



AS9100D

Supplier Quality
Assurance Manual

Manual

Document No.
QA-MAN-0002

Process Owner: QA
Effective Date: 11/08/2022
(MM/DD/YYYY)

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Red Oak, TX 75154
www.qarbonaerospace.com

Approved by:
Supply Chain Management, Quality Assurance

Suppliers may view this manual via the Internet at:

<https://qarbonaerospace.com/supplier-portal/>

Suppliers do not need a password to access this manual, however, a password is required to access certain “Technical Data.”

Note: Contact Qarbon Aerospace Procurement Representative for access.

In addition to this manual, the supplier web page has links to other information resources. It provides quick access to PO Terms & Conditions, Standard Notes, Min/Max, Process Specifications, and Approved Supplier Sources for Process Specifications (including those requiring Customer approval).

Qarbon Aerospace Supply Chain Vision:

To establish a dynamic, global, supply network that maximizes the combined strength of Qarbon Aerospace, provides common processes and integrated systems, identifies aerospace suppliers and capitalizes on their skills with the objective of exceeding our Customer’s’ expectations for first time quality, on time delivery and long-term cost management.

Qarbon Aerospace is emerging as a leader in the production of aerospace components and product integration to the aerospace industry. As we continue to grow, Qarbon Aerospace is striving to become the supplier of choice for aerospace prime contractors. We also endeavor to be the customer of choice for our aerospace suppliers.

As Qarbon Aerospace is continually on the move to improve this position, our industry demands a total commitment to continual quality improvement and process performance from both Qarbon Aerospace and our aerospace Suppliers.

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This document is considered a contractual obligation of Qarbon Aerospace suppliers, when referenced in part or in whole by Qarbon Aerospace's Purchase Orders for all contract deliverable production, overhaul, and modification programs including tooling, ground support equipment and repair stations.

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1. This Document is applicable for the following Qarbon Aerospace Sites:

- a) Qarbon Aerospace
300 S Austin Blvd
Red Oak, TX

- b) Qarbon Aerospace
90 Highway 22 West,
Milledgeville, GA 31061

2. Qarbon Aerospace Supplier Quality Assurance Manual (QA-MAN-0002)

2.1. Overview

- 2.1.1. It is the responsibility of Qarbon Aerospace Supply Chain Management Team and Qarbon Aerospace Sites to establish and develop aerospace suppliers with demonstrated capabilities, to consistently evaluate the aerospace business climate and protect itself and its customers by securing reliable material sources. We are also required to ensure our suppliers consistently meet Qarbon Aerospace's specified requirements for quality and delivery, maximize the supplier's total value while also aggressively minimizing all associated procurement costs. Qarbon Aerospace is committed to eliminating occurrences of nonconforming product and processes as well as their related cost and schedule impact to our customers. Qarbon Aerospace recognizes that communication is vitally important to the support and success of our customers. In order to achieve these objectives, Qarbon Aerospace expects no less than this same level of commitment to product and service excellence and continual improvement from its aerospace suppliers. As expected by our customers, Qarbon Aerospace requires its aerospace suppliers to recognize their responsibility for the quality of the products that they and their sub-tier suppliers provide. To meet this commitment, it is necessary that Qarbon Aerospace suppliers develop, execute, and sustain key business, operational and process management practices that

demonstrate that they are capable of effectively meeting and exceeding the contractual obligations to the satisfaction of Qarbon Aerospace and our Customers.

- 2.1.2. Qarbon Aerospace's specific Quality Requirements are detailed within our Supplier Portal at <https://qarbonaerospace.com/supplier-portal/> → [Quality Requirements](#) → [Company Quality Requirements](#). Suppliers must comply with this document and Program Specific Quality Requirements (QA-MAN-0002-01) during the life of procurement. The Table 1 matrix (see Section. 3.5), contains keys to determining the applicability of Qarbon Aerospace's Quality Management System Requirements to each individual procurement, and shall be used by the supplier as part of the supplier's quality planning function to ensure compliance with Qarbon Aerospace requirements.
- 2.1.3. In addition to the requirements contained in this document, the supplier shall comply with the Quality Requirements noted in the Contract Terms & Conditions (T&C's) referenced on Qarbon Aerospace Purchase Orders. Contact your Qarbon Aerospace Purchasing Representative if further clarification is required.
- 2.1.4. Qarbon Aerospace, its customers or Government Regulatory Agencies have the right of entry into the supplier's facility. The supplier shall also include right of entry provisions in any subcontract. These provisions shall allow the supplier, Qarbon Aerospace, Qarbon Aerospace's Customers or Government Regulatory Agencies, to examine and verify the quality of work, records, processes and material at any place, including the plant of the subcontractor.
- 2.1.5. Any correspondence or data submitted to Qarbon Aerospace in support of the requirements contained herein are to be in English. Documented measurements will be derived using equipment that measures in the original native engineering unit of measure (i.e. engineering dimensions in English must be measured with equipment capable of measuring in inches. Mathematical conversions are not allowed). Requests for deviations to this requirement must be submitted to Qarbon Aerospace Procurement Representative. Requests will contain a Measurement Plan detailing the documented process(es) that will identify the affected ensure calculations are accurate, no rounding is utilized that could compromise engineering tolerances and individuals are adequately trained.

2.2. Utilizing Qarbon Aerospace Supplier Quality Assurance Manual (QA-MAN-0002)

- 2.2.1. Qarbon Aerospace Supplier Quality Assurance Manual (QA-MAN-0002) contains prescribed methods for interaction between Qarbon Aerospace, its aerospace suppliers. The contents of this manual are supplemented by Qarbon Aerospace Program Specific Quality Requirements (QA-MAN-0002-01). Qarbon Aerospace Program specific requirements shall not supersede the requirements of this document.
- 2.2.2. With reference to this document, the term "Qarbon Aerospace Site" or "applicable Qarbon Aerospace Site" is defined as an individual Qarbon Aerospace location.

- 2.2.3. This manual is applicable to Qarbon Aerospace Sites as listed in Section One of this document.
- 2.2.4. These methods shall be adhered to at all times to ensure the conformance of products and services to specified requirements.
- 2.2.5. The manual will be maintained on Qarbon Aerospace interactive supplier web portal <https://qarbonaerospace.com/supplier-portal/> ➡ [Quality Requirements](#) ➡ [Supplier Quality Assurance Manual](#). Printed documents are considered to be uncontrolled. Verify current version of this document before use. This document is maintained by Qarbon Aerospace Supplier-Quality Management.

2.3. Referenced Documents

- 2.3.1. Clicking the external document hyperlinks in the “Referenced Documents” will link you to the appropriate website where the document is available.

2.4. Individual Qarbon Aerospace Site Quality Requirements

- 2.4.1. Qarbon Aerospace maintains specific Quality Requirements. Individual QarbonAerospace Sites requirements shall meet or exceed Qarbon Aerospace Supplier Quality Requirements detailed in this manual. Qarbon Aerospace Quality Requirements are located within <https://qarbonaerospace.com/supplier-portal/> ➡ [Quality Requirements](#)

2.5. Information Requests

- 2.5.1. Supplier requests for information and clarification shall be submitted utilizing the **E-SIR** application located on Qarbon Aerospace supplier portal (<https://qarbonaerospace.com/supplier-portal/>)

3. Supplier System Requirements, Approvals and Evaluations

3.1. Overview

- 3.1.1. Qarbon Aerospace maintains an Approved Supplier Listing (ASL) as a basis for identifying direct part / material, processing and critical service suppliers who meet the standards necessary to fulfill its procurement needs.

3.2. Supplier Quality Management System Requirements

- 3.2.1. Qarbon Aerospace suppliers shall implement and maintain a Quality Management System in accordance with the respective Quality System standards listed in Table 1 (see para. 3.5) of this document, as appropriate for the type of product being delivered to Qarbon Aerospace. All costs associated with obtaining and maintaining appropriate Quality System approvals shall be borne by the supplier.
- 3.2.1.1 Supplier shall ensure that all personnel involved and performing work in support of a Qarbon Aerospace Purchase Order be made aware of:

- their contribution to product or service conformity
 - their contribution to product safety
 - the importance of ethical behavior
- 3.2.2. The Quality Management Systems identified in Table 1, shall be the Quality System standards used in determining eligibility for Qarbon Aerospace Approved Suppliers Listing (ASL).
- 3.2.3. In addition to the Quality System requirements identified in Table 1, unless otherwise specified, the following additional documents and appendices are imposed on all PO's. These documents can be found under Qarbon Aerospace Supplier Web Page/Quality Requirements/Company Quality Requirements at: <https://qarbonaerospace.com/supplier-portal//Quality Requirements>.
- 3.2.4. AS9103– Quality Management Systems - Variation Management of Key Characteristics is applicable when “Key Characteristics” (KCs) have been identified on the engineering drawing, specification or as part of the configuration requirements on the purchase order.
- 3.2.5. SC-PRO-00.00.SQR3.7 - Documentation and Handling Non-Conformances-Suppliers (SQR-003 – Nonconformance Reference Handbook for Suppliers); Applicable to all purchase orders.
- 3.2.6. SC-PRO-00.03.0007-01 (SCMP 3.7(a)) – Supplier Quality Requirements for Control and Use of Digital Product Definition/Model Base Definition; SC-PRO-00.03.0007-01 (SCMP 3.7(a)) is applicable if part design and/or configuration is defined via a released digital dataset (e.g., CATIA, UNIGRAPHICS, etc.). Approval to SC-PRO-00.03.0007-01 (SCMP 3.7(a)) is required before a supplier can receive Digital Data from Qarbon Aerospace. This does not apply during the Request for Proposal/Quote phase; however, approval must be obtained prior to acceptance of formal purchase order and release of engineering.
- 3.2.7. SC-PRO-00.00.SQR9 Acceptance Sampling Requirement for Suppliers (SQR-009 – Quality Assurance Acceptance Sampling Requirements for Suppliers); Applicable to all purchase orders where the supplier performs sampling inspection unless a sampling plan is already defined in the governing specifications.
- 3.2.8. SC-PRO-00.00.SQR10- Supplier Hardness and Conductivity Testing Requirements (SQR-010 – Hardness and Conductivity Requirements); Applicable to all purchase orders for metallic parts (i.e., sheet metal and machined) in the final heat treat condition, unless explicitly prohibited by engineering requirements. (Not applicable for annealed material). This paragraph does not apply to Boeing T-7A Program unless otherwise specified by engineering requirement.
- 3.2.9. Note: For Global Hawk program, all aluminum fabricated parts require 100% conductivity inspection after fabrication. Conductivity ranges shall be per AMS 2658.

3.2.10. SC-PRO-00.00.SQR11 -Supplier Quality Requirements for First Article Inspection (SQR-011 - Supplier Quality Requirements for First Article Inspection (FAI) outlines the FAI requirements to ensure that all design features of a deliverable product are captured and that its subcomponents meet all applicable levels of design drawing, material and process specifications requirements. This document is intended to provide a consistent documentation requirement on FAI's submitted from Qarbon Aerospace suppliers.

