



**Quality Clause QS1
Maintenance, Repair, Overhaul & Upgrade (Sustainment Air Vehicle)**

The latest issue of this document is the version on the Lockheed Martin website:
<https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/quality-requirements/clauses.html>

Table of Contents

- 1. APPLICABILITY 2
- 2. GENERAL REQUIREMENTS 2
- 3. QUALITY MANAGEMENT SYSTEM REQUIREMENTS..... 2
- 4. MAINTENANCE / GROUND OPERATIONS..... 3
- 5. FACILITY ACCESS..... 3
- 6. PREVENTION OF SUSPECTED UNAPPROVED PARTS 4
- 7. CALIBRATION..... 4
- 8. BUYER-FURNISHED/GOVERNMENT FURNISHED, SELLER-MANUFACTURED OR SELLER-OWNED TOOLING 4
- 9. SPECIAL PROCESSES CERTIFICATION REQUIREMENTS..... 5
- 10. EVALUATION OF NEW CAPABILITY 5
- 11. CORRECTIVE ACTION, PREVENTIVE ACTION, REQUEST AND REPORTING 5
- 12. CONTROL OF NONCONFORMING PRODUCT / MATERIAL REVIEW PROCESS 6
- 13. QUALITY RECORDS 6
- 14. QUALITY & PLANNING ASSURANCE REQUIREMENTS 7
- 15. GENERAL INSPECTION REQUIREMENTS..... 7
- 16. NOTIFICATION OF POTENTIAL SAFETY ISSUES 7
- 17. GROUND MISHAP/EVENT REPORTING 8
- 18. QUALITY METRICS REPORTING 8



1. APPLICABILITY

This Quality Clause QS1 is applicable to Sellers performing Air-Vehicle level Maintenance, Repair, Overhaul and Upgrade (MRO&U) activities on aircraft owned by Buyer's customers. This clause also applies to field service repair of components associated with the aircraft owned by Buyer's customers at customer's location. The use of the industry term MRO&U (or other typical terms such as Maintenance, Repair and Overhaul, (MRO) or Modification/Maintenance Repair and Overhaul (M/MRO)) in this document is synonymous with the term "maintenance" in AS9110.

2. GENERAL REQUIREMENTS

- 2.1. Seller shall meet the applicable requirements of the latest revision of Quality Clause QS1 in effect as of the date of the Request for Proposal (RFP).
- 2.2. In the event of a conflict between the requirements in Quality Clause QS1 and Quality Appendix QX, Quality Clause QS1 takes precedence.
- 2.3. In the event of a conflict between the requirements herein and the Quality portion of the supplier statement of work (SSOW), the SSOW shall take precedence, unless otherwise amended by Buyer and Seller prior to PO issuance.
- 2.4. Seller shall:
 - 2.4.1. ensure all applicable requirements herein are imposed upon Seller, its agents and subcontractors at all tiers working on Buyer's aircraft;
 - 2.4.2. have and maintain internet access for obtaining requirements of this PO;
 - 2.4.3. ensure that all Quality Requirements are reviewed and understood, including the Revision/Issue number of the relevant documents to ensure the correct document is being used;
 - 2.4.4. ensure that all persons working on Buyer's aircraft are aware of:
 - their contribution to product or service conformity;
 - their contribution to product safety;
 - the importance of ethical behavior;
 - 2.4.5. direct all queries relating to this document to Buyer's Sustainment Quality Representative via email to: sustainment_qa.gr-aero@lmco.com (*sustainment_qa.gr-aero@lmco.com*);
 - 2.4.6. provide all Seller records, reports, specifications, drawings, inspection and test results, and other documentation in the English language;
 - 2.4.7. not directly interface with Buyer's Customer or Buyer's Customer Quality Oversight Agency Representative without Buyer's prior agreement; and
 - 2.4.8. obtain/utilize LM Aero's Quality Concern Notification (QCN) located at <https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/quality-requirements/forms.html> and submit as required via email to: sustainment_qa.gr-aero@lmco.com (*sustainment_qa.gr-aero@lmco.com*).

