

Appendix QX

Supplier Quality Requirements

REVISION RECORD

The latest issue to this document is the version that is available on the Lockheed Martin Aero website:
<http://www.lockheedmartin.com/material-management>.

Revision	Date	Changes
Original Issue	03/28/2002	Completely revised / replaced QR to separate and clarify Program, Commodity, and General application of Quality Requirements based on Program application. This serves as a “pilot” version for other procurements. Adds Revision Record, Table of Contents, and Tables to enable supplier to identify the LM Program and understand which quality system and quality requirements apply based on his product (commodity) type.
Revision A	5/31/2002	Added definition of “Item or Items” in Document Overview paragraph; clarified First Article Inspection (FAI) requirements in paragraphs 2.3.1, 3.3, & 3.4; added the words “as applicable” to paragraph 2.3.6.1.8
Revision 2	8/11/2003	Changed revision scheme to numbers to align with LM AeroCode guidelines. Removed references to all other Programs to dedicate QX to F-35 JSF suppliers only. Added COTS to Table 2. Added Service Providers to Table 1. Added Test Items to Table 1 and incorporate self-deleting requirements for Test Items. Refined Deliverable Software requirements in Table 1. Enhanced FAI requirements in Para. 3.3 to include instructions for FAI in 3D Model Environment. Incorporated tooling quality requirements. Added Para. 3.5.4 prohibiting use of freeware, shareware, etc. without IPT approval. Aligned NCM control & QCS-001 sections with Appendix QR changes. Added F-35 JSF Critical Part categories to Para. 4.13. Added additional calibration references to Para. 4.19. Renumbered paragraphs and tables to align with changes. Updated web links to coincide with new websites.
Revision 3	2/13/2006	Removed references which limited the entire Appendix QX to F-35 (JSF) suppliers only – Appendix QX replaces Appendix QR in its entirety. Major re-alignment of paragraphs to enhance flow of quality requirements. Revised tables to include industry standards and program specific requirements. Added AS9100 requirement for F-35 (by 1 Jan 2010) and

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- 1.1** **Quality System Changes:** Seller shall notify Buyer, in writing, of any adverse change in its quality system status resulting in the loss of 3rd Party registrar's certification status, or any action taken by Seller's customer, the Government, Federal Aviation Agency (FAA) or Civil Aviation Agency (CAA). Seller shall also notify Buyer upon any sale, relocation or transfer of Seller's manufacturing operations or upon any change in the quality organization, process or procedures that could affect conformity verification of Items. Notification by Seller shall be made within 30 days of such changes.
- 1.2** **Language:** Unless otherwise authorized by Buyer in writing, all records, reports, specifications, drawings

- 1.10 Calibration:** Seller shall maintain a documented calibration system for the calibration and maintenance of tools, jigs, inspection and test equipment. Seller's calibration system shall be compliant to prevailing industry requirements in accordance with Seller's Quality Management System ("QMS"), including without limitation ISO 17025, ISO10012-1, ANSI Z540.
- 1.11 Tooling as a Media of Acceptance:** Seller shall utilize mandatory/required tooling provided by Buyer and designated as "Production Type" tooling to be utilized for Item manufacture as Seller's media of inspection and for Buyer Source Acceptance for those part features created by, or depicted by, such tooling, e.g., contours, hole locations, and profiles.
- 1.12 Interchangeable Replaceable Program Requirements:** Seller shall comply with Interchangeable Replaceable (I/R) requirements specified in the PO and Tooling Manual (TMS-MC-015), Appendix A, C, and G.
- 1.12.1 F-16 Program** – Seller shall conduct I/R demonstrations in accordance with the requirements of 16PP026 for those parts listed in 16PR100.
- 1.12.2 F-22 Program** – Seller shall conduct I/R demonstrations in accordance with the requirements of 5PD00753C and 5PD00040.
- 1.13 Buyer-Furnished, Seller-Manufactured or Seller-Owned Tooling:** Seller's documented quality system shall include written procedures for the control, maintenance, and calibration of special tooling, jigs, inspection and test equipment, and other devices used in manufacturing processes.
- 1.13.1 Buyer Furnished Tooling:** Seller shall comply with the requirements of Tooling Manual (TMS-MC-015) concerning Buyer-furnished controlled tooling, tooling tools, and production tools.
- 1.13.2 Seller-Manufactured Tooling:** Where Seller manufactures tooling for Buyer-Designed Items, Seller shall comply with the requirements of Tooling Manual (TMS-MC-015) concerning Seller-manufactured tooling that is identified as a non-recurring cost in this PO.
- 1.13.3 Seller-Owned Tooling:** Seller shall comply with the requirements of Tooling Manual (TMS-MC-015) concerning Seller-owned tooling used in the production of product for this PO.