Qarbon reserves the right to require 100% inspection for all or selected characteristics.

3.2.11. Qarbon Aerospace will recognize AS/EN/SJAC9100, AS/EN/SJAC9110, AS/EN/SJAC9120/AS9003 (referred to generically as 9XXX) Quality System Certifications issued (less AS9003) only by an accredited Certification/Registration Body (CRB). The accredited 9XXX CRB listing (less AS9003) can be found on the SAE web page: sae.org/oasis. Suppliers that cannot or will not meet this requirement shall contact their Qarbon Aerospace Procurement Representative.

3.2.12. Initial and subsequent periodic review of a supplier's Quality Management System may be performed at the option of Qarbon Aerospace. Objective evidence of supplier's compliance, either by submittal of requested evidence, or evidence of "Other Party" evaluation, may be acceptable for the purpose of re-survey to Qarbon Aerospace.

3.2.12.1 **NOTE:** "Other Party" - A registrar that has their accreditation body participate in the IAQG Quality System Certification oversight process. An "Other Party" Quality System Certification would be one issued by an accredited registrar that participates in the aerospace industry's IAQG oversight process. As required, the supplier shall provide Qarbon Aerospace with right of access to perform appropriate assessments, surveys, and reviews.

3.2.13. Suppliers shall provide Qarbon Aerospace access to their IAQG OASIS information upon request. IAQG OASIS information access may include but is not limited to the supplier's 9XXX audit record and/or copies of a supplier's past audit reports. Suppliers that do not provide this access or copies may be subject to additional Qarbon Aerospace approval audits or disqualification as a Qarbon Aerospace supplier. Access to the supplier's IAQG OASIS records or previous audit reports does not necessarily preclude the requirement for a Qarbon Aerospace approval audit.

3.2.14. Once added to Qarbon Aerospace Approved Supplier Listing, the supplier must continue to demonstrate an acceptable level of performance as noted in Section 8 in order to remain eligible for new business and to maintain their approved status.

3.2.15. Supplier name changes, changes in ownership, facility changes or changes in senior Quality management may subject the supplier's Quality System to reevaluation by Qarbon Aerospace. The supplier shall notify Qarbon Aerospace within 48 business hours of the occurrence. Submission shall be accomplished by accessing

<https://qarbonaerospace.com/supplier-portal/> ➡ [Supplier Submittals](#) ➡ [Supplier Notifications](#) and following the directions provided therein.

3.3. New Suppliers

- 3.3.1. A supplier application is initiated by Qarbon Aerospace for all prospective suppliers. Unsolicited application requests from suppliers will not be reviewed.
- 3.3.2. After completion of the supplier application, the submittal is reviewed by Qarbon Aerospace Quality and Purchasing/Supply Chain Management to determine whether the prospective supplier is qualified to become a Qarbon Aerospace supplier.

3.4. New Supplier Approval Appraisals

- 3.4.1. Approval appraisals will be required to conduct a comprehensive risk assessment of the supplier's capabilities, capacities, compliance, strengths, and weaknesses and provide direction regarding developmental needs and opportunities.
- 3.4.2. The method of appraisal is based upon the scope and criticality of the work to be performed. For sustaining suppliers, past performance will also play a part in determining how frequent an appraisal may be employed.
- 3.4.3. Prior to any on-site activity, documentation, and operational evidence to demonstrate performance should be organized to facilitate timely presentation and review by the appropriate Qarbon Aerospace personnel. Qarbon Aerospace personnel cannot conclude compliance unless they are presented with objective, verifiable evidence that the criteria have been met.

3.5. Supplier Designations (See Table 1 for Minimum Quality System Requirements)

- 3.5.1. Aerospace - This supplier is approved to provide materials/products for use in Aerospace (Commercial and DOD) applications.
- 3.5.2. Non-Aerospace - This supplier is approved to provide materials/products for use in other than Aerospace applications, e.g., Nuclear, Space, MRO, etc.

Table 1

Required Quality System Level (see Notes to this Table)	Applicable Minimum Quality System Document (7)	Supplier Description
Level 1 (3)	AS9100	Manufacturer with design authority (Major Assemblies, Source/Spec. Control Product); Engineering Services with design/release authority
Level 2 (3)	AS9100 (1) or AS9003A	Manufacturer (Build-to-Print) Value Added Distributor, JIT Suppliers, Inspection Services (e.g., CMM), Raw Material Suppliers
Level 3 (4)	AS9120 or, ASA100	Pass Through Distributor, Standard Hardware Suppliers
Level 4 (2)(4)	Nadcap AC7004, or AS9003A	Processor
Level 5	AS9100 (3), AS9003A, or ISO9001 (3)	Tooling with design authority
Level 6	AS9100 (3), AS9003A, or ISO9001 (3)	Tooling (Build-to-Print)
Level 7 (5)	NONE	Commercial, Off-The-Shelf (COTS), Technical Service Providers, Customer authorized, CFE/CFM/PMI (6)
Level 8 (3)	ISO 10012-1 or, ISO 17025 or, ANSI Z540-1 or, A2LA, or NVLAP or AC7006	Calibration/Laboratories
Level 9 (3)	FAA FAR Part 145/21 or AS9110	Repair Stations
Level 10 (3)	ISO9001	Manufacturer, Single source, Customer directed not able to meet AS QMS Requirements

Notes to Table 1:

When AS9100 is referenced, EN9100 and SJAC9100 are also applicable
When AS9110 is referenced, EN9110 and SJAC9110 are also applicable
When AS9120 is referenced, EN9120 and SJAC9120 are also applicable
(1) Less the “Design” requirements of the standard
(2) Requirement is Nadcap Process A approval
(3) “Other Party” certification required
(4) “Other Party” certification required, Approval to AS9100 will also satisfy this requirement
(5) Service Providers may require other audits if Qarbon Aerospace is to transmit Digital Data
(6) CFE/CFM/PMI Customer Furnished Equipment/Material; Partner Managed Inventory. Customer authorized requires documented concurrence from the QAE customer
(7) These requirements are for Aerospace supplier designation only. For Non-Aerospace, Qarbon Aerospace will define the QMS requirements.

3.6. Maintenance of Approved Supplier Status

- 3.6.1. Qarbon Aerospace monitors supplier performance on a monthly basis using Supplier Quality Performance Ratings. Suppliers, who continue to demonstrate unsatisfactory performance may lose their approval status and become suspended or terminated. To regain satisfactory approval status, the supplier may be subject to formal supplier corrective action per Section 10, more extensive performance improvement actions as detailed in Section 11 or a supplier appraisal per Section 3.
- 3.6.2. Suppliers shall notify Qarbon Aerospace of the loss (probation / suspension / termination) of Quality System registration, FAA or Nadcap approvals, or any “major” nonconformance that has been designated as having “product impact” or “potential product impact” or that may an any Qarbon Aerospace product. The supplier shall notify Qarbon Aerospace within 2 business days of the occurrence. Submission shall be accomplished by accessing <https://qarbonaerospace.com/supplier-portal/> ➔ [Supplier Submittals](#) ➔ [Supplier Notifications](#) and following the directions provided.
- 3.6.3. Suppliers may lose their Qarbon Aerospace approved supplier status for failing to maintain their appropriate Quality System, FAA or Nadcap registrations, for any other significant quality related issues, or failure to notify Qarbon Aerospace within 2 business days of above events occurring. Submission shall be accomplished by accessing <https://qarbonaerospace.com/supplier-portal/> ➔ [Supplier Submittals](#) ➔ [Supplier Notifications](#) and following the directions provided.

- 3.6.4. Inactivation of a supplier on the basis of Quality System failures shall ultimately be the decision of Qarbon Aerospace Supplier Quality Site Management.

3.7. Current Supplier Evaluations

- 3.7.1. For existing suppliers, Qarbon Aerospace utilizes Quality System assessments, capacity analysis, and product conformity assessments to authorize supplier scope additions, maintain supplier approvals, and improve supplier performance.

3.8. Capacity Risk Assessment / Conformity Assessments / First Part Qualification

- 3.8.1. Qarbon Aerospace reserves the right to perform a review of Qarbon Aerospace purchase order and deliverable product(s) key/critical elements with the supplier. Assessments shall include but are not limited to specific areas of the suppliers:

3.8.1.1 Quality System,

3.8.1.2 Build package,

3.8.1.3 Contract and purchase order flow downs,

3.8.1.4 Control of tooling,

3.8.1.5 Digital data handling,

3.8.1.6 Supplier sub-tier management

- 3.8.2. Supplier Capability Risk Assessments are conducted to ensure the suppliers equipment, resources, technical and process capabilities are adequate to support Qarbon Aerospace Purchase order/contract requirements.

- 3.8.3. Supplier Product Conformity Assessments are a process-based review of a supplier's practiced business and manufacturing process controls against their internal procedures as well as PO and Contractual requirements. Supplier Product Conformity Assessments may also be initiated when changes in a supplier's facility occur, major management changes, facility upgrades, equipment movement, major capacity changes, etc.

3.9. First Part Qualification

- 3.9.1. First part qualification (FPQ) is typically required by the governing engineering specification. FPQ verifies that the fabrication and inspection procedures of the first production part are in compliance with drawings/specifications.

- 3.9.2. Examples of pre-production qualifications include, but are not limited to:

3.9.2.1 First Part Qualifications (FPQs)

3.9.2.2 Thermal Profile Plans/Reports (TPPs/TPRs)

3.9.2.3 Preproduction Verification Plans (PPV)

3.9.2.4 AS9145 PPAP/APQP

- 3.9.3. Subject review will be performed to the extent necessary to verify mutual understanding of purchase order requirements and ensure that supplier’s production planning activities address all applicable key/critical elements.
- 3.9.4. Where specifications associated with product being procured by Qarbon Aerospace require qualification or other types of approvals prior to production, Seller shall submit all required materials and/or documentation to Qarbon Aerospace via SIR. **Regardless of the customer specification verbiage, seller shall not contact Qarbon Aerospace’s customer regarding specification requirements associated with qualification data without prior written approval from Qarbon Aerospace.** Examples of pre-production qualifications include but are not limited to First Part Qualifications (FPQs), Thermal Profile Plans (TPPs) or Thermal Profile Reports (TPRs), Preproduction Verification (PPV) Plans and AS9145 PPAP/APQP.
- 3.9.5. Nonconformances identified during any type of assessments or review may require initiation of formal corrective action requests in order to document the resolution. Qarbon Aerospace and /or the appropriate Qarbon Aerospace Site will utilize assessment and review results as a basis for determining the amount and nature of additional supplier oversight required.
- 3.9.6. The appropriate Qarbon Aerospace Site may follow-up with suppliers to review the implementation of development strategies. This follow-up may occur through subsequent on-site assessments and/or a specific request to the supplier to provide evidence to substantiate the successful implementation of targeted improvements.

