

Aerospace Composite Center

Purchase Order Quality

Requirements (QRs)

[MI 7.4-18 Rev AB]

This document contains the quality requirements that are applicable when invoked by Aerospace Composite Center, LLC ("ACC") Purchase Orders. Use of this document is required for Contract Review and Quality Planning Activities.

QR # QC1000 – Kitting Quality Requirements Compliance Checklist

New – 04/18/03

Supplier is required to review all purchase order requirements (including applicable ACC Quality Requirements) for each constituent part/material of the supplied kit and then confirm compliance of the total kit to these requirements via completion of QR FORM QC1000 for each individual kit supplied prior to shipment to ACC. A copy of this completed form is to be included with the certificate of conformance transmitted with each shipment to ACC-Boeing.

QR # QC1206 – Government Source Inspection

New: 05/11/11

Government inspection is required prior to shipment from Seller's facility.

Upon receipt of this contract, Seller shall promptly notify and furnish a copy of this contract and all subsequent change orders to the government representative who normally services Seller's facility so that the appropriate planning for government inspection can be accomplished.

During performance of this contract, the Seller's and Seller's subcontractor's Quality and Manufacturing processes are subject to review, verification, and analysis by authorized Government Representatives. The inspection required by this clause may occur at any manufacturing or processing sequence as specified by the government representative.

If a government representative does not normally service Seller's facility, Seller shall furnish a copy of this contract to the nearest Defense Contract Management Agency (DCMA) office. In the event the Government representative or DCMA office cannot be located, Seller shall immediately notify Buyer's Authorized Procurement Representative.

Evidence of government inspection (Eagle Stamp or DCMA representative signature) shall be shown within the shipping documentation.

Government inspection of goods or services provided hereunder shall be performed at Seller's address shown on this contract or contract change unless a different address is specified.

QR # QC 1301 – BQMS Requirements for Suppliers D6-82479**New – 10/25/2021**

Supplier Quality Management System requirements for The Boeing Company are contained in this document.

QR # QC1305 – Material Substitution Prohibition – Boeing H900 Paragraph 26 Flowdown (Modified).**New: 4/18/2013****26. MATERIAL SUBSTITUTION PROHIBITION****A. Unauthorized Material Substitution (General)**

Unauthorized material substitutions are not permitted on Buyer's Goods. Unauthorized material substitution includes any deviation from the engineering definition of a raw material. Engineering definition includes Buyer design drawing and applicable specifications, product specification, form, size, shape, chemistry, melt method, origin, temper/condition, product testing or surface finish. Alternate materials specified in the engineering definition (and often described as approved material substitutions therein) do not constitute unauthorized material substitution. Terms and definitions for metallic materials and processing used herein are clarified in ARP1917.

Contact Buyer's Authorized Procurement Representative for details regarding deviations to authorized materials. Seller agrees and understands that such deviations only apply to this purchase contract, and only as indicated in the Buyer's authorized document.

B. Metallic Materials (Specific)

Temper or Condition Conversion - Unless specifically authorized by the engineering definition, conversion of a raw material (i.e. heat treat to change the temper or condition of the material) constitutes material substitution of the condition provided by the manufacturer.

Metallic Raw Materials – Buyer's engineering drawings may refer to obsolete or superseded specifications covering several forms, thicknesses, widths, etc. of the alloy or alloys. The required characteristics of these materials are defined not only by the objective test standards of the specification, but by the processes/methods by which this final form is achieved. These requirements are often captured in the definitions of the required material forms, and may not be explicitly called out in the detailed requirements. The raw material certification results from both the process used to make it and the tests to verify basic properties.

Seller shall ensure that metallic materials covered by current or obsolete/superseded specifications are produced using the standard industry practices designed strictly for the production of stock to the specified thickness, diameter, width or cross sectional area, achieved by thermo-mechanical processing or casting process. Chemical, electrochemical and mechanical methods used for the removal of surface scale or contamination, or the production of the required surface finish, in accordance with the material specification are acceptable. Raw material must not be re-certified with

respect to thickness, diameter, width or cross sectional area or product form. Machining or cutting of thicker product or other product forms shall not be supplied in lieu of specified product unless specifically authorized by Buyer. Raw material certifications for material or parts shall reflect the form and size of the raw material as originally manufactured by the raw material producer.

C. Specification Supersession:

For government specifications and standards canceled after June 1994, Seller and subcontractors at all tiers shall use the last active revision of the canceled specification and standard until an acceptable replacement is included in the requirements of this Contract. Contact the Buyer’s Authorized Procurement Representative in the event of any inconsistency in applicable specification or standard.

D. Reports (Full Pedigree from melt to final product) - Raw material certifications shall show clear traceability to the manufacturer(s) of the raw material including ingot source, all thermo-mechanical processing (i.e. forging, rolling, drawing, etc), heat treatment, chemical processing and inspections as required by applicable raw material specification requirements.

E. Chain of Custody (Disguising intermediate ownership) – Suppliers shall not disguise the pedigree of material or chain of ownership by removal of a previous supplier’s name, nomenclature or identification.

F. Source of Additional Information - Buyer’s Authorized Procurement Representative.

G. The substance of this Article shall be flowed in all subcontracts at every tier.

QR # QC1400 – Notification of NADCAP Findings

New: 11/14/16

Supplier shall promptly notify ACC via written communication to ACC Buyer and/or Supplier Quality Engineer of any documented findings resultant from NADCAP audits.

QR # QC1900 – Nonconformance Cost Recovery

New - 12/12/03

Revised: 10/25/2021

Supplier is subject to charges for recovery of costs associated with any/all supplier-responsible nonconforming parts/materials. Such charges will at a minimum include:

Charge Category	Part/Material Value ≤ \$500	Part/Material Value > \$500
Administrative Charge to process Nonconformance Documentation*	\$250/Nonconformance Document	\$1000/Nonconformance Document
Rework required at ACC-STL**	Minimum of \$50/discrete unit	Minimum of \$500/discrete unit
Correction of part mark errors/omissions at ACC-STL**	10% of discrete unit value	\$250/discrete unit

Additional charges may also apply where:

- parts or materials, as supplied by ACC and/or its customer, require scrapping at the supplier as a result of the supplier's actions.
- supplied parts/materials require extraordinary rework at ACC or its customer.
- ACC suspects supplied product to have a nonconformance, and additional inspection/testing is required to validate conformity.