TABLE 1 – Quality System Requirements by Commodity

Commodity / Product	Quality Management Systems			Fit Check	Software	FAI	FOD	Measurement Plan	Variability Reduction
	QMS See Note 1	AS / EN 91000 (F-35) See Note 3	ISO9001: 2000 (F-35 or Service Centers)	Q3R (F-16 and C-130 only)	Q6R	AS/EN 9102 (Q2A)	Q4R	Q30 (F-35)	AS/EN9103 (F-35)

LM Aero Build-to-Print Metallic and Non-Metallic Parts, Castings & Forgings (including finished castings and forgings), Sheet Metal, Machined Parts, Structural Assemblies/Details, Honeycomb

X X X X X X X

NOTES – TABLE 1

- (1) Legacy programs: Seller shall maintain an ISO, AS or Military Standard equivalent quality system acceptable to Buyer. Legacy programs are all programs except F-35 (JSF). Third party registration ISO/AS/EN Quality Management Systems (QMS) from an ANSI-ASQ National Accreditation Board (www.anab.org) approved registrar is preferred.
- (2) Supply Service Providers - A company whose specialty and core business is integration and management of supply chain operations. Services may include, without limitation, kitting, transportation, distribution & warehouse management, inventory management tasks such as tactical inventory forecasting and optimization, supplier management for selected classes of supplies, and global material deployment and distribution.
- (3) Commodities requiring an AS/EN9100 QMS must be compliant no later than 1 January 2010. Until that date, Seller, at a minimum, shall meet the requirements of ISO 9001:2000.
- (4) Seller’s quality clause Q6R applies to both deliverable and non-deliverable software.
- (5) F-35 program specific Items may be eligible for exclusion from First Article Inspection (FAI) requirements per quality clause Q2A. To determine exclusions to Quality Clause Q2A First Article Inspection requirements, access the standard hardware database (ASPECT) and the resulting document, 2GNA00001 – Approved Manufacturer List for Standard Parts, found on the F-35 JSF Data Library.
- (6) Service Centers each act on behalf of Buyer as a Licensee. Licensee may provide spare(s) Item(s) or perform repair and/or rework of Buyer Items.

TABLE 2 – Unique / Limited Quality System Suppliers

Commodity / Product	QMS (See Note 1)	AS/EN9120 (See Note 3)	FAI AS/EN9102 Q2A
Distributors (1 and 3)	X	X	
Commercial Items or Commercial Off the Shelf Items (COTS) (1 and 2)	X		

NOTES – TABLE 2

- (1) Seller shall maintain an ISO, AS/EN or Military Standard equivalent quality system acceptable to Buyer.
- (2) Commercial Item or Commercial-Off-The-Shelf (COTS) - Any Item currently listed in a Manufacturer's or Distributor's catalog with an established part number. Only the published catalog number and description is used to purchase. Seller defines the product performance, engineering specifications, reliability, industry certification and operational environments.
- (3) Distributors must be compliant to AS9120 no later than 1 January 2008. “Distributor” is defined as any Seller that is buying Items from other suppliers and selling them to Buyer without adding value to the item. Repackaging shall not be considered a value-added task for the purpose of this definition.

2.0 **Point of Acceptance:** The point of acceptance is indicated on each PO issued. The Point of Contact for Buyer Procurement Quality Assurance Representatives (PQARs) can be found at: <http://www.lockheedmartin.com/material-management> > Quality Requirements > Information. Seller is responsible for ensuring all requirements of this PO have been met. Buyer shall have the right to conduct surveillance and/or audits at any time, without increase in price, cost or fee to Buyer.

Items designated “Buyer Accept at Source” shall be subject to final acceptance by Buyer’s PQAR at Seller’s facility prior to shipment.

Items designated “Buyer and Government Accept at Source” shall be subject to acceptance by Buyer’s PQAR and the assigned Government Representative at Seller’s facility prior to shipment.

Items designated "Seller at Source" shall be be

2.6 **Material Review Board Submittals:**

2.6.1 - Seller's request for Buyer MRB disposition of Seller or Buyer-designed Items shall be submitted in accordance with Buyer instructions located at:

<http://www.lockheedmartin.com/material-management>

and agreed upon with Seller responsible for the Item. Condition of Supply document shall define and document the special manufacturing, testing, and/or certification instructions to be achieved prior to delivery of Item(s), (e.g. Forward Fuselage, Wing, Center, Aft Fuselage, etc.), Line Replaceable Components (LRC), systems/system build software, harness assemblies, and minor airframe components, (e.g. panels, doors, etc.).

2.10 **Conformance Verification for Engineering Test Units, Engineering Brass Boards, Lab-Use-Units or Non-Production Configuration Hardware (Applicable to F-35 JSF ONLY):** Variation Management of Key Characteristics (AS/EN9103) and First Article Inspection (AS/EN9102) are not required for the Items. Prior to shipping such Items, Seller shall perform the following:

- Verify correct detail parts are installed via parts list analysis
- Verify correct product marking
- Verify envelope dimensions
- Document the verification to this level only as a matter of record (not an FAI documentation)
- Verify operation performance per the current Acceptance Test Procedure (ATP), as applicable
- Verify performance against respective Performance Base Specification (PBS), or Statement of Work (SOW), as applicable
- Obtain Buyer acceptance of Items as indicated on this PO