4. Supplier Responsibilities

4.1. Quality Assurance Requirements

- 4.1.1. Qarbon Aerospace POs for direct parts / materials, outside processing and services may include a number of additional clause(s) relating to specific quality assurance requirements. Applicable Quality Assurance Requirements or Quality Clauses may be assigned on a part number or contract number basis and are identified on Qarbon Aerospace’s POs.

4.2. Identifying Applicable Qarbon Aerospace Quality Assurance Requirements

Qarbon. Qarbon Aerospace specific requirements are located on <https://qarbonaerospace.com/supplier-portal/> ➡ [Quality Requirements](#)

- 4.2.1. Suppliers are expected to review all applicable Quality Assurance Requirements and clauses as a part of their contract review and quality planning processes. Requirements imposed by Quality Assurance Requirements are contractual and shall be integrated into the supplier’s Quality Systems and / or product-specific planning and related controls to ensure consistent compliance for all parts / materials supplied.

- 4.2.2. The use of verbal communication and e-mails are not acceptable methods of communicating PO / Contract Requirements. Reference paragraph 2.5 for information request submittals (E-SIR).
- 4.2.3. The appropriate Qarbon Aerospace Site Procurement Representatives will assist suppliers in gaining the necessary access for the purposes of reviewing:
- 4.2.3.1 Quality Assurance Requirements,
 - 4.2.3.2 Technical engineering requirements defined on blueprints,
 - 4.2.3.3 Specifications, etc. as well as:
 - 4.2.3.3.1 Requirements for Certificates of Conformance,
 - 4.2.3.3.2 Quantified test results,
 - 4.2.3.3.3 Use of appropriately qualified sources,
 - 4.2.3.3.4 Special part / material identification requirements,
 - 4.2.3.3.5 Program, Customer-Specific Quality Requirements
- 4.2.4. Qarbon Aerospace encompass a broad range of additionally imposed contractual requirements, including but not limited to:
- 4.2.4.1 Critical Part/Material Traceability and / or Serialization Requirements,
 - 4.2.4.2 Qarbon Aerospace or Qarbon Aerospace Site and its Customer's or regulatory bodies Right of Entry for review of equipment, facilities, products, processes, and systems,
 - 4.2.4.3 First Article Requirements,
 - 4.2.4.4 Record Retention Requirements,
 - 4.2.4.5 Special Restrictions on the Use of Qualified Sources,
 - 4.2.4.6 Special Control and Disposition of Nonconforming Materials,
 - 4.2.4.7 Program, Customer-Specific or DFAR Quality Requirements
 - 4.2.4.8 Acceptance of Qarbon Aerospace Purchase Order constitutes acceptance and accountability for achievement of all requirements listed on the Purchase Order and the requirements contained herein. Lack of diligence on the supplier's behalf is not justification for not complying with the applied requirements.
- 4.2.5. It is the supplier's responsibility to perform an in-depth review of the purchasing documentation to ensure that the supplier can and will comply with the requirements therein. It is also the supplier's responsibility to request or otherwise obtain subordinate documents, specification and data referenced within the Purchasing Documentation.

Failures resulting from a lack of review and / or compliance with subordinate requirements documents will be considered the responsibility of the supplier.

- 4.2.6. The supplier must obtain any agreements deviating from the issued purchase order in writing. No verbal agreements or e-mails will be recognized under any circumstances and all liability as a result of the supplier accepting verbal changes to the purchase order shall be the responsibility of the supplier. Any requests or deviation shall be forwarded to the issuing Qarbon Aerospace Purchasing Representative in writing for agreement or re-assignment of the purchase order.

4.3. Contract Configuration

- 4.3.1. Unless otherwise specified in the Purchase Order / Contract Agreement, manufacturing and inspection shall be performed to the latest Qarbon Aerospace released planning/engineering. The supplier is authorized to work to the drawing revision level noted on Qarbon Aerospace supplied planning (where applicable) or to a more current revision of released engineering supplied by Qarbon Aerospace.

If a drawing change notice or drawing revision changes the configuration of the part and is not called out on the purchase order or planning control sheet, the appropriate Qarbon Aerospace Procurement Representative should be notified immediately for written authorization.

- 4.3.2. If the purchase order does not indicate the revision of the drawing or specification, the drawing and / or specification revision in effect on the issue date of the purchase order shall be utilized. Requests to utilize a later revision of a process specification may be submitted to Qarbon Aerospace Procurement Representative.
- 4.3.3. Requests to utilize a later revision of a process specification must meet the following requirements:
- 4.3.3.1 There is no Qarbon Aerospace initiated Engineering Orders associated with the process specification that the author of the specification has not incorporated in the later revision.
- 4.3.3.2 There is no cost or schedule impact to deliverable hardware under contract;
- 4.3.3.2.1 If an impact does exist as a result of using a later process specification revision than that is shown on purchase order, the supplier shall contact the applicable Qarbon Aerospace Site Procurement Representative for disposition Instructions.
- 4.3.3.2.2 **NOTE:** Suppliers with design authority may approve their own sub tier process source(s). However, they are encouraged to subscribe to Nadcap and require Nadcap accreditation by their processors.

- 4.3.4. Unless otherwise specified in the contract agreement, manufacturing and inspections shall be performed to the latest Qarbon Aerospace released planning/engineering.

Supplier is authorized to work to the drawing revision level noted on Qarbon Aerospace supplied planning (where applicable) or to a more current revision of released engineering supplied by Qarbon Aerospace. If a drawing change notice or drawing revision changes the configuration of the part and is not called out on the PO or planning control sheet, Qarbon Aerospace buyer should be notified immediately for written authorization.

The Supplier shall meet the requirements for Configuration Management and control as stated in AS9100. The Supplier is responsible for maintaining Configuration control of their Sub tiers. At a minimum, the Supplier's Configuration Management disciplines will be applied to:

- 1) Identify and document a product's characteristics
- 2) Control, record and report changes to a product's documentation
- 3) Conduct and document configuration audits
- 4) Manage, control and retrieve contract data

Configuration Control is managed at the PO part number level. The purpose of Qarbon Aerospace Supplier Specification Planning (SSP) is to define the configuration requirements for the purchased detail, assembly or installation. The engineering and documents referenced within the SSP provide the geometry and/or processes associated with the defined configurations requirements listed within the planning (SSP).

Only documents specified on the SSP will automatically be packaged with the PO and sent to supplier via the Supplier Portal. The supplier shall request any clarifications or revisions to the SSP that are required to produce the detail, assembly, or installation through the E-SIR process. Once the E-SIR request is approved and the SSP is revised, it shall automatically be added to the "Keep Up to Date" (KUTD) process for all future revisions.

4.4. Purchase Order Terms and Conditions

Qarbon Aerospace's "Contract Terms and Conditions" information which describe Qarbon Aerospace's PO "boilerplate" requirements are available on Qarbon Aerospace website under Supplier Provisions: [Qarbon Aerospace Terms and Conditions](#).

4.5. Government Quality Assurance Requirements

- 4.5.1. When required, Qarbon Aerospace source inspection shall precede ALL government source Inspection.
- 4.5.2. Unclassified Programs

4.5.2.1 The supplier shall determine applicability of this requirement via the “Government Source” requirement shown on the purchase order, at the purchase order line item level or within the purchase order “notes” section.

4.5.2.2 If applicable, the supplier shall promptly notify the government representative normally servicing supplier’s facility. The supplier shall furnish a copy of the purchase order to the respective government office. If the government representative/agency cannot be identified, notify Qarbon Aerospace Procurement Representative immediately.

4.5.3. Classified Programs

4.5.3.1 The supplier shall determine applicability of this requirement via the “Government Source” requirement shown on the purchase order, at the purchase order line-item level or within the purchase order “notes” section.

4.5.3.2 When applicable, the supplier is specifically instructed **NOT** to contact the Government Representative normally servicing supplier’s plant. The supplier shall contact Qarbon Aerospace Procurement Representative that will advise through Qarbon Aerospace security channels of the Government Representative accessed and designated for this contract.

4.6. Special Process Requirements

4.6.1. When the use of only Qarbon Aerospace “Approved Special Processors” are specifically required by drawing, specification, purchase order, or other media, the supplier shall ensure that the processing source for these requirements, including those performed by the supplier, are listed on Qarbon Aerospace Approved Special Processor List prior to any processing of hardware. Qarbon Aerospace Approved Processor Listing is available on <https://qarbonaerospace.com/supplier-portal/#Approved Processors>. As a prerequisite for Qarbon Aerospace ASPL approval, Special Processors require Nadcap accreditation. Qarbon Aerospace subscribes to Nadcap for the following process categories:

4.6.1.1 Nondestructive Testing,

4.6.1.2 Heat Treating,

4.6.1.3 Material Testing Laboratories, Chemical Processes,

4.6.1.4 Coatings,

4.6.1.5 Welding,

4.6.1.6 Non-Conventional Machining & Surface Enhancement – Shot Peening,

4.6.1.7 Composite Handling and Fabrication

- 4.6.2. Qarbon Aerospace reserves the right to validate Nadcap compliance to any processes that are unique to Qarbon Aerospace or outside the scope of normal industry practice and/or Nadcap general audit practice. This requirement also applies to the first-tier suppliers with internal process capabilities. In addition, if the supplier utilizes any external special process sources, this requirement must be flowed down to the processing sources.
- 4.6.3. All costs associated with Nadcap accreditation shall be borne by the processor. Performance Review Institute (PRI), a nonprofit affiliate of the Society of Automotive Engineers (SAE), must perform all Nadcap accreditation audits. Detailed information regarding the nadcap accreditation process, including the audit schedule can be obtained from PRI at: pri-network.org/nadcap/.
 - 4.6.3.1 When processes listed in Qarbon Aerospace’s customer approved processor list, are required by drawing, specification, or purchase order, the supplier shall ensure that the processing source for these processes, including those performed by the supplier, are approved by Qarbon Aerospace’s customer prior to any processing of hardware. Links to Qarbon Aerospace’s customer approved processor lists are available on <https://qarbonaerospace.com/supplier-portal/> ➔ [Approved Processors Customer Approved Processors](#).
- 4.6.4. Processor purchase orders to Qarbon Aerospace “Approved Processors” should contain the following statement:
 - 4.6.4.1 “Work to be accomplished in performance of this purchase order is directly related to (*insert appropriate Qarbon Aerospace site name*) Purchase Order”. The Qarbon Aerospace Approved Special Processor Listings can be accessed via - <https://qarbonaerospace.com/supplier-portal/>
 - 4.6.4.2 Subcontracted processes of components of supplier design must be performed by supplier-approved facilities whose capabilities and performance are supported by objective evidence of control such as surveys and/or test results. **In the event that the subcontracted supplier is customer approved, it remains the responsibility of the supplier to verify all processes are performed in accordance with the specification requirements.**
- 4.6.5. A listing of all facilities being used by the supplier must be available for review by Qarbon Aerospace which reserves the right of disapproval of those facilities not considered satisfactory. **Suppliers shall not substitute their own or other party process specifications for Qarbon Aerospace or customer process specifications without prior written approval from the applicable Qarbon Aerospace Procurement Representative.**
- 4.6.6. “Suppliers with direct Purchase Orders from Qarbon Aerospace are responsible for ensuring their next-level sub-tier suppliers meet all process requirements, even if those sub-

tire suppliers are listed on Qarbon Aerospace's Approved Supplier List. "Qarbon Aerospace ASPL is located at <https://qarbonaerospace.com/supplier-portal> ➔ [Approved Processors](#) ➔ [Qarbon Aerospace Approved Processors](#)

- 4.6.7. Additionally, the processor shall review, perform, inspect, and certify to the process specification as required by the purchase order. Any departure from specification requirement requires the prior written approval of Qarbon Aerospace Engineering responsible for the specification. Qarbon Aerospace ASPL processor (at all tiers) shall also comply with any Qarbon Aerospace unique requirements such as submission of test coupons, written approval of the processor's detail procedures, use of specific chemicals and/or concentrations, and witnessing of first part processing and etc., when required by the process specification or the Purchase Order.
- 4.6.8. When special processes listed in Qarbon Aerospace "Approved Special Processors List" (ASPL) are required by drawing, specification, PO, or other media, the Supplier shall ensure that the processing source for these requirements, including those performed by the supplier, are listed on Qarbon Aerospace ASPL (see Table 2) prior to any processing of hardware.