*NOTE: Charges will be assessed for nonconformance tags initiated through the identification of nonconforming parts/materials by ACC and/or its customers as well as those initiated as a result of suppliers' own requests for disposition of nonconforming parts/materials.

**NOTE: The location of rework (ACC vs. Supplier) associated with nonconformances received by ACC will be at the discretion of the ACC Buyer in order to ensure the timely supply of conforming parts/materials.

QR # QC2000 – ACC-Boeing Supplier Quality Assurance Manual

New – 12/12/03

Revised – 02/26/09

In the performance of this purchase agreement, the Supplier is required to comply with the latest revision of the ACC Aerospace - St. Louis Supplier Quality Assurance Manual (MI 7.4-16). The contents of this manual, as well as all required forms, may be accessed at the following ACC Supplier Portal:

[Need](#) website

Where Quality Requirements (QRs) other than QC2000 invoked by a ACC purchase order are in conflict with the ACC Supplier Quality Assurance Manual, such QRs will supersede requirements defined within the manual.

QR # QC2002 – Engineering Rev Level Identification

NEW – 07/10/03

Seller shall record the end item part number, drawing level and engineering changes to which the delivered item has been manufactured to on the packing slip.

QR# QC2005 – All Consigned Pre-Preg Material

New - 07/10/03

Pending ACC – Boeing lab approval, all consigned pre-preg material will be allowed to be shipped up to 180 days from date of manufacture.

QR# QC2011 – Records of Inspections, Test and Process Controls

New - 08/03/01

Revised: 05/12/04

Seller shall maintain records of all inspections, tests, and process controls associated with fulfillment of this purchase order contract. Unless alternate record retention requirements are specified elsewhere in this Purchase Order or its attachments, (i.e. engineering specifications, additional ACC Quality Requirement which specified a longer retention period, etc.) these documents shall be on file and available to ACC for four (4) years following the end of the calendar year in which the final entry was made or three years after the final payment under this contract, whichever expires first. At any time

during the retention period, at ACC's request, Seller will deliver said records, or any part thereof, to ACC, at no additional cost to ACC.

**QR # QC2016 – Boeing Hardness/Conductivity Testing Requirements
New - 09/23/02**

Note: For overload contracts not involving machining operations for machined parts or sheet metal operations for sheet metal parts, these requirements do not apply.

Note: Exceptions to the following hardness testing requirement is granted for small complex geometry parts which, as a result of geometry do not allow for proper testing set-up or are subject to degradation as a result of testing. Engineering definitions that require hardness testing of a small, complex geometry part shall be coordinated with the procurement agent for changes.

Hardness and conductivity testing shall be performed in accordance with P.S. 21203 and/or P.S. 21207 (unless otherwise specified by engineering specifications) as specified below. This requirement must be met, regardless of the source for heat treatment of the material. Unless otherwise specified by the engineering definition, the material shall also meet the acceptance requirements of P.S. 23023. Records of this testing shall be maintained by the Supplier. Hardness and conductivity is to be performed after all final operations, such as machining, forming, welding or thermal treatment. Hardness testing through any surface plating or coating is not recommended, and in no case shall hardness test impressions be made through a surface plating or coating which is harder than the base material. Only personnel qualified in accordance with Boeing IDS Process Specifications P.S. 21203 or 21207 (unless otherwise specified by engineering specifications) shall perform hardness and/or conductivity testing.

Material	Aluminum		Other (except Titanium) ¹	
	Hardness	Conductivity	Hardness	Conductivity
Test				
Machined Parts	Sample ²	100%	100%	None
Structural Sheet Metal Parts	Sample ²	100%	100%	None
Castings	100% ³	None	100%	None
Forgings & Pressings	Sample ²	100%	100%	None
Composites	None	None	None	None

- 1 Hardness and conductivity testing is not required for Titanium material of any kind.
- 2 Sampling plans should conform to sampling requirements noted below.
- 3 If values for a particular material type are not listed in P.S. 23023, hardness testing is not required.

Sampling Requirements:

Sampling inspection is allowed except for Mandatory Inspection Criteria (MIC's) and Key Characteristics (KCs) noted on the engineering definition or if otherwise specified in the ACC purchase order, engineering definition and/or Special Manufacturing Instructions (SMI). MIC's and KCs shall be verified on each part with variable data results recorded and made available on request. Sampling plans shall be in accordance with ANSI/ASQC Z1.4 for attribute inspections or ANSI/ASQC Z1.9 for variable inspections. Single sampling plan for Normal Inspection, General Inspection Level II, with no greater risk than an acceptance quality level (AQL) as noted in the table below for specific product

types. Use of a sampling plan based on this requirement will constitute an approved sampling plan. Deviations from this requirement shall be submitted to ACC for review and submission to Boeing A & M St. Louis. Such deviations are subject to ACC Boeing A & M - St. Louis disapproval.

Product Type	AQL
Machined Parts	2.5
Structural Sheet Metal Details	4.0
Castings, Forgings, and Pressings	4.0
Composites	4.0

QR# QC2017 ACC – Hardness / Conductivity Test for Machined & Sheet Metal Parts

New - 08/03/01

Revised: 05/12/04

This QR has been superseded by QR # QC2016 – Boeing Hardness/Conductivity Testing Requirements. If QC2017 ACC is invoked by ACC purchase order, please ensure compliance with QC2016 instead.

