkbox"/> <b>CLOSED</b>
- - -		
<b><u>REVIEW COMMENTS:</u></b>		
<b>ARMY:</b>		
<b>AIR FORCE:</b>		
<b>NAVY:</b>		
<b>DLA:</b>		

### **Instructions for completing the Common Use Item Coordination Sheet**

Until the tri-Service view of data is available and assigning tracking numbers, use the following scheme to assign tracking numbers:

Tracking Number Scheme: xx/xxxxx/xxxxxx/xx; where the first field would be a two-letter Service/Agency code (AR, NA, AF, DL, DC); the second field would be a 1 to 5-letter activity code (PAX, JAX, CP, LKHST, CL, ICP, etc.) - this field may be used as required for internal Service/Agency coordination, or may be left blank; the third, would be the date – ddmmyy; the fourth field would be a sequential numbering in cases where there are more than one coordination sheets initiated on a given date (i.e., 1,2,3,4,5,..).

Title: Enter short description of part or assembly of concern

NSN: Self-explanatory

PN: Self-explanatory

Primary CAGE: CAGE of the manufacturer who maintains the drawings. If there is a proposed CAGE who is not presently recognized by all Services, the details of that nomination should be included in the “Issue Description” area below.

Issue Date: Self-explanatory

Closure Date: Projected date of closure or actual closure date for closed actions.

Issue Originator: Self-explanatory

POC: Name, phone and e-mail of the POC within the originator’s organization.

Services Affected: Self-explanatory

Category: Self-explanatory

Platform/Subsystem: Aircraft and subsystem on which the part is used.

Issue Description: Self-explanatory; should include any details of a proposed new CAGE for inclusion.

Recommended Closure: Originating Service’s near-term and long-range recommendations for completing this coordination.

Assessment: Service POCs will be assigned to provide coordination between all affected Services and DLA. Help POCs from each Service will be available to assist in the process. Currently, Help POCs are Ronie Taylor for the Army, Jeff Allan for the Navy, Hector Gagot for the Air Force, and Marsha Johnson for DLA. Service POCs will be identified by the Help POCs, and will work non-controversial actions to their conclusion. Phone numbers of the Service POCs are particularly important since they will be the first level of persons who can resolve differences between Services. When there are differences that cannot be resolved at the Help POC level, the problem resolution process will take place at the lowest level possible, starting with the systems/chief engineer. Lack of resolution there will result in elevation to the head of the engineering activity for each affected ESA.

Intra-Service Programs Affected & Assessment: In those instances where an item requiring Inter-service coordination affects more than one weapons system/program within a given service, this section can be used to identify and coordinate intra-service resolution of the item of concern.

Review Comments: Self-explanatory

Continuation Sheet: To be used as needed for continuation of any previous areas.

**Samples of Completed Common Use Item Coordination Sheets**

Sample #1 (Army initiated)

<b>TRACKING NO.</b> AR-XXX-040505-02		<b>Common Use Item Coordination Sheet</b>		<input checked="" type="checkbox"/> <b>OPEN</b>
				<input type="checkbox"/> <b>CLOSED</b>
<b>TITLE:</b> <u>Thrust Bearing, SB7002-048</u>				
<b>NSN:</b> <u>3110-01-158-9607</u>		<b>P/N:</b> <u>SB7002-048</u>		<b>PRIMARY CAGE:</b> <u>80201</u>
<b>ISSUE DATE:</b> <u>8/10/2004</u>		<b>CLOSURE DATE:</b> _____		
<b>ISSUE ORIGINATOR:</b>		<b>POC:</b> <u>Ronie Taylor (256) 319-5320,</u>		
<input checked="" type="checkbox"/> Army <input type="checkbox"/> Navy <input type="checkbox"/> Air Force <input type="checkbox"/> DLA		<u>ronie.taylor@us.army.mil</u>		
<b>SERVICES AFFECTED:</b>		<b>CATEGORY:</b>		
<input checked="" type="checkbox"/> Army		<input checked="" type="checkbox"/> CSI/CC Determination		
<input checked="" type="checkbox"/> Navy		<input type="checkbox"/> Alternate Source Qualification		
<input checked="" type="checkbox"/> Air Force		<input type="checkbox"/> First Article Test		
<input checked="" type="checkbox"/> DLA		<input type="checkbox"/> Site Survey		
		<input type="checkbox"/> CSI Alert		
		<input checked="" type="checkbox"/> Coordination of Approved Sources		
		<input type="checkbox"/> Other _____		
<b>339 No. (if applicable):</b> _____				
<b>PLATFORM/SUBSYSTEM:</b> <u>H-60</u>				
<b><u>ISSUE DESCRIPTION:</u></b>				
Based on Category I QDR, System Engineer for Army requested addition of item to CSI list. Part failure causes damage to Main Rotor Spindle, which could result in loss of blade and aircraft.				
<b><u>RECOMMENDED CLOSURE:</u></b>				
This DLA-managed item should be categorized as CSI due to similar QDR on HH-60H part. Chicago Rawhide (CR, CAGE 80201) removed temporarily as source at least until CCs identified. Need other Service coordination on CCs prior to source reapproval process for CR. Lord Corporation remains as source.				

<b>TRACKING NO.</b> AR-XXX-040505-02	<b>Common Use Item Coordination Sheet</b>	<input checked="" type="checkbox"/> <b>OPEN</b> <input type="checkbox"/> <b>CLOSED</b>
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<b>ASSESSMENT:</b>			
<p>Army</p> <p>Date: _____</p> <p>POC: _____ <input type="checkbox"/> Concur          POC Phone: _____ <input type="checkbox"/> Non-Concur          POC e-mail: _____ <input type="checkbox"/> Not Applicable</p> <p>Help POC: Ronie Taylor  <a href="mailto:Ronie.taylor@us.army.mil">Ronie.taylor@us.army.mil</a>          256-319-5320</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>	<p>Air Force</p> <p>Date: _____</p> <p>POC: _____ <input type="checkbox"/> Concur          POC Phone: _____ <input type="checkbox"/> Non-Concur          POC e-mail: _____ <input type="checkbox"/> Not Applicable</p> <p>Help POC: Hector Gagot  <a href="mailto:Hector.gagot@wpafb.af.mil">Hector.gagot@wpafb.af.mil</a>          937-257-5448</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>		

<p>Navy</p> <p>Date: _____</p> <p>POC: _____ <input type="checkbox"/> Concur          POC Phone: _____ <input type="checkbox"/> Non-Concur          POC e-mail: _____ <input type="checkbox"/> Not Applicable</p> <p>Help POC: Jeff Allan  <a href="mailto:Jeffrey.Allan@navy.mil">Jeffrey.Allan@navy.mil</a>          301-342-2246</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>	<p>DLA</p> <p>Date: _____</p> <p>POC: _____ <input type="checkbox"/> Concur          POC Phone: _____ <input type="checkbox"/> Non-Concur          POC e-mail: _____ <input type="checkbox"/> Not Applicable</p> <p>Help POC: Marsha Johnson  <a href="mailto:Marsha.johnson@dla.mil">Marsha.johnson@dla.mil</a>          804-279-5834</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>
---	--

<b>INTRASERVICE PROGRAMS AFFECTED AND ASSESSMENT:</b>						
Service/Program	POC	Phone	Date	Concur	Non-concur	Not Applicable
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 August 05

**TRACKING NO.**  
AR-XXX-040505-02

**Common Use Item Coordination Sheet**

**OPEN**  
 **CLOSED**

**REVIEW COMMENTS:**

**ARMY:**

**AIR FORCE:**

**NAVY:**

**DLA:**

Sample #2 (Navy initiated)

<b>TRACKING NO.</b> NA-PAX-040605-01	<b>Common Use Item Coordination Sheet</b>	<input checked="" type="checkbox"/> <b>OPEN</b> <input type="checkbox"/> <b>CLOSED</b>
<b>TITLE:</b> <u>H-60 Clevis Assembly Criticality Non-Concurrence</u>		
<b>NSN:</b> <u>1560-01-233-8316</u> <b>P/N:</b> <u>70308-03801-121</u> <b>PRIMARY CAGE:</b> <u>78286</u>		
<b>ISSUE DATE:</b> <u>10/5/2004</u> <b>CLOSURE DATE:</b> _____		
<b>ISSUE ORIGINATOR:</b>		
<input type="checkbox"/> Army <input checked="" type="checkbox"/> Navy <input type="checkbox"/> Air Force <input type="checkbox"/> DLA <b>POC:</b> <u>Chad Leigh(301) 757-2505,</u> <u>chad.leigh@navy.mil</u>		
<b>SERVICES AFFECTED:</b>		<b>CATEGORY:</b>
<input checked="" type="checkbox"/> Army <input checked="" type="checkbox"/> Navy <input checked="" type="checkbox"/> Air Force <input checked="" type="checkbox"/> DLA		<input checked="" type="checkbox"/> CSI/CC Determination <input type="checkbox"/> Alternate Source Qualification <input type="checkbox"/> First Article Test <input type="checkbox"/> Site Survey <input checked="" type="checkbox"/> CSI Alert <input type="checkbox"/> Coordination of Approved Sources <input type="checkbox"/> Other _____
<b>339 No. (if applicable):</b> <u>DSCR-JA-04-14842</u>		
<b>PLATFORM/SUBSYSTEM:</b> <u>H-60</u>		
<b><u>ISSUE DESCRIPTION:</u></b>		
<p>339 Issued Requesting Criticality Determination, CDRLs or other quality requirements, approved sources, sector 2800 information update, and AMC/AMSC code validation. Navy defined part as CSI, with AMC/AMSC of 1B. Army defined as CAI with AMC/AMSC code 1B. Air Force defined as CAI with AMC/AMSC code of 3B.</p>		
<b><u>RECOMMENDED CLOSURE:</u></b>		
<p>Recommend that Services discuss and come up with a common determination and AMC/AMSC code. Part is used in same location and application for each Service, so determination should be the same.</p>		



<b>TRACKING NO.</b> NA-PAX-040605-01	<b>Common Use Item Coordination Sheet</b>	<input checked="" type="checkbox"/> <b>OPEN</b> <input type="checkbox"/> <b>CLOSED</b>
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<b>ASSESSMENT:</b>	
<p>Army Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur          POC Phone: _____      <input type="checkbox"/> Non-Concur          POC e-mail: _____      <input type="checkbox"/> Not Applicable</p> <p>Help POC: Ronie Taylor  <a href="mailto:Ronie.taylor@us.army.mil">Ronie.taylor@us.army.mil</a>          256-319-5320</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>	<p>Air Force Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur          POC Phone: _____      <input type="checkbox"/> Non-Concur          POC e-mail: _____      <input type="checkbox"/> Not Applicable</p> <p>Help POC: Hector Gagot  <a href="mailto:Hector.gagot@wpafb.af.mil">Hector.gagot@wpafb.af.mil</a>          937-257-5448</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>
<p>Navy Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur          POC Phone: _____      <input type="checkbox"/> Non-Concur          POC e-mail: _____      <input type="checkbox"/> Not Applicable</p> <p>Help POC: Jeff Allan  <a href="mailto:Jeffrey.allan@navy.mil">Jeffrey.allan@navy.mil</a>          301-342-2246</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>	<p>DLA Date: _____</p> <p>POC: _____      <input type="checkbox"/> Concur          POC Phone: _____      <input type="checkbox"/> Non-Concur          POC e-mail: _____      <input type="checkbox"/> Not Applicable</p> <p>Help POC: Marsha Johnson  <a href="mailto:Marsha.johnson@dla.mil">Marsha.johnson@dla.mil</a>          804-279-5834</p> <p>(If non-concur, provide rational in "Review Comments" section)</p>