As a prerequisite for Qarbon Aerospace ASPL approval, Special Processors require Nadcap accreditation. Qarbon Aerospace subscribes to Nadcap for the following process categories:

1. Nondestructive Testing
2. Heat Treating
3. Material Testing Laboratories
4. Chemical Processes
5. Coatings
6. Welding
7. Non-Conventional Machining & Surface Enhancement – Shot Peening
8. Composites

Qarbon Aerospace reserves the right to validate Nadcap compliance to any processes that are unique to Qarbon Aerospace or outside the scope of normal industry practice and/or Nadcap general audit practice.

This requirement also applies to the first-tier suppliers with internal process capabilities. In addition, if the supplier utilizes any external special process sources, this requirement must be flowed down to the processing sources. All costs associated with Nadcap accreditation are to be borne by the processor.

Supplier shall use the current specification revision in effect on the date of the PO. Requests to utilize a later revision of a process specification may be submitted via SIR provided the following requirements are met:

1. There is no Qarbon Aerospace initiated Engineering Orders (EOs) associated with the process specification that the author of the specification has not incorporated in the later revision.
2. There is no cost or schedule impact to deliverable hardware under contract; if an impact does exist as a result of using a later process specification revision than that shown on Qarbon Aerospace’s website, Supplier shall contact Qarbon Aerospace for disposition instructions.

Note: Suppliers with Design authority may approve their own sub tier process source(s). However, they are encouraged to subscribe to Nadcap and require Nadcap accreditation by their processors. Subcontracted processes of components of Supplier design must be performed by supplier-approved facilities whose capabilities and performance are supported by objective evidence of control such as: surveys and/or test results. A listing of all facilities being used must be available for review by Qarbon Aerospace which reserves the right of disapproval of those facilities not considered satisfactory. Suppliers shall not substitute their own process specification for Qarbon Aerospace or customer process specifications without prior written approval from Qarbon Aerospace Engineering.

Listing in the ASPL does not assure or imply that the work performed by the ASPL processor it is **acceptable**, nor does it compel the listed processor to accept the work. When processes are Procured, it is the responsibility of the supplier to verify all processes are performed in accordance with the specification requirements.

Additionally, the processor shall review, perform, inspect and certify to the process specification as required by the PO order. Any departure from specification requirement requires the prior written approval of Qarbon Aerospace engineering group responsible for the specification.

The ASPL processor (at all tiers) shall also comply with Qarbon Aerospace Program unique requirements such as submission of test coupon(s), written approval of the processor's detail procedure, use of specific chemicals and/or concentration, and witnessing of first part processing and etc., when required by the process specification.

Product Associated with Secured Programs Only

For Security Access Restriction “SAR” Items, Supplier must contact Qarbon Aerospace for process approval status

4.7. Raw Material Type and Temper

- 4.7.1. All metallic details, prior to the first fabrication operation, the supplier is required to verify the correct material type and temper to engineering. Verification shall be accomplished by verifying the Material Certificate of Conformance test results during receiving inspection of the raw material. (Evidence of the review shall be indicated by an inspection stamp).
- 4.7.2. The work order should have the information for traceability during the manufacturing process and must be stamped by the inspector on the assigned operation.
- 4.7.3. Evidence of verification shall be on the supplier’s shop traveler, work order, planning paper or other inspection status documentation.
- 4.7.4. No material substitutions are authorized unless approved by the appropriate Qarbon Aerospace. Contact the appropriate Qarbon Aerospace Procurement Representative for approvals.
- 4.7.5. Note: Reference QA-MAN-0002-01 for additional customer specific requirements

4.8. Counterfeit Parts Avoidance, Detection, Mitigation, and Disposition

- 4.8.1. Qarbon Aerospace suppliers shall put into place a documented program to avoid, detect, mitigate, and disposition counterfeit parts and materials. Electronics suppliers should utilize and reference AS5553 for guidance. All other suppliers should utilize AS6174 for guidance.
- 4.8.2. Suppliers shall also flow down counterfeit parts program requirements to their sub-tiers, especially but not limited to:
 - 4.8.2.1 Electronic parts suppliers,
 - 4.8.2.2 Raw material suppliers,
 - 4.8.2.3 Distributors

4.9. Nonconforming Material Control

- 4.9.1. Supplier-responsible nonconformances are defined as any violation of a specified contractual requirement imposed by a Qarbon Aerospace’s purchase order. Non-conformances are to be processed in accordance with the specific Qarbon Aerospace’s contractual requirements as defined in the appropriate procedures. Details on the processing of nonconformances can also be found on the supplier portal at: <https://qarbonaerospace.com/supplier-portal/> Supplier Provision Quality Nonconformances.

4.9.2. Nonconforming material must be identified, documented, evaluated, segregated (where practical), and dispositioned.

4.10. Qarbon Aerospace Supplied Material

4.10.1. If Qarbon Aerospace supplied parts or material is found to be nonconforming upon receipt, the supplier is to immediately notify the appropriate Qarbon Aerospace Procurement Representative listed on the purchase order. The continued use of this material without the approval of the appropriate Qarbon Aerospace authority constitutes the supplier's acceptance of part or material quality and any costs related to repair or replacement.

4.11. Supplier Disposition Authority

4.11.1. Unless identified specifically by a Qarbon Aerospace purchase order or Quality Requirement, a supplier's disposition authority of nonconformances is limited to rework, return to supplier and scrap. **It is up to the supplier to validate Qarbon Aerospace Disposition Authority via Qarbon Aerospace Quality Assurance Requirements.** Disposition Authority terms are defined as follows:

4.11.1.1 Rework

4.11.1.2 A process applied to a nonconformance, entirely within the confines of the drawing specifications that will eliminate it and result in a characteristic that conforms completely to the drawings, specifications, and contract requirements.

4.11.1.3 Under the provisions of this definition, rework is authorized only when approved in writing by the appropriate Qarbon Aerospace Site and the governing specification is within the bounds of the associated specification that provides the necessary rework instructions.

When authorized in writing by Qarbon Aerospace, suppliers must document the nonconformance(s) and provide detail rework instructions as part of their manufacturing planning process. This is considered a part of the supplier's approved Quality System relative to the control, documentation, and disposition of nonconforming material. Any rework that will alter the chemical or mechanical properties of the affected part final engineering configuration must be submitted to Qarbon Aerospace MRB for disposition.

4.11.1.4 Repair

4.11.1.4.1 Under no circumstances shall a supplier or a supplier's sub-tier supplier performance and repair procedures / operations without specific written authorization from the appropriate Qarbon Aerospace Site. To accelerate the repair process, it is recommended that the suppliers submit their repair plan upon nonconformance

notification to the appropriate Qarbon Aerospace Procurement Representative.

4.11.1.5 Reworked/Replaced Material

4.11.1.5.1 When returning previously rejected material to a Qarbon Aerospace Site, the supplier shall reference the nonconformance document number on the shipping documents (including the Certificate of Conformance) and shall state if the items have been replaced or reworked. Under no circumstances should reworked or replaced material be combined with any other material.

4.11.1.6 Return to Supplier

4.11.1.6.1 Return of subcontractor product found to be discrepant for subsequent rework or replacement.

4.11.1.7 Scrap

4.11.1.7.1 Permanent removal from production and timely destruction of product found to be unfit for use. Scrapped product shall be conspicuously and permanently marked and or segregated until destroyed. All other dispositions of nonconforming material shall be submitted to the appropriate Qarbon Aerospace MRB.

4.11.1.7.2 Scrapping of parts or materials that are provided by a Qarbon Aerospace's customer or Qarbon Aerospace is prohibited without prior written authorization.

4.12. MRB Dispositions for Supplier Designed Hardware

4.12.1. Suppliers of product that retain design authority to a Source / Specification Control Drawing(SCD) may use dispositions of use-as-is or repair as long as the nonconformity does not result in a departure from the requirements of the SCD / Customer Specification. This includes suppliers that produce products of proprietary design, and products to military and Industry standards.

4.12.2. The supplier's MRB shall not perform any disposition on any nonconformance to customer requirements that affect form, fit, function, weight, interchangeability, reliability or safety. These nonconformances shall be submitted to the appropriate Qarbon Aerospace's Procurement Representative in accordance with paragraph 4.8 and 4.12.

4.13. Recording & Reporting of Supplier-Responsible Nonconformances

4.13.1. Nonconforming parts / materials or processing shall be coordinated through the applicable Qarbon Aerospace Site. Such documents will be developed as a result of supplier-

responsible nonconformances encountered at any point in the value chain established between Qarbon Aerospace and its suppliers.

- 4.13.2. Nonconformance documents are to be submitted to the appropriate Qarbon Aerospace Procurement Representative.

4.14. Supplier Responsibilities upon Notification of Nonconformances

- 4.14.1. Suppliers are expected to immediately route nonconformance information to their appropriate Operations and Quality personnel. Once notified, suppliers are required to undertake immediate containment action to minimize or eliminate any further impact to Qarbon Aerospace and/or its customers as a result of similar nonconformances, which may be in-process, in the supplier's inventory, or in the process of delivery. Containment shall include parts nonconformance that may be in the process of shipping, at a customer or in the field.
- 4.14.2. Suppliers will also be expected to participate in discussions with their Qarbon Aerospace Procurement Representative regarding appropriate disposition options for nonconformances encountered as well as the future availability of known-acceptable replacement stock as required.
- 4.14.3. When schedule permits, suppliers may request return of nonconforming parts / materials, at their expense, when such parts/materials are not otherwise suitable for immediate use or rework by the appropriate Qarbon Aerospace. Alternately, when schedule permits, suppliers are encouraged to examine nonconformances at the appropriate Qarbon Aerospace Site prior to final disposition in order to aid the development of timely and appropriate corrective/preventive actions.