QR# QC2018 ACC – Castings, Forgings and Pressing Requirements

New - 08/28/01

Revised: 03/07/02

Seller of castings, forgings and pressings shall in preparation for delivery:

1. Copies of test reports for “fracture critical and fracture critical traceable” hardware shall be included in the shipping documents to ACC.
2. Castings - supplier’s packing sheet/certification shall include the master melt and/or heat number, heat treat lot number as applicable.
3. Forgings and pressings - supplier’s packing sheet/certification shall include the mill heat number, heat treat lot or serial number as applicable.
4. Forging Flash - forging flash shall be removed in accordance with applicable specification requirement.
5. Processing Operations - (tensile testing of forging and pressings) - when forgings or pressings are shipped in the annealed or normalized condition (in accordance with specification requirements) and are to be heat treated later, the tensile specimens shall be heat treated to the specified condition on the end item (i.e. the finished machined part) and tested prior to shipment.

QR# QC2020 – Unconfirmed Failure Rejections

New 9/23/02

In the event hardware delivered on this Purchase Order is rejected and returned by ACC to the Supplier and the Supplier is unable to confirm the reported failure, the Supplier shall provide the following to the Buyer and hold shipment pending ACC disposition:

- Purchase Order Number
- Part Number
- Serial Numbers
- ACC Nonconformance Tag Number
- Applicable test procedures
- Results of special tests performed by the Seller
- Supplier's certification that test procedure used to verify the failure identified by ACC was adequate to detect those failures. Supplier shall provide the number and revision of test procedure(s) used.

QR# QC2021– Supplier CAD/CAM Inspection Data Control per D650-14831-1**New 9/23/02****Revised 10/13/03**

If Supplier has Boeing DPD “Authority” during the entire product manufacturing and verification process and QR # QC2026 is on this ACC Purchase Order, the Supplier is exempt from requirements in this QR. If Supplier has not received and maintained Boeing DPD “Authority” the requirements of this QR apply. Supplier CAD/CAM nominal inspection data derived from master dimension identifier (MDI), master dimension definition (MDD), master dimension surface (MDS) or non-dimensioned features in the engineering CAD model will be verified and stamped as approved by Boeing Supplier Quality Management and returned to the Supplier with a cover letter stating the part number and engineering release to which the data is approved prior to use as inspection media. The data may be submitted for verification in a variety of formats including coordinate data lists, CMM program nominals, dimensioned sketches or drawings, IGES files, etc. The approved data will be used as an element of the inspection media for the specified part number. Any change in Boeing engineering and/or supplier data will require update approval and/or verification by Boeing Supplier Quality Management. Supplier CAD/CAM Q.A. data shall be controlled in accordance with D650-14831-1. Supplier shall maintain records of controlled inspection data and shall make those records available to ACC Boeing upon request.

QR# QC2022– Requirements for Key Characteristics (KCs)**New 9/23/02****Revised 07/10/03**

When Key Characteristics are specified on the drawing or purchase contract, the Seller shall utilize 100% inspection for these characteristics or employ control per SAE AS9103 – Variation Management of Key Characteristics. Data in support of either 100% inspection or control per AS9103 are to be made available to ACC and its customers upon request. Application of AS9103 does not invalidate the need to establish and document compliance with all requirements for First Article Inspection per AS9102.

QR# QC2025– ACC Process Assessment/On-site First Article Review**New 4/18/03**

Prior to production part shipment approval, supplier is required to successfully pass an on-site verification of its First Article part as well as an audit of applicable production part processes/systems including processes and systems designed to ensure serialization and traceability for critical parts as applicable.

QR# QC2026– Quality Assurance for Digital Data per D6-51991

New 10/13/03

When a supplier receives or uses Boeing digital data as authority for design and/or inspection, then the seller must comply with the requirements of D6-51991, Quality Assurance Standard for Digital Product Definition at Boeing Suppliers.

QR# QC2028 – Government Inspection (DoD, DCMA, DCMDI)

New – 08/03/01

Revised – 07/12/2022

Government inspection is required prior to shipment from your plant. Arrangements for government inspection under this contract will be made by U.S. Department of Defense (DoD), Defense Contract Management Agency (DCMA), Defense Contract Management District International (DCMDI), or Defense Logistic Agency (DLA). For the correct DCMDI office, please refer to the DoD Contract Administration Services (CAS) Component Listing at: <http://www.dcma.mil/casbook/casbook.htm>

Upon receipt of this contract promptly provide the government representative who normally services your plant with a copy of the purchase order and also copies of all subsequent change orders so that appropriate planning for government inspection of the goods can be accomplished. Evidence of government inspection shall be shown on all shipping documents.

QR# QC2030 – Fastener Certifications

New - 08/03/01

Revised: 03/07/02

If this contract is for the procurement of ASTM, ASME, SAE, MS, BAC, AN, or NAS specification fasteners, (bolts, nuts, screws, studs, washers, rivets, pins, etc. then the following applies: Certification stating materials, processes (including applicable inspection processes) and finished items were controlled and tested in accordance with requirements of this contract and applicable specifications and that such records are on file (unless the material was Buyer provided). The certification shall identify the original manufacturers and their lot numbers for each lot in the shipment. Multiple lots within a shipment shall be kept separated and clearly identified as to the original manufacturer and the lot number(s). A copy of the certification shall be included with the packing sheet for each shipment.

QR# QC2037 – Quantitative Test Results

New - 08/03/01

Revised: 03/07/02

Seller shall submit with each lot, quantitative results of all tests required by the procurement specification and applicable part drawing. In addition, when part size or configuration prohibits conventional testing, the Seller shall obtain coupons of the same material and heat treat lot. These coupons shall be prepared in such a manner as to facilitate testing requirements and yield acceptable test results. Test results obtained from coupons shall be submitted with each lot and shall be identifiable to the shipment. Sellers other than original manufacturers shall not rework, alter, or modify any manufactured item. Manufacturers performing rework shall, on completion, submit the item to required specification testing. The Seller shall identify unit packages and their associated records. Such identification shall include the heat treat lot number and/or the inspection lot number. Exceptions:

1. Coupon testing will not be required for fatigue life, tension-tension fatigue requirements, and mechanical property testing, except when specifically required by the applicable procurement specification.
2. Coupon testing does not apply to component type fasteners.