3. QUALITY MANAGEMENT SYSTEM REQUIREMENTS

- 3.1. Seller shall maintain a Quality Management System (QMS) acceptable to Buyer for products and services purchased under the Statement of Work, that complies with Aerospace Standard AS9110--Quality Management Systems - Requirements for Aviation Maintenance Organizations.



- 3.2. Independent certification/registration is required under the Industry controlled AS9104 process by an accredited Certification Body (CB) listed in the "Online Aerospace Supplier Information System" (OASIS).

4. MAINTENANCE / GROUND OPERATIONS

- 4.1. In performing maintenance on aircraft under this PO, Seller shall comply with the requirements set forth in the Defense Contract Management Agency Instruction – DCMA INST 8210-1, as identified in the SSOW or other contractual documents. Seller shall prepare, maintain, and enforce, safe and effective specific written Procedures that describe applicable aircraft ground operations at all operating facilities. For Seller operations with no existing approved Procedures, Seller should provide its Procedures, including portions thereof, to Buyer's Sustainment Quality Representative as soon as possible, but prior to induction of first aircraft. Procedures may be approved in sections. However, Seller shall not conduct ground operations until the applicable Procedure has been approved (interim or final approval) in writing by Buyer's Sustainment Quality Representative and the cognizant Government Flight Representative (GFR).
- 4.2. For contracts under a Direct Commercial Sales construct, Seller will provide procedures in the DCMA INST 8210-1 prescribed formats, or equivalent, for approval by Buyer's Sustainment Quality Representative.
- 4.3. NOTE: All procedures shall be written in the English language and contain the appropriate translation for Seller's local workforce.
- 4.4. When identified in Buyer's PO, seller may be required to perform field service repair on a component at buyer's customer location. In this situation:
 1. the seller must comply with applicable clauses of the buyer's DCMA INST 8210-1, Consolidated Ground Operations procedures (CGOPs). Procedures will be provided by buyer's Sustainment Quality Representative.
 2. The seller must comply with the following aviation maintenance personnel CGOP required training:
 - a. All persons:
 - i. FOD & Tool Control
 - ii. Use of Gases, inert and flammable
 - iii. Handling of HAZMAT

NOTE: If seller needs to access or disturb surrounding areas of customer's air vehicle, seller must notify buyer's On Site Representative prior to proceeding with repair or maintenance so that buyer can maintain proper control and documentation of those areas.

5. SELLER OWNED/OPERATED FACILITY ACCESS

- 5.1. Buyer and Buyer's Customer shall have the right to conduct investigations, surveillance and/or audits of Seller's facilities at any reasonable time.
- 5.2. Seller shall provide or obtain for Buyer, Buyer's customers and regulatory agency personnel, access to any and all facilities where work is being performed or is scheduled to be performed, including those facilities of Seller's agents and subcontractors, in order to perform Item inspections, acceptance, surveys or system/process surveillance as part of verification of conformance to the requirements of the PO. Seller's denial of any such access may result in



inactivation of Seller's approval. Seller shall include the provisions of this facility access requirement in its POs with its agents and subcontractors.

5.3. Seller shall provide the following:

- 5.3.1. Suitable facilities at Seller's and Seller's sub-tier suppliers' operating locations for Buyer, Buyer's Customer and regulatory agency representatives, in order to perform Item inspections, surveys or system/process surveillance, and
- 5.3.2. High speed internet access (DSL or wireless) for Buyer or Buyer's Customer representatives.

Note: When work is being performed at a military customers facility, the buyer will coordinate applicable access for their visits/requirements.

6. PREVENTION OF SUSPECTED UNAPPROVED PARTS

- 6.1. Seller shall only acquire parts and components that are to be installed on Aircraft, from Lockheed Martin Aeronautics' approved sources.
- 6.2. If not, buyer furnished material Seller shall establish and maintain a control plan that identifies and prevents the use of unapproved and suspected unapproved parts.
- 6.3. Seller shall notify Buyer's Sustainment Quality Representative utilizing the LM Aero's Quality Concern Notification (QCN) as soon as practical, but not later than five working days, after discovering or acquiring information of any part for which there is objective and credible evidence indicating that the part is likely an unapproved or counterfeit part.