<b>INTRASERVICE PROGRAMS AFFECTED AND ASSESSMENT:</b>						
Service/Program	POC	Phone	Date	Concur	Non-concur	Not Applicable
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 August 05

**TRACKING NO.**  
NA-PAX-040605-01

**Common Use Item Coordination Sheet**

**OPEN**  
 **CLOSED**

**REVIEW COMMENTS:**

**ARMY:**

**AIR FORCE:**

**NAVY:**

**DLA:**

**EXHIBIT E Example of Manufacturing SAR Review Checklist**

PACKAGE CONTROL  
NUMBER \_\_\_\_\_

RECOMMENDATIONS:

VENDOR: APPROVAL: \_\_\_\_\_ DISAPPROVAL: \_\_\_\_\_ CONDITIONAL: \_\_\_\_\_

PART: APPROVAL: \_\_\_\_\_ DISAPPROVAL: \_\_\_\_\_ CONDITIONAL: \_\_\_\_\_

**REVIEWING ACTIVITY** \_\_\_\_\_

DATE RECEIVED: \_\_\_\_\_ DUE: \_\_\_\_\_ RELEASED: \_\_\_\_\_

PREPARED BY: \_\_\_\_\_ CODE: \_\_\_\_\_ PHONE: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_ CODE: \_\_\_\_\_ PHONE: \_\_\_\_\_

**I. TDP INFORMATION**

A: PROPOSED VENDOR (NAME/CAGE): \_\_\_\_\_ / \_\_\_\_\_

B: SUBJECT ITEM NOMENCLATURE: \_\_\_\_\_

C: SUBJECT PART NUMBER / REVISION: \_\_\_\_\_

D: NATIONAL STOCK NUMBER (NSN): \_\_\_\_\_

E: TYPE MODEL SERIES (TMS): \_\_\_\_\_

F: NEXT HIGHER ASSEMBLY: \_\_\_\_\_

G: SUBJECT ITEM PRIME CONTRACTOR (NAME/CAGE): \_\_\_\_\_ / \_\_\_\_\_

H: SUBJECT ITEM IS FATIGUE SENSITIVE: \_\_\_\_\_ LIFE LIMITED: \_\_\_\_\_

CRITICAL SAFETY ITEM: \_\_\_\_\_ HAS DESIGN CHANGE PENDING: \_\_\_\_\_

ABOVE INFO PER (LTR REFERENCE): \_\_\_\_\_

I: SIMILAR PART NUMBER (if applicable) \_\_\_\_\_

J: SIMILAR ITEM PRIME CONTRACTOR (NAME/CAGE): \_\_\_\_\_ / \_\_\_\_\_

**II: PACKAGE INVENTORY**

SAR PREPARER          CODE          PHONE

NOTE AND EXPLAIN ANY PACKAGE INVENTORY ITEMS NOT INCLUDED IN THE SAR

(TECH INITIAL)

A: Cover Letter	YES ___ NO ___
B: SAR Summary	YES ___ NO ___
C: Vendor Correspondence and Brochure	YES ___ NO ___
D: Quality Control Documentation	YES ___ NO ___
E: Subject Item Drawings	YES ___ NO ___
F: Subject Item Specifications	YES ___ NO ___
G: Sub-vendor Information	YES ___ NO ___
H: Illustrated Parts Breakdown (IPB)	YES ___ NO ___
I: Differences between Subject and Similar Items	YES ___ NO ___
J: Quality Deficiency Reports	YES ___ NO ___
K: Similar Item Drawings	YES ___ NO ___
L: Purchase Orders and Shipping Documents	YES ___ NO ___
M: Process / Operation Sheets (OP Sheets)	YES ___ NO ___
N: Inspection Method Sheets (IMS)	YES ___ NO ___
O: Material Review Board (MRB) / Item Quality History	YES ___ NO ___
P: Quality Rating with a Prime Contractor	YES ___ NO ___
Q: Contract Quality Assurance Provisions	YES ___ NO ___
1. Critical Characteristics and Processes	YES ___ NO ___
2. First Article Test (FAT) Requirements	YES ___ NO ___
3. Production Lot Test (PLT) Requirements	YES ___ NO ___
4. Contract Data Requirements List (CDRL)	YES ___ NO ___

COMMENTS (indicate item)

**III. SAR REVIEW**

A. COVER LETTER (reviewer to complete and initial)

(TECH INITIAL)

1. Does the cover letter match the data presented in the package? YES \_\_\_ NO \_\_\_

COMMENTS:

B. SAR SUMMARY (reviewer to complete and initial)

(TECH INITIAL)

1. Statement of source qualification? YES \_\_\_ NO \_\_\_

2. Statement of production history? YES \_\_\_ NO \_\_\_

3. Statement of production capacity? YES \_\_\_ NO \_\_\_

4. Statement concerning current buy information? YES \_\_\_ NO \_\_\_

5. Have there been SARs previously submitted for this part? YES \_\_\_ NO \_\_\_

6. Has Vendor previously submitted a SAR for review? YES \_\_\_ NO \_\_\_

COMMENTS:

C. VENDOR CORRESPONDENCE and BROCHURE (reviewer to complete and initial - data to be kept on file at ESA)

(TECH INITIAL)

1. Does the vendor have the facilities for the necessary processes? YES \_\_\_ NO \_\_\_

2. Are there any special concerns to be noted? (If YES, explain) YES \_\_\_ NO \_\_\_

COMMENTS: TECH TO REVIEW AND COMMENT THE ABOVE INFORMATION TO BE FORWARDED ONLY IF THE COMPANY HAS NO PRIOR APPROVALS.

D. QUALITY CONTROL DOCUMENTATION (reviewer to complete and initial - data to be kept on file at ESA)

- |   |                |
|---|----------------|
|   | (TECH INITIAL) |
| 1. Has a vendor survey been completed?  | YES ___ NO ___ |
| 2. Were vendor survey results acceptable?   | YES ___ NO ___ |
| 3. Was effective correction action (CA) taken by vendor?<br>(If 'YES', CA documentation must be included in SAR or updated vendor list showing them to be acceptable)   | YES ___ NO ___ |
| 4. Is Quality Assurance Manual (QAM) on file at ESA?<br>(If "YES", no QAM is needed in the SAR. If "NO" QAM is required in the SAR only for first (1st) time SAR submittal or when no site/vendor survey was conducted. Otherwise, QAM needs to be on file at ESA.) | YES ___ NO ___ |
| 5. Is QAM required in SAR?  | YES ___ NO ___ |
| 6. Has a survey been conducted within the past 8 years?   | YES ___ NO ___ |
| 7. Have there been any other surveys by other government agencies?  | YES ___ NO ___ |
| 8. Is a copy of the survey included in the SAR?   | YES ___ NO ___ |
| 9. Were deficiencies noted?   | YES ___ NO ___ |
| 10. Is a follow up survey necessary? (Explain)  | YES ___ NO ___ |
| 11. Is a Pre-Award Survey recommended?  | YES ___ NO ___ |

COMMENTS

E. SUBJECT ITEM DRAWINGS

- |   |                |
|---|----------------|
|   | (TECH INITIAL) |
| 1. Subject Part Drawings: (reviewer to complete, include in SAR)                        |                |
| a. Are the drawings for the latest revision?  | YES ___ NO ___ |
| b. Is a current Parts Lists included?   | YES ___ NO ___ |
| c. Are all drawings sheets/frames included?   | YES ___ NO ___ |
| d. Are all Forgings and/or Casting drawing included?                                    | YES ___ NO ___ |
| e. Are all drawings legible? (If no, list drawings /sheets/frames required)             | YES ___ NO ___ |
| f. Are any drawings marked "SOURCE CONTROLLED or SPECIFICATION CONTROL"? (If yes, list) | YES ___ NO ___ |

COMMENTS

- |   | (TECH INITIAL) | (ENGINEERING)  |
|---|----------------|----------------|
| 2. RAW MATERIAL:  |                |                |
| a. Is the material identified?                                      | YES ___ NO ___ | YES ___ NO ___ |
| b. List Material: _____   |                |                |
| c. Are statements concerning supply of raw material understandable? | YES ___ NO ___ | YES ___ NO ___ |
| 3. Part Dimensions:   |                |                |
| a. Top Down Break Down (TDBD) performed? (List missing data)        | YES ___ NO ___ | YES ___ NO ___ |
| b. Dimensional check performed?                                     | YES ___ NO ___ | YES ___ NO ___ |
| c. Are there any Critical Dimensions? (If YES, list)                | YES ___ NO ___ | YES ___ NO ___ |
| 4. Manufacturing Processes:   |                |                |
| a. Are any processes controlled by specification? (If YES, list)    | YES ___ NO ___ | YES ___ NO ___ |
| b. Are there any Critical processes? (List)                         | YES ___ NO ___ | YES ___ NO ___ |
| 5. Special Tooling: (reviewer to complete)                          |                |                |
| a. Is there any special tooling required? (If YES, list)            | YES ___ NO ___ |                |
| b. Is the tooling owned by the proposed vendor?                     | YES ___ NO ___ |                |
| c. Is the tooling available to the proposed vendor?                 | YES ___ NO ___ |                |
| d. Does the proposed vendor have use rights from the Prime?         | YES ___ NO ___ |                |
| e. Will the proposed vendor build tooling?                          | YES ___ NO ___ |                |
| f. Are drawings available?  | YES ___ NO ___ |                |

NON-TECHNICAL ISSUE - ESA to resolve before contract award  
(Reviewer to complete)

(TECH INITIAL)

6. Does any of the data in the SAR contain Proprietary Statements/Markings? (If YES, list) YES \_\_\_ NO \_\_\_

COMMENTS:

F. SUBJECT ITEM SPECIFICATIONS: (reviewer to complete)

1. Are all specifications required for the subject item listed?
2. Are all applicable specifications for all sub-assemblies identified?
3. Is there a statement by Tech verifying that the proposed vendor is in possession of each required specification?

(TECH INITIAL)

YES \_\_\_ NO \_\_\_

YES \_\_\_ NO \_\_\_

YES \_\_\_ NO \_\_\_

COMMENTS:

G. SUBVENDOR INFORMATION (reviewer to complete)

1. Is a statement provided by Reviewer stating that all listed sub-vendors are prime-certified?
2. Is each required specification matched with an approved sub-vendor?
3. Is the proposed vendor certified for the remaining processes?