QR# QC2040 – Certificates of Conformance

New 08/03/01

Revised: 07/20/2022

Seller shall furnish a certificate of conformance, signed by a company representative, attesting to the compliance with all requirements of this purchase order. Such certificates shall contain lists of individual part/material serial numbers where required by specification. Seller shall maintain records of inspections, tests, and process controls (including sub-tier supplier/processor certificates of conformance/test reports) in accordance with record retention requirements imposed by this contract, which serve to substantiate this certification. The ACC buyer shall be notified and approve any exception prior to shipment.

Certification shall attest to the following:

1. Material used on this purchase order conforms to all applicable specifications. For Raw Material Certificates of Conformance the Material Alloy must be listed on the submitted Certificate of Conformance with the delivery. If material is furnished by ACC, so indicate.
2. All requirements of this purchase order, including specification and revision level conformance, and compliance with applicable ACC Quality Requirements have been met. All special processes performed must be listed on the submitted Certificate of Conformance with the delivery.
NOTE: For assemblies the only information required on the certificate of conformance is for the special processes related to the top assembly part number. If special processes are not defined in the engineering for that part number than no special processes needs to be identified on the C of C. If the part number is a kit containing several details and/or sub-assemblies then each one shall be listed separately and include special process information.
3. Distributors and jobbers must, in addition to the above certification, include the manufacturer's name for each item shipped.

Attach one (1) copy of the certification to the material involved and one copy to the shipping document(s) with each shipment. Performance of this purchase order will not be complete and final payment will not be made unless the required certifications of conformance have been signed or stamped by a company representative and are received by ACC.

NOTE: In addition to the above, suppliers of raw materials will be required to support ACC periodic verification and validation of these materials to specified requirements when and as directed by the applicable ACC Buyer. Support of these activities may require one or more of the following:

1. Periodic submission of the actual raw material test report (mill test report, e.g.) that states the lot of material has been tested, inspected, and found to be in compliance with the applicable material specifications
2. Submission of material samples for subsequent validation testing by ACC, or
3. Substantiation to support the supplier's own program of periodic validation and verification where they are not the raw material manufacturer themselves.

Test reports will list the specifications, including revision numbers or letters, to which the material has been tested and/or inspected and the identification of the material lot to which it applies. When the material specification requires quantitative limits for chemical, mechanical, or physical properties, the test report will contain the actual test and/or inspection values obtained. Certifications for physical properties will likewise show actual values. If Supplier supplies converted material produced by a raw material manufacturer, Supplier is responsible for ensuring performance of all physical tests where the manufacturing process has altered the properties from what had been certified by the raw material manufacturer. The data submitted must reflect the condition of the material as offered for delivery. This data is in addition to the raw material manufacturer's test report required above.

QR# QC2041 – Responsibility for Raw Material Test Report Validation

New 03/14/03

Obsolete – 9/30/07

Revised – 10/09/2015

When Seller utilizes test reports to accept Seller purchased raw material, the following requirements apply:

Test reports shall be checked 100% against Seller's requirements and applicable specifications.

Validation test requirement: Seller shall periodically validate test reports for raw material accepted on the basis of test reports. That validation shall be accomplished by Seller or other independent party through periodic, scheduled tests of raw material samples. Schedules for frequency of tests will be established by Seller based on historical performance of the raw material supplier.

Seller shall retain test reports provided by the raw material supplier, as well as Seller's validation test results as quality records traceable to the conformance of Goods, as specified elsewhere in this Contract.

Buyer and customer furnished raw material is not subject to the validation test requirement. Seller shall implement processes and procedures in support of this clause.

QR# QC2042 – Foreign Object Debris/Foreign Object Damage (FOD) Prevention and Control

New 04/26/16

Revised 10/25/2021

Seller is required to establish and maintain a FOD prevention program in compliance with AS/EN/SJAC 9146 Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space and Defense Organizations or NAS412 Foreign Object Damage/Foreign Object Debris (FOD) Prevention as flowed from the Customer. A FOD Risk Assessment- FOD Prevention Program Assessment is required to be completed by the seller. This assessment is available for use from the IAQG at

<https://scmh.iaqg.org/scmh-make/#1613358327071-941-undefined>

Seller shall implement processes and procedures in support of this clause.

QR# QC2047 – Part Identification & Date of Manufacture**New 3/14/03**

In addition to those part marking requirements identified on the associated blueprints/drawings, Supplier shall identify each item/part with the date of manufacture or a more process-specific lot designation in an area adjacent to the part mark identification. Identification shall be performed using those same methods and materials identified within the applicable part mark specifications referenced on the associated blueprints/drawings.

QR # QC2050- Use of Approved Suppliers / Processors**New 12/04/08**

The customer or design authority governing parts made or procured by ACC may restrict the performance of certain Special Processes required in the manufacture of these parts to a limited group of companies on an Approved Supplier List (ASL). The company actually performing the Special Process (whether it be ACC's supplier or a subcontractor performing work for ACC's supplier) shall be listed on the ASL published by the design authority as qualified to perform that particular Special Process. If the supplier needs information about a design authority's ASL, they should contact the ACC Buyer. It is ACC's supplier's responsibility to impose this requirement on their subcontractors per QC2055.

QR # QC2051 – Disclosure and Approval of Subcontracted Processes**New 5/20/11**

During performance of this contract, the Seller is required to submit to ACC for approval all plans to subcontract fabrication or processing of any kind. Subcontracting any work required to complete this contract without written consent from the ACC buyer is prohibited

QR # QC2055- Flowdown of Purchase Order & Quality Requirements to Sub-tier Suppliers**New 12/04/08**

All Purchase Order Requirements and Quality Requirements invoked on a Purchase Order to a ACC supplier shall be flowed by the supplier to all related sub-tier suppliers (as applicable) performing work on the items listed in said Purchase Order. In addition, it is the supplier's responsibility to provide all documentation/information related to the Purchase Order Requirements and Quality Requirements to its sub-tier suppliers and enforce said requirements.