4.15. Supplier-Responsible Nonconformance Cost Recovery

- 4.15.1. At the discretion of Qarbon Aerospace, suppliers may be subject to charges for recovery of costs associated with any / all supplier-responsible nonconforming parts/materials. Such charges will include:
 - 4.15.1.1 An administrative charge for each nonconformance document generated by a Qarbon Aerospace supplier as determined by the contracting Qarbon Aerospace,
 - 4.15.1.2 An administrative charge for each request for error corrections required to a material certificate or Certificate of Conformance generated by a Qarbon Aerospace supplier as determined by the contracting Qarbon Aerospace company,
 - 4.15.1.3 A "to be determined" rework charge (USD) for each part requiring rework by Qarbon Aerospace or Qarbon Aerospace Customer personnel, (amount as determined by actual rework cost),

- 4.15.1.4 Part and / or material charges (USD) per purchase order or contract pricing for each part and / or material scrapped at Qarbon Aerospace or its customer (amount as determined by scrap cost).
- 4.15.2. Additional charges may also apply where parts or materials, as supplied by Qarbon aerospace and/or its customer, require scrapping at the supplier as a result of the suppliers actions (amount as determined by scrap cost),
- 4.15.3. Additional charges may also apply where supplied parts / materials require extraordinary rework at Qarbon Aerospace or its Customer, e.g., an assembly needing to be disassembled, part removed and replaced due to bad part / material, etc. (amount as determined by actual rework cost).

Category	Description	Value
V1	SMRR-PRA Minor issue	\$400.00
V2	SMRR-MRB Minor issue	\$800.00
V3	Qarbon Aerospace generated PRA	\$600.00
V4	Qarbon Aerospace generated MRB	\$1,000.00
V5	Qarbon Aerospace generated MRB/DTA	\$1,500.00
V6	Qarbon Aerospace generated Major issue	Actuals

The Categories are defined in greater detail in SC-PRO-00.00.SQR3 Cost recovery does not include nonconformances caused by engineering, build package or customer issues.

4.16. Notification of Quality Escape

- 4.16.1. When the supplier identifies or becomes aware of a suspect product / service that has escaped from the supplier’s facility to Qarbon Aerospace, the supplier shall notify the appropriate Qarbon Procurement Representative within 48 hours. Note: For escapes that affect “Safety of Flight” (i.e., controls) the suppliers shall submit all available information IMMEDIATELY UPON DISCOVERY.
- 4.16.2. A product or service escape is defined as a product or service that has been delivered / provided to Qarbon by a supplier that does not meet Qarbon purchase order requirements.
- 4.16.3. The supplier notification shall consist of 2 methods of communication:
 - 4.16.3.1 By telephone to the appropriate Qarbon Aerospace Procurement Representative,
 - 4.16.3.2 A second notification shall occur in writing utilizing the Supplier Notification of Escape instructions located at <https://qarbonaerospace.com/supplier-portal/> **Supplier Provision Quality** ➔ **Nonconformances**. and following the appropriate directions.

- 4.16.3.3 The supplier shall provide all the information detailed in the Qarbon Aerospace Supplier Portal that do not contain all requested information will be returned for additional supplier information.
- 4.16.4. Suppliers are required to attach the last FAI performed for the affected part (s). It is acceptable to list the FAIR Number from Net Inspect.
- 4.16.5. If it is immediately known, it is expected that supplier root cause and long-term corrective action will also be submitted with the notification. If the root cause and long-term corrective action it is not immediately known, it shall be provided within 14 calendar days.
- 4.16.6. Qarbon Aerospace may require additional detail information to support internal investigations and/or customer requests. Any similar goods held by the supplier shall be inspected and when found nonconforming, contained to prevent shipment.
- 4.16.7. It is Qarbon Aerospace's option to report Supplier Notifications of Escape incidents to the suppliers Quality System certification body via the OASIS feedback process.

NOTE: Suppliers may lose their approved supplier status and be removed from the Qarbon Aerospace ASL for failing to report a known product quality escape.

4.17. Inspection Sampling

- 4.17.1. 100% Inspection is required. In some cases, inspection sampling methods are specifically prescribed or even prohibited by Qarbon Aerospace Customers. Prior to implementation of any sampling, sampling plans and procedures must be submitted to and approved by Qarbon Aerospace Quality Assurance.
 - 4.17.1.1 A procedure SC-PRO-00.00.SQR9 in accordance with SAE AS9138 "Statistical Product Acceptance Requirements" shall be in place to support the utilization of sampling plans.

4.18. Non-Destructive Test (NDT) Submittal Requirements

- 4.18.1. **When required by Qarbon Aerospace Company purchase order or Quality Requirement**, submittal of NDT general procedures and part-specific techniques to Qarbon Aerospace is required prior to production testing. Note that Qarbon Aerospace approval may also include the need for Qarbon Aerospace's customer approval.
 - 4.18.1.1 Suppliers shall review the purchase order and associated drawings/drawing notes and related documents to determine if / when NDT is required.
- 4.18.2. NDT procedures and/or techniques shall be submitted to Qarbon Aerospace Procurement Representative and be approved prior to release for use.

- 4.18.3. Guidelines for the minimum content of general procedures / techniques are provided in the respective NDT process specifications. After initial approval, any changes to subject documents shall be resubmitted to Qarbon for approval.
- 4.18.4. Unless detailed on Qarbon Aerospace purchase order, NDT technique submittal is required for the following items only:
- 4.18.4.1 Critical Parts,
 - 4.18.4.2 Class 1 and 2 castings (in accordance with SAE-AMS-STD-2175),
 - 4.18.4.3 Pyrotechnics,
 - 4.18.4.4 Composites,
 - 4.18.4.5 Adhesive Bonded Assemblies,
 - 4.18.4.6 When specifically designated in Qarbon Aerospace's purchase order, drawing, etc.
- 4.18.5. Suppliers Using Outside (sub-tier) NDT Sources
- 4.18.5.1 Relative to 4.18, suppliers employing outside sources for NDT shall ensure that the selected NDT sub-tier has Qarbon Aerospace approval as applicable for the NDT procedure / technique used.
- 4.18.6. Suppliers Utilizing In-House or Outside (Sub-Tier) Sources for Radiographic Inspection.
- 4.18.6.1 When required by Qarbon Aerospace purchase order or Quality Requirement, radiographic techniques shall be established to assure that castings and/or finished part are free from detrimental defects. Noted techniques shall be approved by a Qarbon Aerospace designated Level 3 prior to delivering the hardware. Note that Qarbon Aerospace approval may also include the need for Qarbon Aerospace's customer approval.

4.19. Manufacturing Plan Submittals for Critical Parts

- 4.19.1. When required by Qarbon Aerospace Company purchase order or Quality Requirement, manufacturing plans for Critical or in some cases, Non-Critical Parts may be required for approval.
- 4.19.2. **NOTE:** "Critical Parts" are parts identified on the Engineering drawing as:
- 4.19.2.1 Fracture,
 - 4.19.2.2 Durability,
 - 4.19.2.3 Fatigue,
 - 4.19.2.4 Maintenance,

- 4.19.2.5 Designated Parts,
- 4.19.2.6 Flight Safety Critical,
- 4.19.2.7 Identifiable Parts
- 4.19.3. Manufacturing plans requiring Qarbon Aerospace Site and / or Qarbon Aerospace's Customer approval per specification / purchase order requirements shall be submitted to the appropriate Qarbon Aerospace Site at least 30 calendar days prior to start of production, or as required by applicable specification.
- 4.19.4. Manufacturing plans shall be submitted to the appropriate Qarbon Aerospace Procurement Representative. The manufacturing plan shall contain fabrication, processing, process name, and inspection steps in the sequential order required by the applicable process specification(s) and/or engineering drawing(s). This shall also include all sub-tier associated manufacturing and/or process plans.
- 4.19.5. Upon approval of supplier's manufacturing plan, the plan will be considered "frozen" and the supplier shall control all manufacturing, processing, testing and inspections as stated in the approved plan. No deviations, including supplier's sub-tier suppliers / processors, are permitted without Qarbon Aerospace's written authorization. Delivery of product is not permitted until supplier has received appropriate Qarbon Aerospace approvals.

4.20. Qarbon Aerospace Furnished Tools

- 4.20.1. When tooling is furnished by Qarbon Aerospace or Qarbon Aerospace's customers, this does not relieve the supplier of the responsibility of proving the adequacy of all tooling. Any anomalies found in such tooling must be immediately reported to the appropriate Qarbon Aerospace Procurement Representative. All Qarbon Aerospace furnished tools must be maintained, inventoried and readily recallable.
- 4.20.2. If Qarbon Aerospace furnishes tooling to supplier requiring a tool prove-out, Qarbon Aerospace's acceptance will be based on verification of supplier's first article part and/or assembly documentation.
- 4.20.3. The supplier shall induct all Qarbon Aerospace furnished Precision Measuring Equipment (PME) into their calibration system and control it in accordance with their written calibration procedures.
 - 4.20.3.1 PME is defined as any device used to measure, gage, and test, inspect or otherwise determine compliance with prescribed technical/engineering requirements. PME includes, but is not limited to, calipers, micrometers, linear scales, pin gages, thread gages, spline gages, custom gages, and optical comparators; coordinate measuring machines, hardness & conductivity testing equipment, optical flats, roughness testers, torque wrenches, tensiometers, protractors, sine bars and angle blocks.

4.20.4. The supplier is responsible for maintenance periodic calibration of all Qarbon Aerospace furnished PME unless otherwise negotiated with the responsible Qarbon Aerospace Procurement Representative.

4.20.5. Tooling Requirements

Qarbon Aerospace SC-MAN-0003 “Supplier Tooling Manual” (STM) delineates requirements for suppliers who have POs that require manufacture or rework of Special Tooling (ST) or Special Test Equipment (STE). These requirements are applicable to all procurements unless specifically stated otherwise in the PO. Suppliers will flow requirements identified in the STM to their sub-tier suppliers that fabricate, rework or design tooling on their behalf. The STM can be accessed via Qarbon Aerospace website under, select the link: <https://qarbonaerospace.com/supplier-portal> Provisions/Tool Requirements.

Copies of materials referenced in STM can be obtained by contacting a Qarbon Aerospace procurement representative.