(TECH INITIAL)

YES \_\_\_ NO \_\_\_

YES \_\_\_ NO \_\_\_

YES \_\_\_ NO \_\_\_

COMMENTS:

H. ILLUSTRATED PARTS BREAKDOWN (IPB)

1. Is the IPB included in the SAR?
2. List any concerns below

(TECH INITIAL)

YES \_\_\_ NO \_\_\_

COMMENTS:



**I. DIFFERENCE BETWEEN SUBJECT and SIMILAR PARTS**

(Explain any NO answers)

	(TECH INITIAL)	(ENGINEERING)
1. Are the items similar in size/shape?	YES ___ NO ___	YES ___ NO ___
2. Are the items similar in function?	YES ___ NO ___	YES ___ NO ___
3. Do the items operate in similar environments?	YES ___ NO ___	YES ___ NO ___
4. Are they made of the same material?	YES ___ NO ___	YES ___ NO ___
5. Do the items require similar manufacturing processes?	YES ___ NO ___	YES ___ NO ___
6. Are the items similar in surface finish?	YES ___ NO ___	YES ___ NO ___
7. Are tolerance requirements similar?	YES ___ NO ___	YES ___ NO ___
8. Is the same level of expertise required to produce both items?	YES ___ NO ___	YES ___ NO ___

COMMENTS:

**J. QUALITY DEFICIENCY REPORTS**

	(TECH INITIAL)
1. Is there a PDREP included for the subject item?	YES ___ NO ___
2. Is there a PDREP included for the proposed vendor?	YES ___ NO ___
3. Is there a PDREP included for the similar item?	YES ___ NO ___

List any concerns below:

**K. SIMILAR ITEM DRAWING**

	(TECH INITIAL)
1. Is a parts list included?	YES ___ NO ___
2. Are all drawing sheets/frames included?	YES ___ NO ___
3. Are all Forging and/or Casting Drawings included?	YES ___ NO ___
4. Are drawings legible? (If NO, list drawings! sheets/frames required)	YES ___ NO ___
5. Is the material identified?	YES ___ NO ___

List Material: \_\_\_\_\_

COMMENTS:

L. PURCHASE ORDERS and SHIPPING DOCUMENTS

- |   |                                  |
|---|----------------------------------|
|   | (TECH INITIAL)                   |
| 1. Was the order completed within the last 3 years?                                   | YES ___ NO ___                   |
| 2. Is a complete copy of the Purchase Order<br>(including latest amendment) included? | YES ___ NO ___<br>YES ___ NO ___ |
| 3. Is a schedule of delivery included?  | YES ___ NO ___                   |
| 4. Is a complete copy of Shipping Documents included?                                 | YES ___ NO ___                   |
| 5. Was the order completed according to the schedule?<br>(If NO, explain)             | YES ___ NO ___                   |

COMMENTS:

M. PROCESS/OPERATION SHEETS (OP SHEETS)

- |  |                |                |
|--|----------------|----------------|
|  | (TECH INITIAL) | (ENGINEERING)  |
| 1. Are ALL operation sheets included?<br>(Travelers or Routers are NOT sufficient) | YES ___ NO ___ | YES ___ NO ___ |
| 2. Can the proposed vendor control the special<br>processes required of the item?  | YES ___ NO ___ | YES ___ NO ___ |
| 3. Are operation sheets complete?  | YES ___ NO ___ | YES ___ NO ___ |
| 4. Are proposed operation sheets included for<br>a category II package?            | YES ___ NO ___ | YES ___ NO ___ |

COMMENTS:

N. INSPECTION METHOD SHEETS (IMS)

- |   |                |                |
|---|----------------|----------------|
|   | (TECH INITIAL) | (ENGINEERING)  |
| 1. Are complete IMS included?   | YES ___ NO ___ | YES ___ NO ___ |
| 2. Are actual measurements noted as well as<br>drawing dimensions? If not ESA shall verify<br>the data provided on the IMS are all that were required by<br>the prime contractor/other Service. Include findings in<br>comment section below. | YES ___ NO ___ | YES ___ NO ___ |
| 3. Does the vendor adequately document<br>inspections?  | YES ___ NO ___ | YES ___ NO ___ |
| 4. Explain any concerns below.  |                |                |

COMMENTS:

O. MATERIAL REVIEW BOARD (MRB) / ITEM QUALITY HISTORY

- |  | (TECH INITIAL) | (ENGINEERING) |
|--|----------------|---------------|
| 1. Are there any MRB actions concerning the production of the subject item?  | YES ___NO___   | YES ___NO___  |
| 2. Are there any MRB actions concerning the production of the similar item?  | YES ___NO___   | YES ___NO___  |
| 3. Have there been any major quality problems with either parts? (If YES, identify)  | YES ___NO___   | YES ___NO___  |
| 3. Evaluate QA Deficiency Reports (MRB, SRON, QDRs, Non-conforming Material Report (NCOMR), inspection reports, etc.) and note any concerns below. |                |               |

COMMENTS:

P. QUALITY RATING WITH A PRIME CONTRACTOR

- |   | (TECH INITIAL) | (ENGINEERING) |
|---|----------------|---------------|
| 1. Is the submitted Quality Rating the most recent? DATE: _____ | YES ___NO___   | YES ___NO___  |
| 2. Is the rating satisfactory?                                  | YES ___NO___   | YES ___NO___  |
| 3. Does the rating show any negative trends                     | YES ___NO___   | YES ___NO___  |
| 4. Explain any concerns below.                                  |                |               |

COMMENTS

Q. CONTRACT QUALITY ASSURANCE PROVISIONS

- |  | (TECH INITIAL) | (ENGINEERING) |
|--|----------------|---------------|
| 1. Are QA provisions included and correct?                       | YES ___NO___   | YES ___NO___  |
| 2. Are First Article Test requirements included and correct?     | YES ___NO___   | YES ___NO___  |
| 3. Are Production Lot Testing requirements included and correct? | YES ___NO___   | YES ___NO___  |
| 4. Are Mandatory requirements included and correct?              | YES ___NO___   | YES ___NO___  |
| 5. Is a Contract Data Requirements List included and correct?    | YES ___NO___   | YES ___NO___  |

6. Are proper critical characteristics defined? YES \_\_\_ NO \_\_\_ YES \_\_\_ NO \_\_\_
7. Explain any concerns below.

COMMENTS

**IV. ENGINEERING EVALUATION OF SUBJECT ITEM**

(ENGINEERING)

- A. Are there any known engineering changes (CIDs, ECPs, DCNs, EOs, etc.) proposed but not yet released in-work affecting the item? YES \_\_\_ NO \_\_\_
- B. Are there any engineering investigations that affect this item? (If YES, provide details) YES \_\_\_ NO \_\_\_
- C. Has the vendor demonstrated the capability to perform and comply with all the special processes and specification required for the manufacture of the item? YES \_\_\_ NO \_\_\_
- D. If item C is NO, has the proposed vendor listed Prime qualified sub-vendors? YES \_\_\_ NO \_\_\_
- E. Are there any performance characteristics, which cannot be verified by Non-destructive Inspection (NDI)/NDT? YES \_\_\_ NO \_\_\_
- F. Are all critical characteristics and processes IDENTIFIED? YES \_\_\_ NO \_\_\_
- G. Would you specify any substantiation or qualification requirements for this item? (If YES. identify) YES \_\_\_ NO \_\_\_
- H. Evaluate the potential failure modes and the effect of each in COMMENTS below. YES \_\_\_ NO \_\_\_
- I. Are there any other matters of concern? (Identify) YES \_\_\_ NO \_\_\_

PACKAGE CONTROL NUMBER \_\_\_\_\_

**CONCLUSIONS /RECOMMENDATIONS:**

(((USE ADDITIONAL SHEETS IF NEEDED - TO INCLUDE COMMENTS)))  
<<<<THE REVIEWING ACTIVITY MAY ADD ANY INFORMATION DEEMED NECESSARY>>>>

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**EXHIBIT F Critical Item Management (CIM) and Other Useful Websites**

AMCOM Competition Management Office (The Competition Advocates Shopping List) (Source Approval Procedures)	<a href="http://www.redstone.army.mil/cmo">www.redstone.army.mil/cmo</a>
AMCOM CSI Data (e-mail Request for Access)	<a href="mailto:AE-K-TTS@amrdec.army.mil">AE-K-TTS@amrdec.army.mil</a>
AT&L Knowledge Sharing System	<a href="http://akss.dau.mil/dag/jsp/default.jsp">http://akss.dau.mil/dag/jsp/default.jsp</a>
DCMA	<a href="http://www.dcma.mil">http://www.dcma.mil</a>
Defense Acquisition Guidebook	<a href="http://akss.dau.mil/dag">http://akss.dau.mil/dag</a>
Defense Standardization Program	<a href="http://www.dsp.dla.mil">www.dsp.dla.mil</a>
DLA Deskbook	<a href="https://today.dla.mil/j-3/j-334/ESTS-techsuppdeskbook.htm">https://today.dla.mil/j-3/j-334/ESTS-techsuppdeskbook.htm</a>
DLA CIPRD Website	<a href="http://www.dscp.dla.mil/gi/prod_services/ciprds.html">http://www.dscp.dla.mil/gi/prod_services/ciprds.html</a>
DLA automated Form 339	<a href="https://esa.daas.dla.mil/index.asp">https://esa.daas.dla.mil/index.asp</a>
FAA Suspect & Unapproved Parts Program	<a href="http://www.faa.gov/aircraft/safety/programs/sups">http://www.faa.gov/aircraft/safety/programs/sups</a>
JALC Community of Practice	<a href="https://afkm.wpafb.af.mil/ASPs/CoP/EntryCoP.asp?Filter=OO-LG-AS-02">https://afkm.wpafb.af.mil/ASPs/CoP/EntryCoP.asp?Filter=OO-LG-AS-02</a>
Listing of CSIs by Service, and DLA Critical Parts Review	<a href="http://www.dscr.dla.mil/vg/VG.htm">http://www.dscr.dla.mil/vg/VG.htm</a>
Military Specifications and Standards – Assist Quicksearch	<a href="http://assist2.daps.dla.mil/quicksearch">http://assist2.daps.dla.mil/quicksearch</a>
Naval Inventory Control Point (NAVICP) Source Approval Information Brochure	<a href="http://www.navsup.navy.mil/portal/page?_pageid=477,263754,477_263796&amp;_dad=p5star&amp;_schema=P5STAR">www.navsup.navy.mil/portal/page?_pageid=477,263754,477_263796&amp;_dad=p5star&amp;_schema=P5STAR</a>
Public Law	<a href="http://thomas.loc.gov">http://thomas.loc.gov</a>

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**EXHIBIT G Sample QALI Critical Items (w/instructions)**



**DEPARTMENT OF THE NAVY**  
**NAVAL INVENTORY CONTROL POINT**  
700 ROBBINS AVENUE 5450 CARLISLE PIKE PO BOX 2020  
PHILADELPHIA, PA 19111-5098 MECHANICSBURG, PA 17055-0788

**IN REPLY REFER TO:**

[Date and office code]

From: Commanding Officer, Naval Inventory Control Point - Philadelphia  
To: Commander, Defense Contract Management Agency, **[Specify area]**

Subj: QUALITY ASSURANCE LETTER OF INSTRUCTION (QALI), CRITICAL SAFETY ITEMS

Ref: (a) DoD Instruction XXXX.XX, Management of Aviation Critical Safety Items  
Ref: (b) DFAR 246.103, Contracting Office Responsibilities

Encl: (1) QALI Requirements

1. This QALI is issued in accordance with references (a) and (b).
2. The requirements stated on enclosure (1) apply to contract N00383- XX-X-XXXX, NSN: [\_\_\_\_\_], P/N: [\_\_\_\_\_], Noun: [\_\_\_\_\_] awarded to (CAGE CODE) Allied Signal, Guidance Systems Courter Operations, 123 Nowhere Ave, Los Angeles, Ca.
3. QAR acknowledgement of this QALI within fifteen workdays by returning or faxing a signed copy; E-Mail notification is also acceptable.
4. If for any reason the QAR is unable to execute this QALI, a written response stating the reasons shall be forwarded to the POC listed below.
5. Any comments, questions or correspondence regarding this QALI shall be directed to [\_\_\_\_\_] \_\_\_\_\_, Code \_\_\_\_\_, DSN 442- \_\_\_\_\_ or Commercial (215) 697- \_\_\_\_\_, FAX (215) 697-2524, E-Mail Address \_\_\_\_\_]

Supervisor's Signature  
By Direction

## REQUIREMENTS FOR QUALITY ASSURANCE LETTER OF INSTRUCTION (QALI)

**Contract:** XXXXX **CAGE CODE:** YYYYY

**Contractor:** \_\_\_\_\_

**Nomenclature:** \_\_\_\_\_

**Part Number:** \_\_\_\_\_

**NSN:** \_\_\_\_\_

### 1. General Quality Requirements

a. **Item Application:** This item is a component of the Nose Landing Gear used on the F-18 Aircraft. It has been designated as a Critical Safety Item (CSI) by the ESA. In accordance with reference (a), a CSI is defined as a part, assembly, installation, or production system with one or more critical characteristics that, if not conforming to the design data or quality requirements would result in an unsafe condition. The critical characteristics identified for this item are those specified in the Specific Quality Requirements section of this QALI.

b. **Part and Contractor History:** Our records indicate that two valid PQDRs have been received against this item or contractor (**whichever is appropriate**) in the last two years. Both PQDRs were related to dimensional discrepancies. **(Note: This would apply only when the procuring activity has information available on past procurement history.)**

c. **Delegation:** Government Source Inspection (GSI) on characteristics identified below that cannot be accomplished in-plant, shall be delegated to the subcontract level.

d. **Non-conforming Supplies:** [This paragraph should state the level of authority delegated to DCMA, if any, for acceptance of non-conforming material. It should be in accordance with the terms and conditions of the contract and should specify the approval authority for minor, major and critical deviations. MRB authority should be addressed here.]

e. **Contract Quality Assurance (CQA):** CQA actions shall include, but not be limited to, the specific actions listed below.