QR# QC2060 – Boeing 787 Shipping Requirements**New: 6/1/16**

Suppliers of parts for Boeing 787 aircraft are required to mark all crates/packaging with stamped placards indicating which side should be oriented upwards ("This Side Up"). Crate footings shall be oriented on the underside at all times through duration of shipment to ACC, in order for product to be safely unloaded with a fork truck.

QR# QC2074H – Single Lot / Date Parts**New 08/03/01**

Revised: 03/07/02

All parts supplied under this purchase order must be of the same Lot/Date Code.

QR# QC2077D ACC – Use of Boeing Qualified Sources

New 08/03/01

Revised: 05/12/04

This QR has been superseded by **QR # QC3030 – Use of Boeing Approved Special Processes**. If QC2077D ACC is invoked by ACC purchase order, please ensure compliance with QC3030 instead.

QR# QC2080C ACC – Quality System (AS9100)

New 08/03/01

Revised: 10/25/2021

Seller will be certified for SAE AS9100 (EN9100, JISQ 9100), *Quality Management Systems – Requirements for Aviation, Space and Defense Organizations*, AS9120 for distributors or ISO/IEC 17025 for testing and calibration laboratories, by an accredited certification body (CB) listed in the IAQG Online Aerospace Supplier Information System (OASIS) database

QR# QC2081A ACC – Control of Nonconforming Product

New 08/03/01

Revised: 12/04/08

The supplier shall control nonconforming product. This control shall provide identification, documentation, segregation (when practical) and notification of qualified supplier Quality Assurance personnel. The supplier's Quality Assurance personnel, with the assistance of Engineering if required, shall examine nonconforming material to evaluate if the material can and/or should be dispositioned rework to specification or scrap (notify ACC procurement before disposal for possible alternate use).

If product cannot be dispositioned as listed above, it shall be designated for ACC Aerospace - Boeing Material Review Board (MRB) action. The supplier shall document the nonconformance on Form MI 7.4-16(b) – Supplier Nonconformance Record and submit this document to their ACC Buyer. Any nonconformance-related attachments should be enclosed on Form MI 8.1-11 (e) or Form MI 8.1-11 (f) and submitted along with MI 7.4-16(b). The ACC Buyer will assign a ACC External Nonconformance Number and provide it to the supplier to revise Forms MI 7.4-16(b), MI 8.1-11 (e) or MI 8.1-11 (f) and to include on Form MI 7.4-16 (d) – Deviated Supplied Parts Cover Sheet. If ACC elects to bring the nonconforming part in, the supplier shall complete MI 7.4-16 (d) and submit it to ACC along with the nonconforming part, the completed MI 7.4-16 (b) and the ACC External Nonconformance document. In addition, all supplier Certificates of Conformance shall note the ACC External Nonconformance Number. NOTE: The supplier is not authorized to ship the product to ACC unless explicit written direction has been provided by the ACC Buyer. Finally, when the product is delivered to ACC, the ACC nonconformance document number should be included in the product identification even if the nonconformance document has been closed.

The supplier shall retrieve the latest revisions of the documents above from their ACC Buyer or from the public library of the ACC Supplier Portal at http://www.boeingsuppliers.com/terms_conditions/ids_sites.html

QR# QC2087 ACC –Critical Parts Traceability and/or Serialization Information

New 08/03/01

Revised: 09/23/02

This part includes a requirement for inclusion of critical traceability and/or serialization data. Supplier shall provide and certify, at minimum, the following information for each part supplied:

1. Part Number, Part Dash Number, Part Serial Number, Supplier Name, Supplier Internal Control Number
2. Starting Stock Part and Dash Number, Serial Number, Stock Supplier
3. Heat Treat Vendor & Lot Number,
4. Raw Material Specification Number, Parent Plate/Forging Lot Number/Extrusion I-Teat Lot, Producer.
5. Non-Destructive Test Method, Processor, Inspector ID, NDT Technique Number,
6. All Rejection Document Numbers

QR# QC2088 ACC – Boeing Non-Destructive Technique Approval

New 08/03/01

Revised: 05/12/04

Seller shall provide certification that Non-Destructive Testing (NDT) technique approval has been received from Boeing prior to shipment from Seller's facility to ACC.

QR# QC2089– Special Tooling Control (Boeing Integrated Defense Systems (IDS))

New 02/25/09

Revised: 6/1/16

If this Quality Clause is invoked, refer to QC2090.

QR# QC2090 – Property Control

New 03/07/02

Revised: 05/13/02

In the performance of this purchase agreement, the Supplier is authorized to use special tooling and/or test equipment identified herein. Such tooling and/or equipment are considered the property of ACC, ACC customer(s) or the Government and will be used solely for its intended purpose unless otherwise approved by ACC. No such tooling or equipment shall be destroyed, disposed of, or transferred without the written consent of ACC Aerospace – Boeing. In the performance of this contract the Supplier shall be responsible for all periodic, inventory checks, inspections, maintenance and refurbishment or replacement required to manufacture, test and deliver the items ordered under this purchase agreement. The Supplier will be liable for shortages, loss damage or destruction to tooling or equipment provided in support of this purchase agreement. The Supplier's liability shall apply until ACC provides written release of such liability without regard to termination or expiration of this purchase agreement. The Supplier shall promptly investigate and report any loss, damage, or destruction of ACC, Customer or Government tooling or equipment. The reports shall include the following at a minimum:

- Purchase Agreement/Order number

- Description and item identification number
- Estimated replacement or repair cost
- Date and time of loss, damage, or destruction
- Actions taken to prevent further loss, damage, or destruction and to prevent repetition of similar incidents
- Statement that no insurance costs or other means of the subcontract covering loss, damage, or destruction of property were charged to this purchase agreement.
- Security classification of the item, if any
- All known facts or circumstances that led to the loss, damage, or destruction and a certification that the item was being used for its intended use.

The Supplier will assure the identification stickers, tags will remain on the tooling/equipment and that the identification stickers or tags are legible. The Supplier shall certify that the tooling/equipment provided herein will be recorded and maintained on the Suppliers property records.