NOTE: *This includes articles received from an external provider who does not have LM Aeronautics' direct delivery authorization; new articles that do not conform to the approved design/data; articles that have been intentionally misrepresented, including counterfeit parts; and articles with incomplete or inappropriate documentation.*

7. CALIBRATION

- 7.1. Seller shall maintain a system for calibration and maintenance of tools, jigs, and inspection and test equipment that is compliant with an industry-recognized standard (e.g., ISO 17025, ISO 10012-1, ANSI Z540).
- 7.2. Seller shall notify Buyer's Sustainment Quality Representative utilizing the LM Aero's Quality Concern Notification (QCN) as soon as practical, but not later than five working days, after receipt of notification of out of tolerance inspection and test equipment.
- 7.3. If calibration is outsourced, per 2.A of this document, Seller shall ensure these requirements are imposed on its sub-tier suppliers.

8. BUYER-FURNISHED/GOVERNMENT FURNISHED, SELLER-MANUFACTURED OR SELLER-OWNED TOOLING

- 8.1. Seller shall include in its documented quality system, written procedures for the control, maintenance, and calibration of special tooling, jigs, inspection and test equipment, and other devices used in MRO&U processes. These procedures shall include, but not be limited to, tooling trial run requirements and periodic inspections.



9. SPECIAL PROCESSES CERTIFICATION REQUIREMENTS

- 9.1. For special processes listed in QCS-001, located at www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/quality-requirements/control-specs.html, Seller shall utilize the approved process sources listed in QCS-001. For special processes not covered by QCS-001, Seller shall have a process for approving special process sources. Unless identified on the drawing, Seller is not required to utilize QCS-001 sources when processing the following:
- Standard hardware (i.e., nuts, bolts, washers, etc.) ordered to military, federal or industry specifications or standards (i.e., MS, AN, NAS, etc.)
 - Metallic raw material (i.e., plate, sheet, bar, extrusion, etc.)
 - Perishable tooling and Tool Service Requirement List (TSRL) items.
 - Material furnished by Buyer
- 9.2. Seller may use Nadcap approved process sources for Industry Standard processes controlled by QCS-001. Seller may access Nadcap approved sources at www.p-r-i.org, then proceeding to www.eAuditNet.com. Seller's utilization of Buyer approved or Nadcap approved sources does not relieve Seller from the obligation to ensure process source is in full compliance with applicable process specifications and to deliver conforming product.
- 9.3. Seller must provide a special process capability list that includes: **process description, specification, governing document. (This would be for work done onsite OR at an outside source)**

10. EVALUATION OF NEW CAPABILITY

- 10.1. Prior to the first application of a new maintenance process (i.e., the first time Seller performs a particular modification, repair, overhaul, or upgrade), Seller shall perform an evaluation of the released technical and work control documentation, required personnel and process qualifications (including special certifications), tooling requirements, etc., to ensure that all maintenance specifications/requirements are correctly understood, personnel are capable of performing the maintenance in compliance with established requirements, and tasks are planned accordingly.
- 10.2. During in-process execution of the new maintenance process, but no later than upon completion, Seller shall evaluate the adequacy and effectiveness of the planning and verify execution of the planned tasks resulting in the successful restoration of the aircraft in conformance with all released technical specifications and conformance to all approved test requirements and procedures.
- 10.3. Seller shall retain documented information on the results of the evaluation of the new maintenance process and make them available to Buyer upon request. Seller need not repeat the evaluation on subsequent applications of the maintenance process, provided the procedure is not altered and records of the original evaluation are available.
- 10.4. Seller shall have the ability to evaluate, verify and document corrections, changes and quality conformity steps to any first application of a new maintenance capability.