### 2. Specific Quality Requirements:

**[In this section the procurement office will identify what features/characteristic the QAR should verify, witness, or perform and also define the type and extent of inspection you want the QAR to perform, i.e. one time, first lot only, sampling or 100%, this level of inspection should not exceed what has been imposed on the contractor.]**

#### a. Critical Characteristics

**Verify (Review contractor's records) the following characteristics:**

- Hardness per Note # 3 of drawing 12434556
- Magnetic Particle Inspection per Note # 6 of drawing 1234566
- Material Certification, per Note # 1 of drawing 12434556

**Perform 100% inspection (Physically accomplish inspections) of the following features:**

- Drawing 123456, Zone 3C, Dia. 5.2280, +.0022/-0.0000, before plating.
- Drawing 123789, Zone 4E, Dia. 5.224, +.003/-0.000, after plating and polishing

#### b. Major Characteristics

**On a sampling basis (specify sampling plan) witness (Observe contractor's performance) the following testing:**

- Acceptance Test Procedure (ATP) per Note # 6 of drawing 4535521

**EXHIBIT H Manufacturing, Repair & Overhaul (R&O), and Quality Assurance (QA)  
Site Survey Checklist**

Intro

<b>DEPARTMENT OF DEFENSE</b>		
<b>UNIVERSAL VENDOR SITE SURVEY CHECKLIST</b>		
Survey Number _____		
<b>INSTRUCTIONS:</b> This plan is to serve as a guideline for Department of Defense (DoD) personnel conducting vendor Site surveys. The categories listed should be selected in accordance with the solicitation or procurement document quality requirements. This report, when completed, will become a permanent record of the survey activity.		
Survey Number = (MFR CAGE Code) - (Lead Service AR/AF/NA/DC) - (month and last two digits of year), e.g. 81996-AR-0804.		
<b>CHECKLIST CATEGORIES</b>		
<b>Quality Manual/Procedure/etc. Section and Paragraph</b> - List/identify all areas where the requirement is established in the Contractor's Quality Manual, procedures, or other document(s).		
<b>Evidence</b> - Witness or verify compliance with the requirement. List at least one specific Part number, Serial Number, Certification number, Purchase Order number, etc. as applicable. Write "N/A" in the block if the element is not applicable and "NR" if the element was not reviewed.		
<b>Pass/Fail</b> - Indicate whether the Quality program and evidence satisfies the review element.		
<b>COMPANY NAME</b>	<b>ADDRESS</b>	
<b>PURPOSE OF VISIT</b>	<b>START DATE</b>	<b>COMPLETION DATE</b>
<b>CONTRACT/SOLICITATION/ETC. NO.</b>	<b>PCO</b>	<b>NSN or PART NUMBER(S)</b>
<b>COMPANY POINTS OF CONTACT</b>	<b>TITLE</b>	
<b>GENERAL INFORMATION</b>		
<b>PRODUCTS OR SERVICES OFFERED</b>		
<b>TOTAL PLANT AREA SQUARE FEET</b>		
<b>NO. OF BUILDINGS</b>		
<b>NO. OF PRODUCTION EMPLOYEES</b>		
<b>NO. OF DESIGN ENGINEERS</b>		
<b>NO. OF MANUFACTURING ENGINEERS</b>		
<b>NO. OF QUALITY ASSURANCE PERSONNEL</b>		
<b>OTHERS</b>		
<b>EXPERIENCE LEVEL (Average years)</b>		
<b>PRODUCTION</b>		
<b>ENGINEERS</b>		
<b>QUALITY</b>		
<b>REMARKS</b>		

List of Attendees			
			Survey Number _____
Name	Organization	Phone Number	E-mail Address

DoD Site Survey No. \_\_\_\_\_

Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
1	<b>Production/Contract History</b>		
1.1	Company brochure	Y	N
	Company Web Page:           www.		
1.2	What parts have been produced/overhauled/repared for the U. S. Government, and when		
	What parts have been produced/overhauled/repared for the OEM		
1.3	Who were the items produced/overhauled/repared for		
1.4	List OEM Quality rating(s)		
1.5	Quality Management System standard (list applicable specification/certification(s))		
	Third/second/self certified		
2	<b>Production Engineering and Planning</b>		
2.1	<b>Production Planning</b> Quality Manual/Procedure (QM/P), etc. Section and Paragraph.		
2.1.1	1) Policy and procedures in place for production/overhaul/repair planning		
	2) Is staffing of production/overhaul/repair planning adequate		
2.1.2	Historical records		
	1) Are historical data records maintained		
	2) Are Service peculiar aircraft logs maintained		
	3) Other aircraft log records (identify)		
2.1.3	Prime furnished data		
	1) Is vendor on prime approved distribution list for specifications and/or drawing revisions		
	2) Overhaul/Repair Manuals		
2.1.4	Government furnished data		
	1) Are contractor's procedures adequate to verify compliance to depot/NAVAIR/AMCOM/AFMC technical publications, Local Engineering Specifications (LES)/Local Process Specifications (LPS)/Engineering Change Proposals (ECP), Maintenance Engineering Orders (MEO), and Manual Change Revisions (MCR)		
	Remarks		
	2) Are contractor's procedures adequate to verify currency of drawings, depot/NAVAIR/AMCOM/AFMC technical publications, LES, LPS, ECP, MEO and MCRs		
	Remarks		

DoD Site Survey No. \_\_\_\_\_

Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
2.2	<b>Production Control QM/P:</b>		
2.2.1	Who does the scheduling on new parts/overhaul/repair		
2.2.2	Serialization		
	1) Are Critical Safety Items (CSIs) serialized or identified by lot/batch number for traceability		
	2) Is there a procedure for coordinating serial number (S/N) assignment with the procuring activity		
	3) Does S/N or lot/batch identifier provide traceability to inspection/process that involve Critical Characteristics		
	4) Are S/Ns controlled to prevent duplication		
	5) Are S/Ns reported to PCO in accordance with contractual requirements		
2.2.3	Do records provide the degree of traceability required by the contract for verification of the following:		
	1) Material		
	2) Manufacture		
	3) Special processes		
	4) Personnel certification		
	5) Variability control charts (if applicable)		
	6) Assembly		
	7) Inspection of critical characteristics		
2.2.4	Do the routers/shop travelers identify the parts to which they apply		
	Serial Number		
	Contract Number		
	Purchase Order Number		
	Identification of sub-vendors		
	Tooling used		
2.2.5	Are production lots identified so they can be traced to customers		
2.2.6	Does the routing/shop traveler document specify:		
	1) Critical operations/processes		
	2) Operations/process that must be done in proper sequence		
	3) Operations/process where sequence is not necessary		
	4) Critical Characteristics		
2.2.7	Is lot size count maintained:		
	1) Are changes due to scrap, split lots, and parts held for disposition documented		
	2) How		
2.2.8	Statistical Process Control		
	1) Statistical Process control (SPC) in place		
	2) If applied to a critical characteristic, is SPC approved by the procuring activity		
2.2.9	Delivered non-conforming CSIs		
	1) Is there a procedure for notification to PCO of any delivered non-conforming CSIs		

DoD Site Survey No. \_\_\_\_\_

Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
	2) Do procedures require that the contract, part, and serial numbers be identified if non-conforming parts are delivered		
2.2.10	Purchasing records		
	1) Do vendor purchase orders (POs) identify critical characteristics and reference QE-STD-1, and/or other applicable Critical Item program documents		
	2) Are POs available for review by the appropriate Government Official		
2.2.11	Retention of records		
	Are procedures in place that require all Critical Item records be maintained for at least five years (Army, Air Force) or ten years (Navy)		
2.2.12	Government Furnished Material (GFM)		
	Do the contractor's procedures include:		
	1) Examination upon receipt to detect transit damage		
	2) Inspection for completeness and proper type		
	3) Periodic inspection and precautions to assure adequate storage conditions are maintained, to guard against damage from handling and deterioration during storage, and to segregate it in a secure, controlled area		
	4) Functional testing, as required by contract, to determine satisfactory operation		
	5) Identification and protection from improper use or disposition		
	6) Verification of quantity		
	7) Procedures to report damaged/non-conforming GFM and to segregate it in a secure, controlled area pending disposition instructions		
2.2.13	What is your scrap rate _____%		
2.3	<b>Production/Manufacturing Methods and Processes QM/P:</b>		
2.3.1	List of in-house processes (i.e. MPI, LPI, x-ray, brazing, welding, heat treat, shot peen, metallurgical lab, chemical lab, plating processes (identify), other coating capabilities (identify)), along with approving authority and date:		
2.3.2	Detailed Process/Operation sheets for in-house processes		
	1) Are there established and documented procedures for internal audits of in-house processes		
	2) Are in-house process audits scheduled		
	3) Are all in-house process audit findings and corrective actions documented		

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Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
2.4	<b>Engineering Staffing and Capabilities</b> QM/P:		
2.4.1	Drawings, Specifications and Government Specifications/Standards, Overhaul and Repair procedures		
	1) Where are they kept		
	2) How are they updated		
	3) Are they controlled		
	4) Are old revisions retained and properly segregated		
	5) Are the drawings stored in a controlled environment (e.g. climate, fireproof)		
	6) Is there a procedure for specifically addressing conflicts in critical characteristics that require notification of the procuring activity		
2.4.2	Material Review Board actions		
	1) How are MRBs handled		
	2) Do you have separate secured MRB storage areas (Gov/Civ)		
	3) Are non-conforming critical characteristics dispositioned properly		
	4) Are there documented procedures in place for proper disposition of non-conforming critical characteristics to the procuring activity		
2.4.3	Engineering changes		
	1) How are they handled		
2.4.4	2) When are they introduced to the floor		
2.4.4	Staffing and Experience:		
	1) How many engineers are employed		
	2) What kind of education and experience		
3	<b>Industrial Resources</b>		
3.1	<b>Facilities and Equipment</b> QM/P:		
3.1.1	Capabilities:		
	1) Facilities List		
	2) Equipment List		
	3) Special Test Stands/Capabilities		
3.1.2	Do you own or lease the facilities	OWN	LEASE
	How many square feet		_____ SQ. FT.
3.1.3	Maintenance		
	1) What type of facilities and equipment maintenance plan do you have in place		
	2) Procedures for performing/scheduling maintenance:		



Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
3.1.4	General Housekeeping		
	Is the facility kept clean and organized to avoid unsafe working conditions		
3.2	<b>Facility Test Equipment and Tooling</b> QM/P:		
	1) Who controls and operates test equipment:		
	2) Who manufactures your special tools and fixtures		
	3) How are the tooling and fixtures stored and maintained		
	4) Do you have any tooling owned by the Prime (Sikorsky, Boeing, etc.)		
	5) Are you currently in possession of any Government tooling		
	If Yes, how do you store it (separate from other tooling)		
	6) Is tooling identified on detailed process/operation sheet		
3.2.1	Tolerance of Measurement and Test Equipment (MT&E)		
	1) Does M&TE discriminate to the degree necessary to assure the accuracy of the critical characteristics		
	2) Is M&TE capable of meeting the total tolerance spread (where applicable)		
3.3	<b>Production Manpower and Personnel</b> QM/P:		
3.3.1	Staffing and Experience:		
	1) How many people are employed		
	2) What percentage of production capability _____ %		
	3) What is average experience in years of production personnel		
3.3.2	Certification of Personnel		
	1) Are personnel certified to perform work on and inspection of CSIs		
	2) Is there a system for tracking personnel certifications		
	Is there an Apprentice Program and Training		
3.4	<b>Automation</b> QM/P:		
3.4.1	1) Is there a Computer Aided Design/Machining (CAD/CAM) system present in the facility		
	2) What are the capabilities of the system		
	3) Who does the Computer Numerically Controlled (CNC) programming	In-House	Out-Sourced
	If Out-Sourced, who		
	4) Are back-ups of CNC masters made/kept in different location in case of fire		
	5) Who manages the CAD/CAM system		
	6) Who has control of the system		

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Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
3.5	<b>Configuration Management</b> QM/P:		
	1) Procedures established and maintained for configuration baselines		
	2) Do Maintenance and Overhaul requirements address all current configurations and upgrades		
	3) Are government and commercial products segregated		
4	<b>Quality Assurance Program Compliance</b>		
4.1	<b>Organization</b> QM/P:		
4.1.1	To what level of management does quality report		
4.1.2	Does the contractor have a written quality policy and procedures detailing responsibilities for each major or critical function		
4.1.3	Does the contractor maintain the following functions as part of the inspection or quality program		
	1) Design or engineering		
	2) Incoming inspection		
	3) In-process inspection		
	4) Final inspection		
	5) A quality audit function performing internal audits and subcontractor surveys		
	6) Is the contractor operating a single quality system for all products, or a dual system that includes a commercial line		
	Explain:		
	7) A procedure to ensure the government is notified of all changes in the quality system which affects government material		
	8) Other: (Describe)		
4.2	<b>Engineering, Drawings &amp; Changes</b> QM/P:		
4.2.1	Does the contractor have written instructions or procedures for incorporating customer's contract specifications into shop work orders		
4.2.2	Are there adequate procedures for submitting deviations or other variation requests		
4.2.3	Does the engineering or quality dept. alert the purchasing dept. of special requirements to be imposed upon sub-contractors		
4.2.4	Is there a system to control the issue of drawings and ensure all drawings and specifications are updated to the latest revision		
4.2.5	Does the contractor have a positive method to recall and replace drawings with latest changes		

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Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
4.2.6	Manufacturing Planning		
	1) Is planning frozen for Critical Items		
	2) Are critical characteristics identified		
	3) Are inspection points annotated		
	4) Are critical characteristics measured and annotated prior to passing the inspection points		
	5) Is the planning controlled by the Contractor Control Board (CCB)		
	6) Who are CCB members		
	7) Is the planning frozen at the proper point		
	a) At time of successful completion of engineering testing		
	b) At time of successful completion of First Article Test/Product Verification Audit		
	c) At start of production		
	8) Are changes to planning that affect critical characteristics processed through CCB, justified to the Government, and approved by the Contracting Officer		
	9) Are changes to planning that do not affect critical characteristics processed and approved by the CCB		
10) Are procedures for changing critical characteristics frozen planning flowed down to subcontractors			
4.3	<b>Measuring and Test Equipment</b> QM/P:		
4.3.1	Are written procedures and methods available for the calibration and control of measuring and test equipment?		
	1) Is there a recall system to assure that gages are recalibrated on or prior to their due dates		
	2) Are records maintained for the calibration of each instrument used to accept products		
	3) Are all instruments identified with due date of the next calibration		
	4) Are calibration frequencies based on degree of usage, accuracy and stability		
	5) Are production tools used as a media of inspection under gage control		
	6) Are personally owned gages used to perform acceptance inspection under gage control		
4.3.2	Are calibration standards maintained and are they accurate for their intended use		
	1) Are the calibration standards used traceable to the National Institute of Standards and Technology (NIST) and are certificates of compliance available attesting to this		
	2) Are there written procedures for the notification of significant out of tolerance conditions		
	3) Is measuring equipment calibrated and used in environments which are controlled to the extent necessary to ensure measurements of required accuracy		
	4) Are there instructions available for operating sophisticated types of inspection equipment		

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Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
4.4	<b>Control of Purchases &amp; Receipt Inspection QM/P:</b>		
4.4.1	Do you have a system for identifying qualified vendors/sources		
	How		
4.4.2	Are sub-contractor rating systems (Qualified Products Lists) or other forms of supplier performance data available to the purchasing personnel		
4.4.3	Does the Quality Department review purchase orders to ensure all necessary quality requirements are specified		
4.4.4	Do existing purchase orders contain requirements for the following as applicable:		
	1) Mercury-free material		
	2) Government source inspection		
	3) Heat codes and traceability		
	4) Material certifications		
	5) Marking		
	6) Item Criticality		
4.4.5	Are purchase orders available to the incoming inspection department		
4.4.6	Are drawing changes issued to incoming inspection department		
4.4.7	Are written inspection instructions and acceptance standards issued to the incoming inspector		
4.4.8	Are suppliers' test records used for acceptance		
4.4.9	When mechanical and chemical tests are required by contract, are the reports checked to assure they conform to specifications		
4.4.10	Are materials identified to the mechanical and chemical test reports (Heat Number/Heat Code)		
4.4.11	Is there an established schedule or frequency for performing material verification checks		
4.4.12	Are records kept to show acceptance and rejection criteria of incoming materials		
4.4.13	Are records kept to show acceptance and rejection of incoming materials		
4.4.14	Are materials properly identified as to inspection status		
4.4.15	Are non-conforming materials identified as such and held in a segregated area until disposition can be made		
4.4.16	Are sampling levels adjusted according to inspection history		
4.4.17	Are process averages maintained in order to control Acceptable Quality Level (AQL) assignments		
4.4.18	Are procedures established covering inspection and control of government furnished material		
4.4.19	Does contractor have a written procedure to ensure that material traceability is maintained by subcontractors		
4.4.20	Are contractor's purchase orders made available for review by the Government		

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Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
4.5	<b>Special Processes QM/P:</b>		
4.5.1	Does the contractor have adequate written procedures for control of special processes, in-house and/or at suppliers (e.g., Welding, brazing, NDT-PT, MT, UT, & plating, etc?)		
4.5.2	Does the contractor have a documented procedure to maintain material traceability		
4.5.3	Are special processes approved as required by the cognizant authority		
4.5.4	Are adequate methods provided to assure compliance to special processes and specifications		
4.5.5	Are special operator's (such as welders and NDT examiners) qualification records maintained		
4.6	<b>Control of Manufacturing and In-Process Tests QM/P:</b>		
4.6.1	Do work instructions specify tooling, operation sequence, methods and technical requirements		
4.6.2	If a manufacturing lot consists of multiple heats, are individual heats segregated or identified to preclude loss of material traceability		
4.6.3	Are there instructions to provide for control and maintenance of material identification and markings during the manufacturing operations		
4.6.4	If scrap control is a contract requirement, are the vendor's procedures written and defined		
4.6.5	Is first piece and/or in-process inspection being applied		
4.6.6	Are there written inspection instructions with acceptance standards issued to each inspection station		
4.6.7	Are all inspection records on file		
4.6.8	Are non-conforming materials or items identified and promptly segregated from acceptable materials/items and reason for the non-conformance described		
4.6.9	Is reworked material submitted for re-inspection		
4.6.10	Audits		
	1) Are procedures for internal audits of CSI frozen manufacturing planning established and documented		
	2) Are audits scheduled (start of production, annually thereafter)		
	3) Are vendors required to conduct internal audits when applicable		
	4) Are all audit findings and corrective actions documented		
	5) Are external audits performed at subcontractor facilities		
	6) Are questionnaires sent to subcontractors		
4.7	<b>Final Inspection of Completed Material QM/P</b>		
4.7.1	Are written inspection instructions and acceptance standards provided to final inspection		
4.7.2	Are customer drawings and/or specifications and detail shop drawings available to final inspection		
4.7.3	Are drawing revisions specified by the contract used for acceptance		

DoD Site Survey No. \_\_\_\_\_

Department of Defense Universal Site-Survey Checklist			
Item No.	Review Item	Evidence	Pass/Fail
4.7.4	Is the contract marking requirements issued to final inspection (nameplates, material traceability marking, etc?)		
4.7.5	Are checklists used to verify that all required inspection have been accomplished (including documentation & certification)		
	1) Are the inspection records adequate		
4.7.6	Are materials adequately identified as to inspection status		
4.7.7	When the contract allows for sampling inspection , is the contractor using a sampling plan as approved by the contract		
4.7.8	Are process averages maintained in order to control AQL assignments		
4.7.9	Are sampling levels adjusted according to inspection history		
4.7.10	Are inspection stamps controlled		
4.8	<b>Packing, Storage, and Delivery</b> QM/P:		
4.8.1	Are there adequate written instructions for packaging, marking, and shipping provided the shipping personnel		
4.8.2	Are the customer marking instructions issued to the shipping personnel		
4.8.3	Is there a checklist to ensure all required documentation and software items are included with each shipment		
4.8.4	Are interior and exterior containers properly marked to the contract requirements/clauses to identify the content		
4.8.5	Are shelf-life items properly identified and controlled (e.g., first-in, first-out control)		
4.8.6	Is the storage area adequate to prevent deterioration or damage		
4.8.7	Are military packaging tests performed when required by contract and documented		
4.8.8	When clean room conditions are required by the contract is adequate control exercised		
4.8.9	Are stored raw materials properly segregated, by type, class, etc., and identified for traceability		
4.8.10	Are delivery and shipping records maintained by or crossed referenced by heat, batch, lot, etc. to ensure forward traceability and material recovery		
4.8.11	Do instructions ensure that proper preservation is applied to completed item		
4.9	<b>Non-conforming Material and Corrective Action</b> QM/P:		
4.9.1	Are there adequate procedures for submitting deviations, or other variation requests		
4.9.2	Are there written procedures specifying definitive time frames for handling defective materials and reporting corrective action		
4.9.3	Are customer complaints recorded and readily accessible		
4.9.4	Is action taken to promptly document and correct all conditions of non-conforming materials to the government		
4.9.5	Are non-conforming materials promptly identified and segregated		
4.9.6	Are customer complaints and records of defective materials maintained for feedback data to prevent recurrences and effect quality improvement		