All Boeing or government-owned tools that are used for IDS production, fabricated, reworked or repaired by approved tooling suppliers, and Boeing, Government or supplier-owned tools that are used for the acceptance of products fabricated for Boeing Integrated Defense Systems (IDS) or its customers shall be controlled in accordance with D950-11059-1 "IDS Seller Special Tooling Requirements. Written approval from ACC is required before any Government or Customer owned tools are reworked or repaired except for standard line maintenance".

The Supplier will maintain tools and equipment. At a minimum, tool maintenance shall consist of the following:

- Replace tooling pins and keys as required.
- Repair elongated tooling holes and worn keyways.
- Clean and polish working surfaces of dies as required to prevent scoring or marking of parts.
- Protect entire die with anti-oxidant after each run of parts.
- Any other minor rework not to exceed three (3) man-hours.

Cost of any tool rework or replacement, which is not covered by the above, shall be negotiated separately.

The Supplier will permit ACC, the Government, or ACC customers reasonable access to any customer or Government property. The Suppliers shall clearly identify all return shipments of tools or equipment with the purchase agreement number and the tooling/equipment identification number(s). Shipments must be accompanied by the appropriate shipping documents.

QR# QC2091 – F15 Tooling Precedence New 7/26/06

Seller will manufacture all goods to be delivered under this contract in accordance with the buyer furnished build-to-package, which may include, but is not limited to, the ACC SMI, buyer furnished tooling and engineering drawings. In cases where the buyer furnished tooling and engineering drawings are different, the tooling shall take precedence as defined in the ACC SMI. Engineering dimensional call-outs shall not be required during First Article Inspection when a tool is the controlling media, as defined in the ACC SMI and the feature is validated to the buyer furnished tool.

QR# QC2092– Special Tooling Control (Boeing Puget Sound)**New 9/23/02**

All Boeing or government-owned Special Tools that are fabricated, reworked or repaired by approved tooling suppliers, and Boeing, Government or supplier-owned Special Tools that are used as media of inspection (MOI) for the acceptance of products fabricated for Boeing Military Aircraft and Missile Systems Group (Puget Sound) or its customers shall be controlled in accordance with D658-10024-1 “Supplier Fabricated/Held/Owned Special Tools Inspection, Acceptance, and Control”. This document defines Quality Assurance requirements for acquisition and utilization of Special Tools, Tooling Supplier Surveys, Tool Design Reviews, First Product Inspections, Tool Routines, Release Status Control, Tool Inspections, Shipping/Receiving Screening Inspection, and Tool Discrepancy Control.

QR# QC2097 – Boeing Approved Sources**New 03/19/02**

Material of this purchase order shall be procured from an Approved Supplier as indicated on the applicable Boeing Approved Vendor List (AVL) or Qualified Product List (QPL).

Shipment Documentation:

Each shipment shall be accompanied by a certification stating the name and address of the Boeing AVL source or the Government QPL source and the specification number.

QR# QC2098 – First Article Inspection (AS9102)**New 04/08/02****Revised: 10/25/2021**

Suppliers of engineered components/parts shall perform, retain, and submit a First Article Inspection Report in accordance with the latest revision of AS9102 Aerospace First Article Inspection Requirement. All FAI’s are required to be submitted electronically through Trubiquity or Net Inspect. Product cannot be shipped to ACC until FAI approval has been given by Supplier Quality Assurance from ACC. Suppliers can acquire a “limited use” license from Net Inspect for FAI submittal to ACC at no cost. Go to the Net Inspect website at <https://www.net-inspect.com/> to acquire the “limited use” license. Use the “request an Account” button to proceed with the acquisition. The customer name is ACC St. Louis. FAI’s need to be complete including all material and process certifications, test reports, Special Manufacturing Instructions, CMM Reports and any other supporting documentation. Delta (partial) first articles are required per AS9102 section 5.3 and the requirements for submission and retention of partial first articles is the same as initial first articles. Supplier must inform ACC buyer in writing (email is acceptable) as soon as the supplier plans a change in manufacturing location, process, equipment, sub contracting of operations, or change in tooling. These all require a delta FAI (partial).

QR# QC2099 – F/A-18 E/F Control of Fracture & Maintenance Critical Parts (Dwg. 74A900054)**New 04/08/02****Revised: 05/13/02**

Supplier shall ensure compliance with latest revision of Boeing drawing # 74A900054 – Control of Fracture and Maintenance Critical Parts for the F/A-18 E/F Aircraft.

QR# QC2100 – F/A-18 E/F Fracture Critical Traceable Parts (Dwg. 74A900053)

New 04/08/02

Revised: 05/13/02

Supplier shall ensure compliance with latest revision of Boeing drawing # 74A900053 – Serialization and Traceability Requirements for F/A-18 E/F Fracture Critical Traceable Parts.

QR# QC2101 – F/A-18 C/D Fracture & Maintenance Critical Parts (Dwg. 74A900004)

New 09/23/02

Supplier shall ensure compliance with latest revision of Boeing drawing # 74A900004 – Control of Fracture and Maintenance Critical Parts for the F/A – 18 Aircraft.

QR# QC2102 – F/A-18 C/D Serialization and Traceability Requirements (Dwg. 74A900003)

New 09/23/02

Supplier shall ensure compliance with latest revision of Boeing drawing # 74A900003 – Serialization and Traceability Requirements for F/A –18 Fracture Critical Parts.

QR# QC2103 – Traceability/Serialization per 17P9M2005

New 11/06/02

This part requires traceability/serialization in accordance with the latest revision of Boeing document 17P9M2005.

QR# QC2104 – Special Control per 17P9M2004

New 11/06/02

This part requires special control in accordance with the latest revision of Boeing document 17P9M2004.

QR# QC2105 – T-45A – Fracture Critical Traceable Parts

New 7/10/03

Supplier shall ensure compliance with the latest revision of Boeing Drawing # DA000A1000 – T-45A Control of Fracture Critical Parts for serialization and traceability of fracture critical parts.