11. CORRECTIVE ACTION, PREVENTIVE ACTION, REQUEST AND REPORTING

- 11.1. Seller shall establish and maintain a documented system to investigate nonconformances, perform root cause analysis, and provide trend data.



- 11.2. Seller shall ensure effective corrective and preventive action is taken to prevent, minimize, or eliminate non-conformances.
- 11.3. Seller shall assess all Buyer-identified nonconformances and take appropriate actions to ensure causes of nonconformances are corrected.
- 11.4. Seller shall provide detailed Root Cause Analysis & Corrective Action Plan upon Buyer's request.
- 11.5. Seller shall notify Buyer's Sustainment Quality Representative utilizing LM Aero's Quality Concern Notification (QCN), or equivalent, approved channels within 10 days of adverse action taken by Seller's customer, US or International Government Agencies (e.g., DCMA, FAA, CAA, OSHA, DoD, NMAA, EPA, etc.), Third-Party Registrar, or other certification/accreditation body, to include but not limited to, any of the following:
 - 11.5.1. Issuance of any findings associated with Seller's Quality Management System or processes, or for any products and services purchased under this Statement of Work
 - 11.5.2. Issuance of any finding by a Third-Party Registrar
- 11.6. Seller shall provide within 30 days of the written notification, the approved corrective actions taken in response to any adverse actions reported in 11.4-11.5 above.
- 11.7. Seller shall permit Buyer access to data in OASIS and Nadcap databases including registration documentation, certification, audit reports, findings, corrective actions, etc. Buyer reserves the right to input repetitive escape data and major audit findings regarding Seller into the relevant OASIS database records for review by the Seller's Registrar or Certification Body.

12. CONTROL OF NONCONFORMING PRODUCT / MATERIAL REVIEW PROCESS

- 12.1. Seller's documented quality management system shall provide for the identification, documentation, and segregation of nonconforming material.
 - 12.1.1. Nonconforming material / Unserviceable components shall be stored in a secure location to prevent unintentional use. The unserviceable status of the component should be clearly declared on a tag or other suitable means, together with the component identification data and any information useful to define actions necessary to be taken. Means should be provided to prevent unwanted separation of this tag from the component. **Note:** *Unserviceable components are required to be physically segregated from serviceable components.*
- 12.2. For nonconformance in which there is no released technical documentation or Seller-induced "Workmanship" (see Section 17), Seller shall request Buyer's disposition in accordance with prescribed program procedures. LM Aero Engineering shall maintain all Material Review Board (MRB) Authority for dispositioning any suspect parts, subassemblies, or aircraft conditions.

13. QUALITY RECORDS

- 13.1. Seller shall record all details of maintenance work carried out. At a minimum, Seller shall retain records necessary to prove that all requirements have been met for issuance of the Certificate of Release to Service (CRS), including all release documents.
- 13.2. Seller shall:
 - 13.2.1. Retain a copy of all detailed maintenance records and any associated maintenance data (i.e. nonconforming material, disposition, corrective actions, etc.) for at least three years from the date the aircraft was released from Sellers MRO&U facility or final payment, whichever is longer.



- 13.2.2. Retain a copy of records of all QCS-001 “work”, identified in section 10, for at least seven years after final payment or longer periods, if specified in the SSOW or Purchase Order.
- 13.2.3. Request record disposition instructions from Buyer at the end of the retention period. Disposition may include destruction or shipment to buyer’s facilities.
- 13.2.4. Records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.
- 13.2.5. Computer backup discs, tapes, etc. shall be stored in a different location from those containing the working discs, tapes, etc., in an environment that ensures they remain in good condition.
- 13.2.6. Upon Buyer’s request, Seller shall forward records to Buyer at no additional cost, price, or fee to Buyer.
- 13.2.7. In the event of dissolution of business between Buyer and Seller, Seller shall notify Buyer’s Sustainment Quality Representative within ten (10) business days to make arrangements for transferring all retained maintenance records covering the last three years to Lockheed Martin Aeronautics Company.