Finding Report

<b>DEPARTMENT OF DEFENSE</b>		
<b><u>VENDOR SITE SURVEY REPORT</u></b>		
<b>Survey Finding Number</b> _____		<b>Classification</b> _____
<b>INSTRUCTIONS:</b> This report form is to serve as a record of findings noted by Department of Defense (DoD) personnel conducting vendor Site surveys and may be used for follow-up of corrective actions. This form, when completed, will become a permanent record of the survey activity and will not normally be distributed to other non-DoD activities.		
Finding Number = (Survey Number) - (sequential number, beginning with 01) e.g. 81996-AR-0804-05.		
<b>Finding Classifications:</b>		
<b>Critical</b> - A non-conformance that negatively impacts a Critical Characteristic or that would result in hazardous or unsafe conditions for individuals using, maintaining or depending upon the supplies or Services, or is likely to prevent performance of a major end item, or major part thereof.		
<b>Major</b> - A non-conformance, other than critical, that is likely to result in failure or to materially reduce the usability of the supplies or Services for their intended purpose.		
<b>Minor</b> - A non-conformance that is not likely to materially reduce the usability of the supplies or Services for their intended purpose, or operation of the supplies or Services.		
<b>Observation</b> - A condition or circumstance which does not currently meet the aforementioned criteria, but holds the potential of causing a deficiency in the future, or a finding that could be of value for Quality improvement.		
Title:	Item No:	Date:
Finding:		
Auditor's Signature:		Date:
Auditee's Signature:		Date:
Corrective Action:		
Corrective Action Submitted By:		Date:
Corrective Action Accepted By:		Date:
Corrective Action Verification (DoD):		Date:
Remarks:		

<b>DEPARTMENT OF DEFENSE</b>	
<b><u>UNIVERSAL SITE SURVEY SUMMARY</u></b>	
Site Survey Number _____	
Findings	
Critical	
Major	
Minor	
Observations	
<b>Total</b>	
Remarks:	



**EXHIBIT I DCMA Pre-award Survey Request Form (SF1403)**

<b>PREAWARD SURVEY OF PROSPECTIVE CONTRACTOR (GENERAL)</b>		1. SERIAL NO. <i>(For surveying activity use)</i>	OMB NO.: 9000-0011 Expires: 10/31/97						
Public reporting burden for this collection of information is estimated to average 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (VRS), Office of Federal Acquisition and Regulatory Policy, GSA, Washington, DC 20405 and to the Office of Management and Budget, Paperwork Reduction Project (9000-0011), Washington, DC 20503.									
<b>SECTION I - REQUEST <i>(For Completion by Contracting Office)</i></b>									
2. NAME AND ADDRESS OF SURVEYING ACTIVITY		3. SOLICITATION NO.	4. TOTAL OFFERED PRICE						
			\$						
		5. TYPE OF CONTRACT							
6A. NAME AND ADDRESS OF SECONDARY SURVEY ACTIVITY <i>(For surveying activity use)</i>		7A. NAME AND ADDRESS OF PROSPECTIVE CONTRACTOR							
6B. TELEPHONE NO. <i>(Include AUTOVON, WATS, or FTS, if available)</i>		7B. FIRM'S CONTACT	7C. TELEPHONE NO. <i>(with area code)</i>						
8. WILL CONTRACTING OFFICE PARTICIPATE IN SURVEY? <input type="checkbox"/> YES <input type="checkbox"/> NO		13. NAME AND ADDRESS OF PARENT COMPANY <i>(if applicable)</i>							
9. DATE OF REQUEST	10. DATE REPORT REQUIRED								
11. PROSPECTIVE CONTRACTOR REPRESENT THAT IT <input type="checkbox"/> IS, <input type="checkbox"/> IS NOT A SMALL BUSINESS CONCERN.									
12. WALSH-HEALY CON ACT <i>(Check applicable box(es))</i>	A. IS NOT APPLICABLE								
	B. IS APPLICABLE AND PROSPECTIVE CONTRACTOR REPRESENTS HIS CLASSIFICATION AS: <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> REGULAR DEALER <input type="checkbox"/> OTHER <i>(Specify)</i>								
14A. PLANT AND LOCATION <i>(if different from Item 7, above)</i>		14B. POINT OF CONTACT			14C. TELEPHONE NO. <i>(with area code)</i>				
15A. NAME OF REQUESTING ACTIVITY CONTRACTING OFFICER		15A. NAME OF CONTACT POINT AT REQUESTING ACTIVITY <i>(if different from Item 15A)</i>							
15B. SIGNATURE		15C. TELEPHONE NO. <i>(Include AUTOVON, WATS or FTS, if available)</i>							
17. RETURN PREAWARD SURVEY TO THIS ADDRESS:  ATTN:		16B. TELEPHONE NO. <i>(Include AUTOVON, WATS, or FTS, if available)</i>							
<b>SECTION II - DATA <i>(For Completion by Contracting Office)</i></b>									
18A. ITEM NO.	18B. NATIONAL STOCK NUMBER (NEW) AND NOMENCLATURE	18C. TOTAL QUANTITY	18D. UNIT PRICE	18E. DELIVERY SCHEDULE					
				(a)	(b)	(c)	(d)	(e)	
		SOLICITED							
		OFFERED	\$						
		SOLICITED							
		OFFERED	\$						
		SOLICITED							
		OFFERED	\$						
		SOLICITED							
		OFFERED	\$						
		SOLICITED							
		OFFERED	\$						
		SOLICITED							
		OFFERED	\$						
		SOLICITED							
		OFFERED	\$						

**SECTION III - FACTORS TO BE INVESTIGATED**

19. MAJOR FACTORS	CHK. (a)	SAT. (b)	UN- SAT. (c)	20. OTHER FACTORS (Provide specific requirements in Remarks)	CHK. (a)	SAT. (b)	UN- SAT. (c)
A. TECHNICAL CAPABILITY				A. GOVERNMENT PROPERTY CONTROL			
B. PRODUCTION CAPABILITY				B. TRANSPORTATION			
C. QUALITY ASSURANCE CAPABILITY				C. PACKAGING			
D. FINANCIAL CAPABILITY				D. SECURITY			
E. ACCOUNTING SYSTEM				E. SAFETY			
21. IS THIS A SHORT FORM PREAWARD REPORT? (For completion by surveying activity)				F. ENVIRONMENTAL/ENERGY CONSIDERATION			
<input type="checkbox"/> YES <input type="checkbox"/> NO				G. FLIGHT OPERATIONS/FLIGHT SAFETY			
22. IS A FINANCIAL ASSISTANCE PAYMENT PROVISION IN THE SOLICITATION? (For completion by contracting activity)				H. OTHER (Specify)			
<input type="checkbox"/> YES <input type="checkbox"/> NO							
23. REMARKS (For Contracting Activity Use)							

**SECTION IV - SURVEYING ACTIVITY RECOMMENDATIONS**

24. RECOMMEND  <input type="checkbox"/> A. COMPLETE AWARD <input type="checkbox"/> B. PARTIAL AWARD (Quantity _____ ) <input type="checkbox"/> C. NO AWARD	25A. NAME AND TITLE OF SURVEY APPROVING OFFICIAL	25B. TELEPHONE NO.
	25C. SIGNATURE	25D. DATE

STANDARD FORM 1403 (REV. 9-88) BACK

## **EXHIBIT J Standard DoD Quality Contract Requirements/Clauses for Aviation CSIs**

**NOTE:** *The phrases defined below in Paragraph 1.0 are used extensively in the following sample text clauses. As these definitions may differ from those in practical use by contractors, it is strongly recommended that they be included in CSI solicitations where the sample text clauses are used.*

### 1.0 DEFINITIONS:

1.1 CRITICAL SAFETY ITEM (CSI): A CSI is defined as a part, assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapons system that contains a characteristics any failure, malfunction, or absence of which could cause a catastrophic or critical failure resulting in the loss or serious damage to the aircraft or weapons system, an unacceptable risk of personal injury or loss of life, or an uncommanded engine shutdown that jeopardizes safety. Damage is considered serious or substantial when it would be sufficient to cause a "Class A" accident or a mishap of severity category I. The determining factor in CSIs is the consequence of failure, not the probability that the failure or consequence would occur.

1.2 CRITICAL CHARACTERISTIC: Any feature throughout the life cycle of a CSI, such as dimension, finish, material or assembly, manufacturing or inspection process, installation, operation, field maintenance, or depot overhaul requirement which if non-conforming, missing or degraded could cause the failure or malfunction of the CSI. Critical characteristics may be identified on drawings, in technical data packages, in contract quality assurance provisions, or through other contract requirements/clauses.

1.3 DESIGN CONTROL ACTIVITY (DCA): The systems command of a military department that is specifically responsible for ensuring the airworthiness of an aviation system or equipment in which the item is to be used.

1.4 APPROVED SOURCE: A manufacturer or vendor who has satisfied, prior to contract award, all Government source approval requirements to include, if applicable, engineering qualification testing requirements (fatigue, endurance, and/or interchangeability).

### 2.0 QUALITY REQUIREMENTS

2.1 PLACE OF INSPECTION/ACCEPTANCE: Government Contract Quality Assurance (GCQA) shall be at the source.

2.2 QUALITY PROGRAM: Contractor shall comply with one of the following quality systems: AS9100, ISO 9001, or ANSI/ASQ 9001, NATO-AQAP-110

### 2.3 MEASURING & TEST EQUIPMENT (M&TE):

2.3.1 CALIBRATION: Contractor shall comply with one of the following calibration requirements: ISO 10012-1, ANSI/NCSS Z540-1.

2.3.2 TOLERANCE OF M&TE: M&TE used to inspect CSIs must be discriminate to within ten% of the total tolerance spread for the feature being inspected except as follows: for total tolerance spreads of less than .001, M&TE must be discriminate to 20% of the spread.

#### 2.4 MARKING/IDENTIFICATION:

2.4.1 PART MARKING: Locations and methods of markings shall be in accordance with drawings, technical data packages, contract quality assurance provisions, or through other contract requirements/clauses. Data format shall be in accordance with MIL-STD-130.

2.4.2 SERIALIZATION: All CSIs require individual serialization or identification by lot number for traceability. Serial number requirements may be identified on drawings, in technical data packages, in contract quality assurance provisions, or through other contract requirements/clauses. Unless otherwise specified in the contract the contractor shall develop an internal system for assigning serial numbers. Serialization shall occur so that any individualized inspection/process that involves a critical characteristic is traceable to a specific serial number. All serial numbers approved for issue or provided by the Government shall be accounted for; this includes material scrapped during manufacturing (if item/product serialization has been assigned prior to final marking). Serial numbers used in this program shall not be used on any other part with the same basic part number (i.e., only a dash number or revision letter difference) manufactured by that contractor.

2.5 ORDER OF PRECEDENCE: The contractor shall notify the Procurement Contracting Officer (PCO) immediately of any contradictions between this document and other contractual requirements. A written resolution to the contradiction will be issued to the contractor from the PCO.

2.6 REQUIREMENTS FLOWDOWN: If a process or processes that involve a critical characteristic or a CSI is subcontracted, this document must be imposed, in its entirety, on the subcontractor performing the work.

2.7 WARRANTY: Request Contracting Officers to cite FAR clause 52.246-17, Warranty of Supplies of a Noncomplex Nature, or 52.246-18, Warranty of Supplies of a Complex Nature, or a tailored warranty clause.