4.21. Key Characteristics

- 4.21.1. When the Engineering drawing, specification, and / or Qarbon Aerospace Company purchase order or Quality Requirement, includes “key characteristic” requirements, the supplier shall employ Variability Reduction / Statistical Process Control (VR/SPC) methods as defined in SAE AS9103 to ensure “Key Characteristic” integrity.
- 4.21.2. VR / SPC related records shall be retained at the supplier’s facility and provided to Qarbon Aerospace’s representative, upon request, for compliance review.
- 4.21.3. Key Characteristics and strive to achieve Cpk of 1.33 or better. If not achievable, contact the appropriate Qarbon Aerospace Procurement Representative for direction.
- 4.21.4. When a Qarbon Aerospace key characteristic or key characteristics are identified and contractually flowed to the supplier, Qarbon Aerospace reserve the right to perform Advanced Quality System (AQS) Assessments as necessary at the supplier facility(s) to ensure compliance to Qarbon Aerospace purchase order/contract requirements.

4.22. Software Control (End-Item Deliverable)

- 4.22.1. If the supplier is providing software supporting a procurement, the supplier shall establish and maintain a Software Quality Assurance (SQA) program in accordance with ISO 9001, utilizing ISO 9000-3 as a guideline for the development, supply and maintenance of software and any associated Data Item Description (DID) for writing an SQA plan.

5. Shipping & Deliverable Documentation Requirements

5.1. Overview

5.1.1. **NOTE:** Supplier's shall not return Qarbon Aerospace furnished material without written direction of applicable Qarbon Aerospace Procurement Representative. Material returned to Qarbon Aerospace must include copies of Qarbon Aerospace shipping documents. The supplier shall provide a packing sheet for each separate shipment. At a minimum, packing sheets or attachments shall include the following information:

- 5.1.1.1 Supplier's company name and address,
- 5.1.1.2 The appropriate Qarbon Aerospace's purchase order number, change order number and applicable purchase order line item(s) and part numbers,
- 5.1.1.3 Record of applicable design drawing revision and applicable engineering changes (DCN, EO, etc.), as stated in the appropriate Qarbon Aerospace's purchase order or later revision.

5.2. Certification of Conformance (C of C)

5.2.1. Form and Content

5.2.1.1 A Certificate of Conformance (C of C) document provides written assurance that all work performed in connection with the appropriate Qarbon Aerospace's purchase order conforms to purchase order requirements.

5.2.1.1.1 This can be a separate document from the packing sheet, or included on the packing sheet,

5.2.1.1.2 **NOTE:** The original signature and / or stamp of supplier's authorized Quality Representative are required and must be dated. Secured, computer-generated signatures are acceptable. Additionally, the certification statement must state the suppliers Quality Assurance department has inspected the parts and they adhere to all contract requirements, applicable drawings and / or specifications.

5.2.1.2 All Certifications of Conformance shall be traceable to the material submitted and at a minimum shall contain:

- 5.2.1.2.1 Supplier's name,
- 5.2.1.2.2 Supplier's address,
- 5.2.1.2.3 PO number,
- 5.2.1.2.4 PO item number,
- 5.2.1.2.5 Drawing number and revision,

- 5.2.1.2.6 Quantity delivered,
- 5.2.1.2.7 Serial number(s) (as required),
- 5.2.1.2.8 When applicable, nonconformance reference number.
- 5.2.1.3 Product deliveries that have been subjected to Aerospace Industry designated “Special Processes” shall at a minimum be accompanied by the Processor’s Certification for the Special Process or all of the following:
 - 5.2.1.3.1 Name of special process facility,
 - 5.2.1.3.2 Address of special process facility,
 - 5.2.1.3.3 Special process designation, nomenclature, and revision,
 - 5.2.1.3.4 Date that special process was performed.
- 5.2.2. Machined Part Suppliers, Sheet Metal Part Suppliers, Composite/Nonmetallic Part Suppliers, Casting & Forging Suppliers, and Raw Material Manufacturers
 - 5.2.2.1 The supplier shall provide the raw material certifications which were provided by the original mill. Mill certifications shall include conformance with the applicable material specification as noted on the applicable Qarbon Aerospace purchase order, material description, alloy and condition, physical properties, chemical analysis, and heat lot number.
 - 5.2.2.1.1 Note: Unless specifically required by the purchase order, suppliers that have been granted delegation from the contracting Qarbon Aerospace or product that has been subjected to Qarbon source inspection do not need to include copies of the material certifications with the product delivery. However, certifications shall be made available during source inspection.
 - 5.2.2.2 If the raw material was purchased from a distributor, include the distributor’s Certificate of Conformance along with the mill certification.
 - 5.2.2.2.1 Recertification by any means other than by the original mill is not authorized unless specifically directed through specific Qarbon Aerospace Quality Requirements.
 - 5.2.2.3 Castings and forgings procured in support of Qarbon Aerospace purchases of machined parts must have documented evidence of Qarbon Aerospace / customer qualification acceptance prior to production. All chemical analysis and physical test certifications shall also be provided for castings and forgings.

- 5.2.2.3.1 **NOTE:** Suppliers using Qarbon Aerospace provided material may provide evidence of Qarbon Aerospace consignment in lieu of raw material certifications.
- 5.2.2.3.2 **NOTE:** This category also applies to machined / sheet metal assemblies where the assembly consists of the machined/Sheetmetal part and standard hardware such as bearings, bushings, nut plates, and/ or sleeves.
- 5.2.2.3.3 **NOTE:** The supplier must clarify the type of information being provided by typing the words “Date Code,” “Control Number,” etc. next to the information provided. When the shipment of deliverable items includes multiple date codes, control numbers, etc., each must be listed on the “Certificate of Conformance” document.
- 5.2.2.3.4 **NOTE:** When required by Qarbon Aerospace purchase order or Quality Requirement, Certificates of Conformance for metallic product shall contain hardness and conductivity values.
- 5.2.2.3.5 Qarbon Aerospace may specifically identify what surfaces toperform hardness tests, and what methods to utilize. Incorrect scale or location may result in a scrap part of which the supplier shall be responsible.
- 5.2.2.3.6 **NOTE:** When special processing is performed, the suppliers manufacturing detail end item parts, shall list the order in which special processing was performed, the supplier that performed the process, the processor’s special process approval number, and the Certificate of Conformance number from the special processor.
- 5.2.2.4 The supplier shall apply the actual date of manufacture, date code(s) or control number(s) to the shipping document and/or “Certificate of Conformance”, signed by a supplier’s designated Quality Representative.
- 5.2.3. Certification of Conformance (C of C) - Distributors of Standard Parts / Hardware / Raw Materials
 - 5.2.3.1 To discourage the potential for counterfeit parts or materials from entering the supply chain, Qarbon Aerospace does not accept raw materials from pass through distributors(Level 3) that have not been procured directly from the manufacturer, unless certified copies from the original mill are available or prior written approval has been provided by Qarbon Aerospace. Any purchase of recertified raw material or raw material that has departed from direct control of the manufacturer is prohibited. Attempts to make such sales to Qarbon shall be grounds for supplier disapproval.

5.2.3.2 Qarbon Aerospace approved distributors of raw material shall provide certified copies of manufacturer’s test reports with each shipment.

5.2.3.2.1 Qarbon Aerospace classifies a supplier as an approved distributor for a specific manufacturer when the distributor has written authorization from the manufacturer to procure and distribute specific products produced by manufacturer. It is the distributor’s responsibility to provide a copy of the manufacturer’s authorization letter to Qarbon Aerospace upon request.

5.2.3.3 Suppliers who procure from distributors are to utilize only distributors with Quality Management Systems that comply with either AS/EN/SJAC9100, “Quality Management Systems – Requirements for Aviation, Space and Defense Operations,” and/or AS/EN/SJAC9120, “Quality Management Systems – Requirements for Aviation, Space and Defense Distributors.” Qarbon Aerospace’s first tier suppliers shall evaluate and select distributors based upon their ability to comply with this requirement. Note that methods for demonstrating compliance can include, but are not limited to, Quality Management System certification, second party audit, survey, etc.

5.2.3.4 Distributors shall ensure that standard parts / hardware/material are marked in accordance with specification requirements. Original mill marking shall be affixed and legible on raw materials and shall not show signs of tampering or altering.

5.2.3.5 Qarbon Aerospace does not accept standard hardware or other items from pass through distributors (Level 3 Quality System approval) unless they are procured directly from the manufacturer, or a copy of the original manufacturer certification / test report is provided. In addition, hardware or other items that have been altered by a pass-through distributor will not be accepted without prior written permission by Qarbon Aerospace. Distributors wishing to provide "value added" services shall be approved to a Qarbon Aerospace Supplier Quality System Survey Level 2 (See Table 1).

5.2.4. Certification of Conformance (C of C) - Suppliers of **Age-Sensitive** Materials

5.2.4.1 Suppliers must provide the original manufacturing / cure date, lot number(s), expiration date or length of shelf life (if indefinite, so state), and any special storage/handling instructions.

5.2.4.1.1 **NOTE:** For age-sensitive rubber products, the supplier’s “expiration date” or “length of shelf life” data is not required if the cure date and applicable specification number are stamped on the deliverable hardware. Supplier is responsible to determine if acceptance test

report submittal is required in accordance with applicable material specification.

5.2.5. Certification of Conformance (C of C) - Rework/Repair/Replacement/Modified

5.2.5.1 Items on supplier's Certification of Conformance and / or packing sheets (if it contains the C of C statement) shall clearly reflect the following requirements for rework, replacement, repair or modification of items returned to a supplier, including work performed by supplier at Qarbon Aerospace's facility:

5.2.5.1.1 A clearly visible declaration that the item(s) have been reworked, repaired, replaced, or modified (as applicable), in accordance with respective nonconformance documents or applicable Qarbon Aerospace Company purchase order,

5.2.5.1.2 The item(s) meet the requirements of the engineering document(s),

5.2.5.1.3 The original configuration and qualification status of the item(s) remains in effect (as applicable),

5.2.5.1.4 All applicable nonconformance document numbers or other references have been noted to insure traceability.

5.2.6. Certification of Conformance (C of C) - FAA Repair Stations

5.2.6.1 Suppliers shall provide a completed serviceable tag with FAA Form/Tag 8130-3, "Authorized Release Certificate, Airworthiness Approval Tag" in accordance with FAR, Part 43. Any Airworthiness Directives (AD's) or Service Bulletins (SB's) required by the contractor, or the FAA shall be documented on the 8130-3 including level of compliance.

5.2.6.2 When applicable, the supplier shall provide FAA Form 337, "Major Repair and Alteration", and or FAA Form 8110-3, "Statement of Compliance with Airworthiness Standards". Work must be performed by a FAA FAR 145 approved repair station. When requested by Qarbon Aerospace, supplier shall provide a completed copy of the final inspection work order, which details the entire scope of work performed.

5.2.6.2.1 When contractually required, Qarbon Aerospace is required to monitor suppliers for compliance to the FAA Anti-Drug and Alcohol Misuse Prevention Program (AAMPP). When requested by Qarbon Aerospace, the supplier agrees to provide objective evidence that employees are being tested as required by the AAMPP.