14. QUALITY & PLANNING ASSURANCE REQUIREMENTS

- 14.1. Seller’s documented quality management system shall provide adequate review and surveillance of quality control and Buyer’s Customer’s related buyoffs.
- 14.2. Seller’s documented quality management system shall ensure placement / removal / addition of safety of flight hold points are coordinated with Buyer’s Sustainment Quality Representative and approved by Buyer’s Customer Representative. Seller shall not bypass the identified hold points.
- 14.3. Seller’s Maintenance Planning documentation shall implement appropriate customer hold points in accordance with the applicable program information or Buyer’s Customer Representative mandated inspection points and/or product audits.

15. GENERAL INSPECTION REQUIREMENTS

- 15.1. Incoming Inspection
Seller shall perform an incoming inspection IAW program information and document any physical or functional deficiencies within the program system of record.
- 15.2. Scheduled Work Package (SWP) and Accepted Over and Above (O&A)
Seller shall ensure all requested maintenance actions performed by Seller (that have removed, disassembled, modified or otherwise disturbed any aircraft system or component) are fully completed/restored and verified to be in compliance with released engineering requirements and properly documented within the program system of record.
- 15.3. Delivery Prep
Upon successful completion of all required maintenance actions, inspections and functional tests, Seller shall perform Flight Inspection and Servicing IAW applicable procedures and ensure all identified physical or functional deficiencies that would preclude flight safety have been corrected and documented within the program system of record.

16. NOTIFICATION OF POTENTIAL SAFETY ISSUES

- 16.1. Seller shall notify Buyer’s Sustainment Quality Representative as soon as practicable, but not later than 24 hours, after discovering or acquiring credible information of any nonconformances and/or deficiencies that may result in a safety impact for systems, subsystems, assemblies,



subassemblies or parts integral to a system, acquired by, or serviced under this Statement of Work.

16.2. Seller shall provide a written notification utilizing the LM Aero Quality Concern Notification (QCN), or equivalent, within five working days that includes:

- A summary of the defect or nonconformance;
- A chronology of pertinent events;
- The identification of potentially affected items to the extent known at the time of notification;
- A point of contact to coordinate problem analysis and resolution; and
- Any other relevant information.

17. GROUND MISHAP/EVENT REPORTING

A ground mishap/event is an unplanned occurrence or series of occurrences resulting in injury or damage to aircraft or support equipment. This pertains to damage to the aircraft or equipment where there is no intent for flight (e.g., damage during maintenance operations, or prior to engine start, or after engine shutdown). Damage vs Workmanship determinations can be made based on intent.

- **Damage:** loss, injury, or harm that is the result of a task, operation, or action which was not originally planned or intended. For example, a mechanic was pushing a stand next to the aircraft and scratches the inlet coating. The intent of the task was to move the stand, not to scratch the coating; this would be considered reportable damage.
- **Workmanship:** damage to the aircraft that is the result of a task, operation, or action which was originally planned or intended, but the end result was not within allowable limits. For example, a mechanic was scraping coating off an inlet and removed too much. The intent of the task was to scrape the inlet coating, but too much was removed. This would not be considered reportable damage.

- 17.1. Seller induced "Damage" shall be immediately reported to Buyer's Sustainment Quality Representative or designated site lead. All work on affected assets shall be suspended until Buyer's approval to continue with repair is provided in writing.
- 17.2. Subsequently, Seller shall provide a written notification of the mishap/event utilizing the LM Aero Quality Concern Notification (QCN), or equivalent, within five working days. (If repair/replacement costs are expected to exceed \$25,000, report within 24 hours.)
- 17.3. Seller shall provide monthly updates on the investigation status until Root Cause Analysis & Corrective Action Plan has been completed, fully implemented, and closed.
- 17.4. Seller induced "Workmanship" shall be reported, categorized, and processed in accordance with Section 12.

18. QUALITY METRICS REPORTING

- 18.1. Buyer will define metrics reporting requirements to seller at time of execution.