#### 3.0 TECHNICAL DATA REQUIREMENTS:

3.1 CLASSIFICATION: The Contractor shall institute a classification system that establishes whether a part is considered a CSI. The classification of an item as a CSI shall be based solely on its influence on flight safety. The Contractor shall not classify a part as a CSI based on considerations such as cost, complexity, or the procurement time for the part. Unlimited life shall not, in and of itself, prevent a part from being identified as a CSI. Any redesign effort that incorporates or modifies existing CSI components or assemblies shall consider cross-Service commonality, elimination of the part/assembly as a CSI, or reduction of sensitivity to manufacturing, assembly, and/or installation variances. The Contractor shall clearly identify on

part or assembly drawings the critical characteristics for each CSI. The Contractor shall prepare the critical characteristic identification and applicable control procedures to facilitate inclusion in related maintenance and overhaul documents, including applicable preservation, packaging, and handling, and shipping instructions.

3.2 DESIGN: The Contractor shall validate each CSI to ensure that all aspects of the design are thoroughly considered, parts/materials operate within design constraints, and the design allows for assessment by non-destructive evaluation (NDE), where possible. The Contractor's validation shall include engineering analysis of the item's critical characteristics, and shall consider changes/deterioration through time, use, fatigue life, and operating conditions.

#### 4.0 MANUFACTURING PLANNING:

4.1 PLAN CONTENT: All manufacturing, assembly, and inspection points for CSIs shall be controlled by detailed procedures outlining each step or parameter of the process along with any materials, tooling, equipment, environmental control, and operator certification required that leads to the specific production of an end item. Plans shall clearly identify all critical characteristics and will include identification, in accordance with contractor procedures, as to its particular revision. All process plans shall clearly define sequence of operation, machine type, and accept/reject limits for the specific process or operation. Critical processes not easily verified by subsequent inspection shall clearly define process-operating parameters with tolerances.

4.2 FROZEN PLANNING REQUIREMENTS: If the offeror is a source other than the Prime contractor or Original Equipment Manufacturer (OEM), frozen planning is required for CSIs as part of the source approval process. Once frozen, plans shall remain frozen throughout the existing contract and all subsequent contracts for the item unless changes to the planning are made in accordance with this document. Frozen planning may also be required for the Prime contractor or OEM when specific requirements for such have been negotiated between the cognizant ESA and the Prime contractor/OEM.

4.3 CHANGES TO FROZEN PLANNING: All changes to CSI frozen planning affecting the method of manufacturing or sources will be submitted (via DCMA and the PCO) to the cognizant ESA.

#### 5.0 AUDITS:

5.1 CONTRACTOR AUDITS: Contractors are to perform self-audits of their frozen planning when that planning applies to a CSI or critical characteristics produced or verified in house. At a minimum, audits will be performed at the start of each production contract, annually, and when process changes occur. It is incumbent upon the contractor to assure that subcontractors accomplish self-audits, and the contractor shall maintain records verifying that their vendors are in full compliance with the audit requirement. All audit findings will be recorded and corrective action will be documented.

## 5.2 GOVERNMENT AUDITS:

5.2.1 BASIC AUTHORITY: Authority to perform visits to determine the effectivity of a contractor's CSI program is contained in the FAR clause 52.246-2, Inspection of Supplies - Fixed Price.

5.2.2 MULTI-YEAR PROCUREMENT AUDITS (OPTIONAL): The Contractor shall support annual Government audits of the Contractor's implementation of CSI requirements, to include subcontractors and suppliers. The Contractor shall make the following CSI documentation available to the Government audit team: CSI database, frozen planning, minutes and records, and existing supporting documentation. The Government will notify the Contractor a minimum of 30 days prior to the conduct of the audit. The audits will consist of up to two weeks at the Contractor facility and two weeks at subcontractor or supplier facilities. The visits may be scheduled for a single two-week visit or divided into two one-week visits. The Contractor shall provide a response addressing each finding of the audit report within 30 days of notification. The Contractor shall prepare the response IAW DI-MISC-80508 and deliver IAW CDRL (---). The response shall address each finding of the audit report. The Government will conduct follow-up audits to ensure that corrections have been accomplished. The Government may conduct unscheduled audits on specific CSIs where potential issues are identified, as necessary.

## 6.0 CRITICAL CHARACTERISTICS:

6.1 INSPECTION OF CRITICAL CHARACTERISTICS: All critical characteristics that can be non-destructively inspected/tested shall be subjected to 100% inspection by the contractor or subcontractor unless specific approval is received from the cognizant ESA. Critical characteristics that require destructive testing are to be tested on a lot or batch basis (as determined by DCMA), with no skip lots allowed. All inspection records shall identify the CSI part number, serial or lot number, and characteristic(s) inspected. Critical characteristics shall be identified on the inspection records in such a manner as to draw attention to them. Inspection records shall reflect the exact readings or dimensions, date of inspection, identity of inspector, and any required inspection documentation. These requirements are in addition to other contractual inspection requirements.

6.2 VARIABILITY REDUCTION METHODS: Once the manufacturing program demonstrates that the critical processes are statistically in control, stable, and capable, the contractor may submit to the ESA (via the PCO) for approval its documentation with a request to implement a Statistical Process Control (SPC) program in lieu of 100% inspection for critical characteristics. At the Government's discretion, 100% inspection may be reinstated if the process controls prove inadequate.

6.3 SAMPLING INSPECTION: Unless otherwise specified, characteristics not identified as critical may be inspected on a sampling basis in accordance with ANSI/ASQC Z1.4. Use of any other sampling plan is subject to DCMA approval.

## 7.0 CONTROL OF NON-CONFORMING MATERIALS:

7.1 DISPOSITION OF NON-CONFORMING CRITICAL SAFETY ITEMS: All CSI non-conformances (critical, major and minor) will be forwarded through DCMA to the PCO for disposition. CSI non-conformances shall not be dispositioned “use as is” or “repair” through contractor action, however “rework to print” is acceptable. Request for deviations to critical characteristics shall be classified as critical. Only the cognizant ESA shall have the approval authority for disposition of CSI non-conformances (via the PCO), unless specifically delegated.

7.2 DISPOSAL OF NON-CONFORMING PARTS: Product dispositioned for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.

7.3 DELIVERED NON-CONFORMANCES: Contractors shall notify the PCO immediately of any discovered non-conformances that may exist in previously delivered CSIs. Notification is required whether or not the characteristic in question has been classified as a critical characteristic. Notification shall include a description of the suspected non-conformance, contract number, part number, and affected serial numbers or lot numbers, when applicable.

8.0 RECORDS: (NOTE: For Commercial, Surplus, and PBL procurements, some tailoring may be required)

## 8.1 TRACEABILITY AND CERTIFICATIONS:

8.1.1 TRACEABILITY: All records relating to CSIs shall be traceable to the date and place of production. Records shall provide the degree of traceability required to enable subsequent verification of all aspects of material, manufacture, special process, personnel certification, variability control charts (if applicable), assembly, and inspection of critical characteristics. Special processes include but are not limited to heat treat, shot peening, and non-destructive testing.

8.1.2 CERTIFICATION OF PERSONNEL: Contractor personnel performing work or having inspection responsibilities pertaining to critical characteristics, shall be certified to the appropriate professional level as outlined in the applicable national standards, best commercial practices, or as contractually required. A records system for tracking personnel certification shall be an element in the contractor internal audit program to assure all certifications are maintained in a current status.

8.2 PURCHASING RECORDS: All purchase orders for subcontracted products or processes that contain critical characteristics must clearly identify the critical characteristic and reference this document for compliance. All documents and referenced data for CSIs shall be available for review by the Government to determine compliance.

8.3 RETENTION OF RECORDS: The contractor shall retain copies of all records generated pursuant to this standard and make these records available to the Government upon request. Records shall be retained for a period of at least seven years after the contractor ceases to

manufacture the part for which this standard applies. At the end of this period, or in the event of relocation or shutdown, all records shall be offered to the PCO prior to disposal.

## 9.0 NOTIFICATIONS:

9.1. SUPPLIER REMOVAL: In the event that a previously approved source utilized for the manufacturing of CSIs (parts, special processes, NDT, etc.) has been removed, the contractor shall promptly notify the PCO. As a minimum the notification shall include the name of the supplier, address, CAGE code, products or services provided by this source, and the reason for source approval removal.

9.2 RELOCATION OF MANUFACTURING FACILITIES: In the event that a contractor or subcontractor relocates the manufacturing location of a CSI product or part, the contractor shall promptly notify the PCO via DCMA. As a minimum the notification shall include the contract number, part(s) affected, scope and impact of the relocation effort, re-qualification plans, and any other pertinent information.

9.3 BUSINESS STATUS CHANGE: If any changes occur in the Contractor's business status pertaining to technical/quality-related issues related to CSI manufacture (e.g., license agreement expiration, indictment, bankruptcy), the Contractor shall immediately provide notification and supporting documentation of the changes to the Procurement Contracting Officer (PCO).

## 10.0 SOURCING:

10.1 SOURCING AND PROCUREMENT: For contractors responsible for design and/or delivery of aviation systems or platforms/equipment (such as aircraft, engines, guns and missiles, ground communications and electronics systems, and test equipment), when a new source of supply for a CSI is required, the Contractor shall complete all original qualification testing as was required during the original qualification of the approved source(s). Reductions in such testing shall be submitted to the Contracting Officer for Government review and approval.

**Note:** *Paragraph 11.0 “Standard CSI Configuration Management” is intended to be used in its entirety. Exclusion or alteration of any portion of this requirement is discouraged.*

11.0 STANDARD CSI CONFIGURATION MANAGEMENT CLAUSE: The Contractor shall maintain the total baseline configuration of the contract items, including, but not limited to, hardware, software and firmware, in accordance with the configuration management provisions of this contract.

## 11.1 DEFINITIONS:

11.1.1 ENGINEERING CHANGE PROPOSAL (ECP): An ECP is the documentation by which an engineering change and its implementation for items to be delivered under this contract is proposed, justified and submitted to the appropriate authority for approval or disapproval. Class I and Class II ECPs will be classified as follows:



11.1.1.1 CLASS I ECP: An engineering change will be classified as Class I if:

- a. it affects any physical or functional requirement in approved functional or configuration documentation, or
- b. it affects any approved functional, allocated or product configuration documentation, cost to the Government, warranties or contract milestones, or
- c. it affects approved product configuration documentation and one or more of the following: Government furnished equipment (including Government test equipment and associated programs such as Test Program Sets/Software; safety; compatibility, interoperability, or logistic support; delivered technical manuals for which changes are not funded; will require retrofit of delivered units; preset adjustments or schedules affecting operating limits or performance to the extent a new identification number is required; interchangeability, substitutability, or replacement of any item down to non-repairable assemblies, sources on a source control drawing; or skills manning, training, biomedical factors or human engineering design.

11.1.1.2 CLASS II ECP: An engineering change is Class II if it does not impact any of the Class I factors specified above.

11.1.2 DEVIATION: A deviation is the specific written authorization to depart from a particular requirement of the item's configuration for a specific number of units or for a specific amount of time. It is also a specific written authorization to accept items, which are found to depart from specified requirements, but which nevertheless are considered suitable for use "as is" or after correction by a specified method. The term deviation encompasses what previously had been defined as both a deviation and waiver and therefore includes requests to depart from a known requirement before, during or after manufacture. Deviations will be classified as follows:

11.1.2.1 CRITICAL: A deviation is critical when the deviation involves or impacts safety.

11.1.2.2 MAJOR: A deviation is major when it involves a departure from requirements or specifications involving: health, performance, interchangeability, reliability, survivability, maintainability or durability of the item or parts, effective use or operation of the item or system, weight or size, and appearance (when a factor).

11.1.2.3 MINOR: A deviation is minor when the deviation does not involve factors listed above for either critical or major deviations.