5.2.7. Certification of Conformance (C of C) - FAA FAR, Part 21 (Certification Procedure for product and Parts)

5.2.7.1 Suppliers of new FAA products/parts shall provide documented evidence of traceability to FAR Part 21, Quality System Requirements, with each shipment. Suppliers of approved serviceable replacement parts shall provide with each shipment documented objective evidence of traceability to FAA FAR 21 as outlined by Advisory Circular No. 20-62 latest revision. Supplied parts shall be airworthy and acceptable for aircraft /aeronautical installations to all specifications called out contractually.

5.2.8. Certification of Conformance (C of C) - Qualification Certification

5.2.8.1. When Qarbon Aerospace drawing, procurement specification or purchase order requires deliverable items to be re-qualified, the supplier shall ensure that deliverable item(s) have identical components to those parts originally qualified to the applicable specification / control drawing. In addition, the supplier shall ensure that materials, parts and/or assemblies were inspected and/or tested to Qarbon Aerospace designated specification control drawings (both Qarbon Aerospace and supplier originated), and indicate revision level of engineering drawings, specifications, and applicable design / specification changes as stated in the applicable Qarbon Aerospace's purchase order. Qarbon Aerospace shall view the supplier's Certification of Conformance (C of C) document and/or packing sheet (if contains C of C) as supplier's indication of compliance with this requirement. End items delivered prior to completion of qualification testing shall be allowed only by the applicable Qarbon Aerospace's written consent.

5.2.9. Certification of Conformance (C of C) - Kitted Parts

5.2.9.1 All deliveries must be accompanied with a legible Certificate of Conformance (C of C) or equivalent with each kit. The supplier must certify that all material / parts have been processed, inspected, and tested in accordance with the purchase order and engineering requirements. The supporting data is on file and will be made available for Qarbon Aerospace review upon request. Any deviations / waivers associated with material / parts in the kit are to be listed on the packing slip / C ofC along with the affected part number. A first article inspection in accordance with Qarbon Aerospace purchase order requirements is required against the kit part number as well as each individual part within the kit.

5.2.9.2 **NOTE:** Any additional data package requirements will be itemized on the respective purchase order and/or planning configuration sheet (i.e., work order, manufacturing order, etc.).

5.2.10. Certification of Conformance - Assemblies/Sub-Assemblies

5.2.10.1 All deliveries must be accompanied with a legible Certificate of Conformance (C of C) or equivalent with each kit. The supplier must certify that all material / parts

have been processed, inspected, and tested in accordance with the purchase order and engineering requirements. The supporting data is on file and will be made available for Qarbon Aerospace review upon request. Any deviations / waivers associated with material / parts in the assembly are to be listed on the packing slip / C of C along with the affected part number. A first article inspection in accordance with this document is required against the assembly part number as well as each individual part within the assembly.

5.3. Marking, Packaging and Handling

- 5.3.1. Suppliers shall mark all deliverable products and documents in accordance with the purchase order, manufacturing planning, engineering drawing or this document in that order of precedence.
 - 5.3.1.1 In the event there is a conflict between the requirements defined in this document, the purchase order, the engineering drawing and/or specification, the drawing / specification shall take precedence.
- 5.3.2. In performance of the contract, the supplier shall assure that all articles are packaged in a manner and with materials necessary to prevent deterioration, corrosion, or damage. Requirements for packaging shall consider conditions affecting the article while at the supplier's facility, transportation to destination, and the expected or specified conditions at the destination.
- 5.3.3. The supplier shall provide special handling for articles sensitive to handling damage. During fabrication and processing, special carts, boxes, containers, and transportation vehicles shall be used as necessary to prevent damage due to handling. During individual packaging of parts, the use of staples is prohibited. This requirement excludes multi-part box packaging. All parts shall be checked by the supplier for damage at receipt (when applicable) and prior to shipment.
- 5.3.4. When specific packaging requirements are flowed-down to the respective Qarbon Aerospace by their customer, the same requirements shall be flowed-down to the supplier. These requirements may supersede the requirements of this section, e.g., government specification packaging.
 - 1. Initial PO Part Number may contain a –FP” suffix utilized internally at Qarbon Aerospace to control workorders issued during the “Make to Buy” transition. The related bought planning instructions will direct the supplier to disregard the “-FP” suffix when identifying the part or assembly.

Example:

PO Part Number: 65B03500-5-

FP Planning ID Operation Text:

Supplier shall omit the –FP suffix when performing part marking activity. For example: 65B03500-5-FP shall be part marked as 65B03500-5

In addition, supplier shall apply the actual date of manufacture, date code(s) or other control identifier number (see examples below) to all deliverable hardware. Information must be applied adjacent to the hardware's identification markings and must be traceable to supplier's build documentation. Hardware produced in lots, batches, groups, etc., shall have traceable control information applied. When size of hardware, or supplier's automated stamping process, does not permit data application to individual hardware (such as standard parts), the information shall be similarly placed on bags, tags, or labels as applicable examples of traceable information may include, but are not limited to:

- a) Date of Manufacture
- b) Serial Number
- c) Lot Number
- d) Control Number
- e) Final Inspection Sequence Date
- f) Batch Number
- g) Casting Number
- h) Work Order Number
- i) Part Number as defined on purchase order and/or Qarbon Aerospace Supplier Specifications Planning (SSP)
- j) Qarbon Aerospace assigned supplier code number
- k) Verification of stamp
- l) Country of Origin

The supplier shall also identify all parts with Qarbon Aerospace assigned supplier code as noted on the PO (Fig 1a) (i.e., the supplier that is on contract with Qarbon Aerospace directly).

5.3.5. Note: Not required for the following:

- 1) Metallic raw materials (Excluding Castings & Forgings)
- 2) Non-metallic raw materials
- 3) Mechanical standard parts/hardware

- 4) Electrical components/hardware
- 5) Paints, sealants, and chemicals

5.3.6. Shipping and Documentation Requirements

Suppliers shall not return Qarbon Aerospace furnished material without written direction of Qarbon Aerospace buyer. Material returned to Qarbon Aerospace must include copies of Qarbon Aerospace shipping documents. Shipping documentation other than the packing slip and CD-4020b (if applicable) may be transmitted electronically in lieu of paper copies, when coordinated with Qarbon Aerospace delivery site. Supplier shall provide a packing sheet for each separate shipment. Packing sheets or attachments shall include the following information:

1. Minimum Requirements (All Suppliers and Distributors; All Products)

- a. Supplier's company name and address
- b. Qarbon Aerospace's PO number, change order number and applicable PO line item(s) and part numbers.
- c. Denote applicable design drawing revision and applicable engineering changes (ADCN, EO, etc.), as stated in Qarbon Aerospace's PO, or later revision.
- d. A "Certificate of Conformance" (C of C) document that provides written assurance that all work performed in connection with Qarbon Aerospace's PO conforms to PO requirements. This can be a separate document from the packing sheet, or included on the packing sheet. If submitting Form CD-4020 a separate C o C is not required.
- e. The original signature and/or stamp of supplier's authorized Quality representative is required and must be dated. Secured computer-generated signatures are acceptable. Additionally, the certification statement must state the suppliers Quality Assurance department has inspected the parts and they adhere to all contract requirements, applicable drawings and/or specifications
- f. SC-FRM-00.CD.4020 (Form CD-4020), Supplier Certificate of Compliance
- g. Note: When special processing is performed, suppliers manufacturing detail end item parts, shall list on Qarbon Aerospace form CD-4020 the order in which special processing was performed, the supplier that performed the process, the processor's special process approval number and the C o C number from the special processor. SC-FRM-00.CD.4020 (Form CD-4020) can be obtained on Qarbon Aerospace Supplier Portal Link :<https://qarbonaerospace.com/supplier-portal/>
- h. Suppliers approved for Qarbon Aerospace's "Delegated Product Verification Program" do not require submission of the SC-FRM-00.CD.4020 (CD-4020) form unless the product is listed as an exception to the DPRV program (which requires

source inspection to be performed). However, a C o C must still accompany all shipments.

- i. Qarbon Aerospace dispositioned nonconformance document number(s), as applicable shall be noted on the packing slip and SC-FRM-00.CD.4020 (CD-4020) as applicable.
- j. For Boeing Commercial Programs, the supplier must provide a statement on the packing sheet “Certifying that the Quality Assurance Department has inspected the parts and they adhere to all requirements, applicable drawings and/ or specifications.
- k. For QA-FRM-00.CD.4020B (CD-4020b), Supplier Certificate of Compliance (as required), this form is required by all suppliers including suppliers listed in the Delegated Product Release Verification Program, when shipment has been authorized and the deliverable contains an open rejection tag (i.e., work or further evaluation is required at Qarbon Aerospace). QA-FRM-00.CD.4020B (Form CD-4020b) form must be downloaded from the below mentioned website. This form can be obtained on Qarbon Aerospace Group Supplier Portal Link: <https://qarbonaerospace.com/supplier-portal/>.

2. Deliverable Documents.

Supplier shall apply the actual date of manufacture, date code(s) or control number(s) to the shipping document and/or COC, signed by the Supplier’s designated Quality representative.

Note: Supplier must clarify the type of information being provided by typing the words “Date Code,” “Control Number,” etc. next to the information provided. When the shipment of deliverable items includes multiple date codes, control numbers, etc., each must be listed on the C o C document. Additionally, C o C documents for metallic product shall contain hardness(when applicable) and conductivity values. If metallic product is in the annealed condition, no hardness and/or conductivity are required. If metallic product does not go through any heat treatment, follow requirements in accordance with SC-PRO-00.00.SQR10 (SQR-010) requirements.

Note: For Boeing Commercial “Designated Parts”, each shipment certification shall include the Boeing approval memo number and the date and/or the revision level of the designated manufacturing plan used to produce the Designated Parts.

3. Sub-tier Supplier/Processor Certifications.

If Supplier is not the original fabricator, processor or assembly source of the product(s) which make up the deliverable end item(s), supplier shall obtain and retain on file Sub-tier Supplier/ Processor certifications and test results. Supplier’s Sub-tier

Supplier/Processor certifications and test results shall be made available to Qarbon Aerospace upon request.

4. Additional Requirements as applicable:

- a) Serial Number
- b) Interchangeable and Replaceable (I&R) designated control numbers.
- c) Required traceability forms
- d) Traceable Records. Supplier shall maintain parts traceability records as required per applicable drawing requirements. Supplier's COC package shall include parts traceability data.
- e) Global Hawk: For Fracture Critical items, supplier certification must include the date and/or revision level of the manufacturing plan used and the Northrop Grumman PO005 survey/RCI number approving the plan.

NOTE: For Global Hawk, all material and process certification for all Fracture Critical 1, Fracture Critical 2 and durability parts must be sent in with every shipment. All manufacturing plans and NDT/NDA techniques must be submitted for approval by the customer via the SIR system.