QR# QC2110 – Control of Materials and Processes for Designated Parts and Components of Boeing Products per D6-1276

New 7/1/08

QR # QC2200 Acceptance Authority Media (AAM) (BOEING X31764)

New 07/17/17

Supplier shall comply with AS/EN/JISQ requirements and 14CFR Part 21.2 regarding the application of the Acceptance Authority Media (AAM) requirements. Supplier shall, within its organization and its supply chain, ensure that the use of AAM is clearly defined within its Quality Management System (QMS). Seller shall, upon Flightline request, be able to demonstrate evidence of communication to its employees and to its supply chain; use of AAM must be considered as a personal warranty and conformity. Supplier shall maintain compliance to the AAM requirements by assessing its process and

supply chain as part of its internal audit activities. The areas of focus of this assessment shall include but are not limited to:

- Authority Media Application Errors (i.e. Omission, Typos, Legibility, etc.)
- Authority Media Application Untimely Use (i.e. Documentation is not completed as planned, “Stamp/Sign as you go”, etc.)
- Authority Media Application Misrepresentation (i.e. Uncertified personnel, Falsification of documentation, Work not performed as planned, etc.)

Authority Media Application Training Deficiencies (i.e. Ethics, Culture awareness, Proper use of authority media, etc.)

QR # QC3000 – First Article Engineering Evaluation

New 04/08/02

Revised – 9/30/07

Parts covered by this Quality Requirement are subjected to First Article Engineering Evaluation by Engineering Authority. Supplier shall perform a first article inspection in accordance with the latest revision of AS9102 Aerospace First Article Inspection Requirement. Two (2) copies of the First Article Inspection Report are to be submitted with the shipment of parts.

Supplier’s own equivalent forms may be used in place of those contained within AS9102, provided all required information is included. Copies of AS9102 and associated forms may be obtained by contacting SAE at <http://www.sae.org> Supplier must notify the applicable ACC Buyer and/or Supplier Quality Engineer at least 10 days prior to the time the item(s) will be ready for First Article Inspection.

It is the supplier’s responsibility to meet all specifications and other relevant purchase order requirements. Any results that do not meet specification requirements are cause for the supplier to withhold First Article parts and documentation. Suppliers are expected to expend every effort in order to correct the part/process so that all design record and purchase order requirements are met. If the supplier is unable to meet any of these requirements, the applicable ACC Business Unit Buyer and/or Supplier Quality Engineer shall be contacted immediately.

First Article Data Record Retention Requirements

Suppliers are to retain copies of First Articles for a period of 7 years, or in accordance with other Quality Requirements cited on the purchase order, whichever is longer. ACC Aerospace Services – Boeing and its customers reserve the right to attend and witness any/all First Article inspections as conducted at the supplier’s facility.

QR # QC3010 – Manufacturing Process/Quality Systems Reviews

New 04/08/02

Revised 01/20/04

Supplier’s manufacturing processes, quality systems, and associated records/documentation are subject to review, verification, and analysis by ACC personnel, ACC Customer personnel, and/or representatives of applicable government and/or regulatory agencies/authorities on the supplier’s premises at any time.

QR # QC3020 - ACC/Customer/Government - Product, Quality System and Mfg Process Surveillance**New 04/08/02****Revised 2/10/07**

During performance of this contract, Seller and Seller's sub-tier suppliers' quality systems, manufacturing processes, associated records/documentation and product (as supplied under this contract) are subject to on-site (at supplier premises) review, verification, and analysis by ACC personnel, ACC Customer personnel, and/or representatives of applicable government and/or regulatory agencies/authorities. These reviews may be conducted on either a random or 100% (full – time) basis. Supplier will be notified in advance should ACC, ACC's customer, and/or government regulatory agencies/authorities elect to invoke this right. Government inspection or release of product related to this contract prior to shipment is not required unless Seller is otherwise notified or a Form DD250 Government shipping document is required. If requested, Seller shall provide a copy of this contract to the Government Representative upon receipt.

QR # QC3030 – Use of Boeing Approved Special Processes**New 04/08/02****Revised: 06/12/04**

The following requirement applies to the manufacture of parts and/or materials which are Boeing designed and that are produced for subsequent ACC delivery to Boeing. The Supplier shall be listed or shall utilize sources listed in the latest revision of Boeing Document D1-4426, Boeing Approved Process Sources, whenever the manufacturing and inspection type processes listed in D1-4426, or their equivalent, are used in performance of this contract, except as noted in D1-4426. If the supplier is not on distribution for the D1-4426 document, a copy may be referenced on the Boeing Web-site at <http://active.boeing.com/doingbiz/d14426/index.cfm>. Supplier shall impose this requirement on their subcontractors as well.

QR # QC3040 – Retention of Inspection Records**New 04/08/02****Revised 05/13/02**

Supplier shall certify that materials, processes and/or delivered items will be controlled and tested in accordance with and meet specified contract requirements and applicable specifications, and that applicable records are on file subject to examination and will be furnished to ACC upon request. Supplier shall include with the packing slip for each shipment a completed copy of the Supplier Certificate of Conformance form. A duplicate copy of this document is to be sent to the applicable ACC buyer. Supplier shall retain production records of quality control, reliability and inspection for a period of seven (7) years from date of final payment unless otherwise specified on the PO. Supplier will have a documented procedure on record retention defining specific records and applicable retention periods/methods.

QR # QC3060 – Corrective/Preventive Action**New 05/13/02****Revised 3/14/03**

Supplier shall provide ACC with documented Corrective/Preventive Action for any/all supplier corrective action requests initiated by ACC procurement representatives. Supplier shall respond using the appropriate ACC Supplier Corrective Action Response Form as supplied by ACC and/or any applicable ACC Customer response forms. Failure to provide timely and comprehensive corrective/preventive action responses in a timely manner may result in negative impact to the supplier's ACC Supplier Performance Indicator rating.

QR # QC3070 – Quality System Requirements (Boeing X-23784)**New 5/13/02****Revised 4/26/06**

Supplier is required to maintain a quality system in compliance with the latest revision of Boeing form X-23784. ACC reserves the right to conduct surveillance audits at the supplier's facility to determine that such compliance is maintained.