## 11.2 CONFIGURATION MANAGEMENT/ECPS:

11.2.1 CONFIGURATION CONTROL: The Government will maintain configuration control and change authority for all modifications or changes affecting form, fit, function, or interface parameters of the contract items and sub-assemblies. Guidelines for preparing Class I and Class II ECPs may be found in MIL-HDBK-61A, Configuration Management Guidance and ANSI/EIA-649, National Consensus Standard for Configuration Management. The Contractor will maintain configuration of the items in accordance with the requirements of this contract.

11.2.2 ECPS: The Contractor shall submit an Engineering Change Proposal (ECP) for any Class I or II changes that impact the items covered by this contract. An ECP shall be designated Class I or Class II, as defined in this contract.

11.2.2.1 PENDING/APPROVED: If the Contractor has an ECP pending with another Government activity or has an approved ECP that the Contractor proposes to incorporate under this contract, the Contractor will notify the PCO of the status of the ECP and provide a copy of the ECP submission. Any such Class I ECPs, however, will be incorporated only by modification to the contract.

11.2.2.2 PROCESSING: A properly documented ECP submitted under this contract shall be processed as follows:

11.2.2.2.1 CLASS I: Class I ECPs must be submitted to the contracting officer for approval/disapproval. A Class I change will not be implemented until a contract modification is issued by the contracting officer.

11.2.2.2.2 CLASS II: Class II ECPs involving CSIs must be clearly identified as involving a CSI, must be submitted to the contracting officer for review by the contracting officer and the cognizant ESA, and may be implemented only upon the approval of the contracting officer. When authorized in writing by the contracting officer, where the cognizant ESA has formally delegated approval authority to DCMA to concur in Class II ECPs involving CSIs (which is specific to the Contractor's location and CAGE code), a Class II ECP involving a CSI may be submitted to the DCMA and implemented upon DCMA's concurrence. Class II changes shall be made at no additional cost to the Government.

11.2.2.3 COORDINATION: The Contractor shall coordinate with the cognizant Program Management Office prior to any ECP submission.

11.2.2.4 FORMAT: Under this contract, a Class I ECP may be prepared in the contractor's format but in a medium compatible with Government information management systems. In addition, a Class I ECP shall provide all information required by DI-CMAN-80639C – Engineering Change Proposal. A Class II ECP may be prepared in the contractor's format. The minimum required data is: name and part number of item affected; name and part number of next higher assembly; description of the engineering change; need and reason for the change; all government contract numbers for which the change applies; and the change document number. Justification codes are not required for Class II ECPs.

11.2.2.5 DISPOSITION: The contractor is not entitled to any equitable adjustment to the contract price or terms based on the Government's disapproval of a Class I or Class II ECP.

### 11.3 DEVIATIONS:

11.3.1 AUTHORIZATION: The Contractor shall not manufacture any item for acceptance by the Government that incorporates a known departure from technical or contractual requirements

unless a request for a deviation has been approved. Authorized deviations are a temporary departure from the requirements only and do not authorize a change to the item's configuration baseline.

11.3.2 PREPARATION: Deviation requests shall be prepared in accordance with DI-CMAN-80640C – Request for Deviation. Guidelines for preparing deviations may also be found in MIL-HDBK-61A, Configuration Management Guidance and ANSI/EIA-649, National Consensus Standard for Configuration Management.

11.3.3 PROCESSING: A Request for Deviation shall be processed as follows upon submission of a properly documented request:

11.3.3.1 CRITICAL/MAJOR: For items involving a critical or major deviation, delivery and/or shipment of such items of items under this contract is not permitted until authorized in writing by the contracting officer.

11.3.3.2 MINOR: Minor deviations affecting CSIs must be identified as involving a CSI, must be submitted to the contracting officer for review by the contracting officer and the cognizant ESA, and may be delivered only upon the approval of the contracting officer. When authorized in writing by the contracting officer, where the cognizant ESA has formally delegated approval authority to DCMA to disposition minor deviations involving CSIs (which is specific to the Contractor's location and CAGE code), a minor deviation involving a CSI may be submitted to DCMA and implemented upon DCMA's concurrence.

11.3.4 RECURRING DEVIATIONS/CONSIDERATION: Recurring deviations are discouraged and shall be minimized. The contractor is not entitled to any equitable adjustment to the contract price or terms based on the Government's disapproval of a major/critical or minor deviation. In addition, the Government may be entitled consideration from the contractor if a deviation is approved.

12.0 MATERIAL TESTING AT GOVERNMENT LABORATORY: Material procured under this contract will be subjected to testing at the following designated Government Testing facility or laboratory. The contractor will deliver the material to:

Government Facility: [specify name and address]

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## **EXHIBIT K Checklist for Companies Relocating Manufacturing Facilities**

A contractor planning to relocate manufacturing facilities should provide the following data.

1. A list and status of DoD contracts currently in place at the closing facility.
2. A complete list, by part number, of products being relocated.
3. Identification of any product controlled by a Qualified Parts List (QPL)
4. A copy of the company transition plan or product re-certification plan.
5. Estimated dates when the move will be completed, and when products manufactured by new facility will be ready for shipment.
6. What percentage of factory personnel, if any, will be relocating to the new facility?
7. If product is being relocated to an existing facility manufacturing similar product lines, provide a description of the facility receiving the work, including type of products currently made there, personnel skills and qualifications, current facility certifications, and equipment available.
8. Provide a description of the training that gaining key personnel will receive on the relocated products (i.e. on-the-job training conducted by skilled artisans from the closing facility, formal classroom training, etc.)
9. If applicable, provide a description of any significant product manufacturing changes that may be implemented as a result of the relocation. (i.e. outsourcing of special processes, changes in vendor base, updating/changes to drawings, modifications to automated test equipment, etc.)
10. Provide a listing of manufacturing equipment, tooling and gauging that will be transferred to the new facility and verification methods that will be used.
11. Describe what method will be used to re-certify products manufactured by the new facility, including conformance to drawings and specifications (i.e. certification samples, first article testing, co-relation testing, first piece layout, etc.)
12. Identify and provide telephone numbers of key personnel (transition manager, quality manager, chief engineer, contract manager) assigned to the relocation effort.

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**EXHIBIT L Checklist for Surplus Procurements**

NOTE: THIS CLAUSE APPLIES ONLY WHEN SURPLUS MATERIAL IS OFFERED.

(a) With respect to the SURPLUS SUPPLIES being offered, the offeror shall furnish the following information:

(1) The SURPLUS SUPPLIES are new, unused, and were manufactured by (insert name and address):

(2) The SURPLUS SUPPLIES were purchased by the offeror from the Government selling agency or other source identified below. If the supplies were purchased from the Government by a source other than the offeror, identify that source. (If complete information is not available, attach an explanation as to when, where and how the property was acquired).

SELLING AGENCY	CONTRACT DATE	CONTRACT NUMBER	SOURCE
	(MONTH/YEAR)	(IF AVAILABLE)	

(3) The SURPLUS SUPPLIES --

(i)  have,  have not been altered, modified or refurbished;

(ii)  have,  have not been 100% inspected for correct part number and for absence of corrosion or any defects; and

(iii)  do,  do not contain cure-dated components.

(4) The SURPLUS SUPPLIES --

will,  will not be reconditioned, refurbished or altered. If the supplies contain cure-dated components, identify components to be replaced and the applicable rebuild standard. If the SURPLUS SUPPLIES are to be reconditioned or altered, attach complete description of the work to be done.

(b) For SURPLUS SUPPLY ITEMS identified by manufacturer's code and part number, furnish the following information:

(1) Identify the applicable specification/drawings in possession of the offeror:

SPEC./DRAWING NO.	REVISION (IF ANY)	DATE
-------------------	-------------------	------

(NOTE: The offeror is responsible for furnishing supplies conforming to the requirements of the purchase description, even though the applicable specifications/drawings are not available.)

(2) The offeror  has,  does not have the SURPLUS SUPPLIES. If the offeror does not have the SURPLUS SUPPLIES, attach an explanation as to how the offered quantities will

be secured, their present location, the basis for the information provided in paragraph (a)(1) above, and where a pre-award survey of the supplier may be performed.

(3) If SURPLUS SUPPLY ITEMS have data plates attached, furnish copy of information contained thereon.

(4) If the SURPLUS SUPPLY ITEMS are marked with serial/part numbers, indicate these numbers:

If the SURPLUS SUPPLY ITEMS are not marked with serial/part numbers, the offeror must be able to identify the items by manufacturer's drawings or other data acceptable to the Government inspector.

(5) The offered SURPLUS SUPPLY ITEM(s) --

have,  have not been previously packaged, and

are,  are not in their original package. If the original package is being used, state here all markings and data, including contract number, cited on the package.

(c) The offeror agrees that in the event of award and notwithstanding the provisions of this solicitation, inspection and acceptance of the SURPLUS SUPPLIES will be performed at origin or destination subject to all applicable provisions for origin or destination inspection.

(d) Failure to provide the information requested by this clause may require rejection of the offer for failure to meet the requirements of the solicitation.



**EXHIBIT M Addendum to FAR 52.212-4 Commercial Contract Terms and Conditions  
(Applicable to attached order)**

1. Under paragraph (a), “inspection and acceptance”, add the following:

Specify Technical requirement contractor should meet. (Repair Manual, drawings, Specifications, etc.)

Example: All repairs shall be performed in accordance with publication 03-16XXX-20 or drawing (CAGE) XXXXXX-X, specify revision level.

Specify a Quality Assurance requirement:

Example: The contractor shall maintain a quality system that addresses the elements of ISO9001-2000, Quality System Model for Quality Assurance in Design/Development, Production, Installation and Servicing, AS9100A Quality System - Aerospace - Model for Quality Assurance in Design/Development, Production, Installation and Servicing or an equivalent program approved by the Navy.

Specify a Calibration requirement:

Example: The contractor shall maintain a calibration system that addresses the elements of ISO-10012-1, ANSI/NCSL Z540 or an equivalent program approved by the Navy.

Specify Data to be made available:

Example: The government reserves the right to assess the contractor’s compliance to its documented quality system. The quality system procedures, planning, and all other documentation, media, and data that comprise the quality system shall be made available to the government for their review and use. The acceptance of non-conforming supplies is a prerogative of and shall be as prescribed by the government. The government reserves the right to disapprove the quality system or portions thereof when it fails to meet its intended objectives.

Specify stages of material inspections:

Example: End items assemblies, subassemblies, or components manufactured or repaired under this contract are subject to in-process or final inspection by the Government. All product audits shall be performed at the discretion of the local Government QAR on a non-interference basis. (When advanced notification is furnished of the time contractor inspections or tests are to be performed, and that time arises and the QAR is not available, the contractor may proceed. Verification shall then be accomplished by records review.) This exception does not apply to Critical Safety Items.

Specify a Configuration Management requirement:

Example: The Contractor shall not make any configuration changes, engineering changes or part number changes to the contract/purchase order items, including, but not limited to, the item's hardware, software or firmware, unless approved by the Procurement Contracting Officer (PCO). In addition, approval by the appropriate technical authority may also be required. Guidance on how to submit a proposed engineering or part number change may be obtained from the PCO.

The Contractor shall not manufacture any item for acceptance by the Government that incorporates a known departure from technical or contractual requirements unless a request for a deviation has been approved. Authorized deviations are a temporary departure from the requirements only and do not authorize a change to the item's configuration baseline. Any deviation, major or minor, must be approved by the PCO prior to acceptance.

Specify if material intermingling is acceptable:

Example: The contractor shall maintain material control within the type model series, preventing any mixture of components between Government units and commercial or other customers' related programs.

Specify what documents must be sent with material:

Example: The contractor shall provide in writing a certificate of conformance with each delivery consistent with contractor's commercial practice.