QR # QC3075 – Part Acceptance Stamping**New 03/14/02**

Parts supplied under this purchase order are to be individually acceptance stamped by appropriate supplier personnel in accordance with systems described in Boeing form X-23784.

QR # QC3080 – Checklist Compliance**New 5/13/02****Revised 4/26/06**

Supplier is to complete the latest revision of Boeing Checklist Form #57767 prior to each shipment in order to ensure compliance with applicable ACC contract requirements. If supplier fails to comply with any such requirement, ACC may back bill the supplier \$200 per occurrence to correct the non-compliance.

QC7010 - Calibration Quality Requirements**New – 05/30/08**

Seller-Calibration Vendor

Buyer-ACC Aerospace

General calibration quality requirements-

Calibration authorities shall be ISO 17025 accredited.

Calibration services provided shall be certified in accordance with AS9100, ISO 10012, ISO 17025, and/or ANSI Z540 where applicable.

Written documentation including the calibration procedure and all calibration data must be provided at the time of certification and maintained by the seller for a period of 3 years.

Written documentation, including the stickers applied to the gage or its enclosure, must comply with ISO 10012, ISO 17025, or ANSI Z540.

All measurements and standards must be NIST traceable.

The seller shall provide qualified personnel and equipment to conduct calibration.

If required, the seller may be subject to process audits by the buyer. Auditors may include buyer's customer personnel.

Out of tolerance conditions- Equipment failing calibration criteria in the as found or as calibrated condition shall be documented by the seller as failing as found or as calibrated condition calibration.

QC7020 – Wire Spool Identification Requirements

New – 06/05/08

Wire purchased for use in chemical processing areas will be clearly identified with material type and alloy. Each individual wire spool shall contain a material identification label with the following information:

Manufacturer

Part number

Material type / alloy

Purchase Order number

QC7030 – ACC Sub-Tier Supplier Material Traceability Requirements

New – 07/11/08

Revised – 10/06/17

All suppliers of parts produced from raw material purchased by the supplier or sub tier shall comply with traceability requirements consistent with AS-9100. At a minimum, supplier must be able to trace special process(es) as noted in Approved Source List, and where the raw material is serialized, (such as forgings, castings, flight safety, etc.). Part serialization traceability shall also be maintained. This information shall be traceable from the product identification backwards through the supplier's manufacturing documentation, to its originating manufacturer, to include supplier's sub-tier supplier(s) if applicable.

QC7091 – GIDEP Program

QC7091 – Counterfeit Parts/GIDEP Program

New – 12/1/11

Revised 9/30/19

The organization shall plan, implement, and control processes, appropriate to the organization and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in product(s) delivered to the customer.

Counterfeit part prevention processes should consider:

- Training of appropriate persons in the awareness and prevention of counterfeit parts
- Application of a parts obsolescence monitoring program
- Controls for acquiring externally provided product from original or authorized manufacturers, Authorized distributors, or other approved sources
- Requirements for assuring traceability of parts and components to their original or authorized manufacturers
- Verification and test methodologies to detect counterfeit parts
- Monitoring of counterfeit parts reporting from external sources

- Quarantine and reporting of suspect or detected counterfeit parts.
 - This requirement is to be flowed to the purchaser's sub-tiers and their sub-tiers.
 - The Supplier shall notify the Purchaser as soon as it becomes aware of any counterfeit parts/supplies or suspected counterfeit parts/supplies which arise.

- Suppliers shall use the Government-Industry Data Exchange Program ("GIDEP") and utilize the GIDEP process to alert the industry to Counterfeit Supplies or Suspected Counterfeit Supplies.
 - This program shall be similar to, and meet the intent of SAE AS5553
 - All suppliers are required to implement a GIDEP program within their facility.

- Government Industry Data Exchange Program (GIDEP) Weekly Summaries and Parts Lists will be reviewed thru GIDEP notification hyperlinks for Parts List, Delimited List, R&M Summary, Engineering Summary, Failure Summary, Suspect Counterfeit Material Summary, Metrology Summary and the Product Information Summary on a weekly basis.
 - In the event a GIDEP notification indicates a supplier material may be affected, suppliers will check all stock for applicable dates and quarantine, if necessary, until resolution is found.
 - Suppliers will also notify ACC of any applicable product.

QC8040 – Aerospace Supplier Quality Requirements

New – 05/03/13

Supplier of Bell Helicopter Textron product must follow the requirements as outlined in the current revisions of the Quality Procurement Specifications in addition to standard purchase order, special manufacturing, drawing and/or model and Bell process specification requirements.

QC8100 – Mill Certification

New – 10/5/16

For raw materials purchased in support of delivered product, supplier shall furnish one copy of mill certification, issued and signed by the producing mill, with each shipment. Mill certification shall contain the following:

“Conformance with applicable material specification as specified in the purchase order, material description, alloy and condition, physical properties, chemical analysis and lot number.”

QC8110 – ACC Approval of FAI Prior to Production

New – 10/25/2021

Supplier must submit electronically, and ACC must approve, a copy of an AS9102-compliant First Article Template prior to the start of production. Template will identify all characteristics to be reviewed on the First Article part.

QC8120 – Bare Aluminum Corrosion Protection for Boeing Military Products

New – 06/28/19

For Boeing Military programs, corrosion protection is required for all bare aluminum product throughout the product lifecycle including but not limited to temporary storage, long term storage, while in transit, and during shipment. Refer to PS20001 for corrosion protection requirements.

- Corrosion protection is to be accomplished using either Ferrocote BFT1 or MIL-PRF-1673 Grade 3 per PS20001.
- Ensure corrosion protection is applied during transportation to and from customer/supplier/sub-tiers. Also ensure corrosion protection requirements are flowed to sub-tier suppliers.
- Corrosion prevention 'best practices' for machined parts include the following:
 - Eliminating dissimilar metal contact, applying corrosion inhibitors during and after fabrication, maintaining proper chemical concentrations as applicable during machining processes, ensuring parts are clean and dry after fabrication, using coolant to rinse parts in lieu of county or tap water