- f) Global Hawk and F-5 Programs Only, standard and purchase part Distributors shall comply with the requirements of Northrop-Grumman's Quality Assurance Test Procedure (QATP). Copies of this document are available via the Northrop-Grumman website at:
- g) CH-60 Program Only, Sikorsky standard parts index shall apply

5.4. Interchangeability and Replaceability (I&R) Requirements

- 5.4.1. Supplier shall review Qarbon Aerospace's purchase order and associated drawing(s) to determine if Interchangeability & Replaceability (I&R) features apply to supplier's deliverable hardware and/or statement of work.
- 5.4.2. I&R records shall be maintained by supplier and made available for Qarbon Aerospace review upon request. Supplier's packing sheets and/or attachments must include Qarbon Aerospace designated I&R control numbers as specified in this purchase order's configuration statement of work.

5.5. Records Retention and Disposition

- 5.5.1. Records shall be readily available for review by Qarbon Aerospace, its customers, and Government regulatory agencies. An English version (copy of the record) shall be available for all quality data and/or approved design data. Prior to destruction of any Quality Records

related to Qarbon Aerospace procurement, the supplier shall notify and submit a records disposition request to the appropriate Qarbon Aerospace Procurement Representative.

5.5.1.1 Records are those as defined in AS/EN/SJAC9100 or other governing Quality Management System specifications and shall be retained in hard paper, film media, and/or electronic as required by contract requirement, purchase order or if not defined, for a minimum of ten (10) years after purchase order completion or in accordance with Qarbon Aerospace purchase order requirements. Per 5.5.1, Qarbon Aerospace will be offered first right of refusal prior to record destruction.

5.5.2. Records include but are not limited to:

5.5.2.1 Inspections and test results per the appropriate Qarbon Aerospace purchase order requirements. The records shall indicate the nature and quantity of nonconformances, the quantities approved and rejected, the nature of corrective action taken and the final sign off by Quality personnel.

5.5.2.2 Manufacturing information and all supporting documentation such as raw material certifications, special processing records and certifications, manufacturing records, e.g., routers and travelers, shall be retained and remain continually accessible at no cost to Qarbon Aerospace by the supplier in accordance with the terms of the purchase order.

5.6. Traceable Records

5.6.1. The supplier shall maintain parts traceability records as required per applicable drawing requirements. The supplier's certificate of conformity package shall include parts traceability data.

5.7. Foreign Object Damage (FOD) Control Program

5.7.1. When required by Qarbon Aerospace purchase order or Quality Requirement, the supplier shall establish, document, and maintain a FOD control program in accordance with NAS412 and/ or AS 9146. The goal of the program is to control and eliminate foreign object damage and/or contamination appropriate to the supplier's manufacturing, assembly, test, inspection, packaging and shipping operations.

5.7.1.1 **Foreign Objects (FO)** is defined as a substance or article alien to a product or system that could potentially cause Foreign Object Damage if not removed.

5.7.1.2 **Foreign Object Damage (FOD)** is defined as any damage attributed to a foreign object that may be expressed in physical or economic terms, which may or may not degrade the product's required safety and/or performance characteristics.

- 5.7.1.3 **Foreign Object debris (FOD)** is defined as the condition where Foreign Object debris has invaded a product or system. Examples include (but are not limited to):
- 5.7.1.3.1 Manufacturing by-products and materials,
 - 5.7.1.3.2 Solder balls, screws, nuts, washers; insert tangs, component lead ends, wire and sleeve clippings, pieces of electronic components, flux, excess solder, tin whiskers,
 - 5.7.1.3.3 Dust/dirt from bench tops, equipment, and facility infrastructure,
 - 5.7.1.3.4 Finger oils or lotions, fibers from clothing, wrist bands or accessories, hair,
 - 5.7.1.3.5 Consumables, expendables, hardware, personal items.
- 5.7.2. When applicable, the supplier's Foreign Object Damage control program shall include controls to preclude Foreign Object Damage or contamination at the supplier's sub-tier sources.
- 5.7.3. The following basic elements shall be included in the supplier's Foreign Object Damage control program:
- 1. Foreign Object prevention training,
 - 2. Performance measurement,
 - 3. Design and manufacturing planning consideration for Foreign Object Damage prevention,
 - a. Work sequencing,
 - b. Cleanliness of work area (housekeeping),
 - c. Control of tools, personal items, fasteners, scrap, etc. (accountability)
 - 4. Lost items search and documentation process,
 - 5. Protection from Foreign Objects during handling, packaging, and shipping,
 - 6. Physical entry control into Foreign Object critical areas,
 - 7. Foreign Object focal point(s),
 - 8. Periodic (At least annually) evaluation of the Foreign Object control program for effectiveness,
- 5.7.4. At Qarbon Aerospace's discretion, the supplier's Foreign Object Damage control program is subject to on-site review and approval.

6. Supplier First Article Inspection Requirements

6.1. First Article Inspection Requirements Overview

- 6.1.1. The purpose of a supplier First Article Inspection (FAI) is to ensure that all design features of deliverable product and its subcomponents meet all applicable levels of design drawing, material, process specification, and purchase order requirements.
- 6.1.2. Qarbon Aerospace requires suppliers of direct production parts to employ a First Article Inspection process in accordance with SAE AS9102. The purpose of this requirement is to develop objective evidence to support that all engineering design and specification requirements are properly understood, accounted for and verified.
- 6.1.3. The First Article is a process imposed on assemblies, sub-assemblies, and detail parts (including castings, forgings, machined, composite, raw material cut to an engineering shape/part number, etc.). An acceptable first article product is a representation of those planned capable and repetitive manufacturing processes and proven tooling which produced it. A complete Qarbon approved FAI must be submitted prior to shipment of product.

Note: Parts being shipped to Qarbon Aerospace Sites require the representative FAIs for those parts to be “Approved” by Qarbon Aerospace through Net-Inspect prior to being delivered.
- 6.1.4. An FAI product must be a true representative of the designed manufacturing / fabrication process. Therefore, suppliers shall not use prototype parts, or parts manufactured using methods different from those intended for the normal production process, for the FAI. The “First Part” produced may not qualify as the First Article if changes to the process are made subsequent to its delivery.
- 6.1.5. The supplier must be able to demonstrate that the intent of FAI was successfully accomplished and show objective evidence thereof. The supplier will ensure FAI’s submitted on behalf of sub-tier suppliers have been reviewed and are compliant with the requirements of this document.
- 6.1.6. Suppliers must notify the appropriate Qarbon Aerospace site Procurement Representative if the first delivered unit does not represent the processes under which the subsequent production deliveries will be produced.
- 6.1.7. Suppliers that proceed at risk and produce products prior to acceptance of the First Article by the appropriate Qarbon Aerospace site shall not have recourse to recover losses resultant from a failed First Article. All costs associated with the result of a rejected supplier First Article produced at risk by the supplier, shall be borne by the supplier.

- 6.1.7.1 Suppliers can proceed without risk to themselves (at Qarbon Aerospace risk) only when the supplier is authorized in writing by the appropriate Qarbon Aerospace Site Quality Manager or designee.
- 6.1.8. The requirement for First Article Inspection excludes supplied basic raw materials such as metallic plate/sheet, chemicals, fibers, fabrics, and outside processing services unless otherwise a part of approval processes administered by a Qarbon Aerospace Customer.
- 6.1.9. First Article Inspection (FAI) and Design Process Change Validations.
- 6.1.10. In order to ensure clear definition, Qarbon Aerospace's FAI requirements are delineated in SC-PRO-00.00.SQR11 Supplier Quality Requirements for First Article Inspection. All Qarbon Aerospace suppliers are required to adhere to SC-PRO-00.00.SQR11.

6.2. First Article Requirements

- 6.2.1. Partial or complete re-accomplishment of the First Article Inspection for affected characteristics is required for changes in product design; any change in the supplier's manufacturing process, or other events as prescribed within SAE AS9102.
- 6.2.2. The following are requirements of Qarbon Aerospace First Article Inspection process:
 - 6.2.2.1 This data is to be developed and documented in accordance with methods prescribed within SAE AS9102. Suppliers are to utilize the forms associated with this standard where possible. A supplier's equivalent forms may be used in place of those contained within the standard, provided all content prescribed is included. Suppliers may acquire copies of SAE AS9102 and the associated forms at the following web-Company address: www.sae.org.
 - 6.2.2.2 Additional First Article inspection requirements above and beyond SAE AS9102 may be imposed by Qarbon Aerospace.
- 6.2.3. Along with the First Article report, the supplier shall include all supporting documentation as required per Qarbon Aerospace purchase order or Quality Requirements.
 - 6.2.3.1 Unless otherwise authorized, a copy of the completed First Article Inspection Report shall be provided to the appropriate Qarbon Aerospace Site for its review and approval.
 - 6.2.3.2 The supplier is required to retain the master First Article reports and associated data as described in 5.5, Record Retention and maintain the FAI records ready for review by Qarbon Aerospace upon request.
 - 6.2.3.3 With the exception of catalog or standard hardware, raw materials Certificates of Conformance (C of C) are not an acceptable substitute for full chemical and physical certification (mill certifications) on First Article submissions.

6.2.3.4 For critical and other select parts, Qarbon Aerospace sites may elect to have the supplier withhold their First Article submission in order to allow Qarbon Aerospace's Supplier Quality to conduct a verification of the First Article part and data at the supplier's production facility. Arrangements for this type of review will be addressed by a specific Qarbon Aerospace's Quality Assurance Requirements and shall be coordinated in advance between the appropriate Qarbon Aerospace site and the supplier.

6.2.4. First Article Build Package

6.2.4.1 The FAI will not be considered complete until all build package issues are resolved. The build package consists of:

- 6.2.4.1.1 Engineering,
- 6.2.4.1.2 Specifications,
- 6.2.4.1.3 Planning,
- 6.2.4.1.4 Tooling,
- 6.2.4.1.5 Purchase Order,
- 6.2.4.1.6 Numerically Controlled Equipment Data (as applicable).

6.2.4.2 The FAI will not be considered complete until nonconformances affecting the part or assemblies have been closed and corrective action implemented. Partial FAIs will be performed for those affected characteristics and the results recorded.

6.2.4.3 The FAI requirement shall continue to apply even after initial compliance. Partial or complete re-accomplishment of the FAI for affected characteristics is required for the following events:

- 6.2.4.3.1 A change in the design affecting the form, fit or function of part,
- 6.2.4.3.2 A change in manufacturing source(s), processes, processors, inspection method(s), location, tooling, or material with the potential of affecting form, fit or function,
- 6.2.4.3.3 When required as part of a corrective action for a part number with repetitive rejection history (typically a part with three repeated rejections or as required by the customer),
- 6.2.4.3.4 A change in numerical control program or translation to another media,
- 6.2.4.3.5 A natural or man-made occurrence, which may adversely affect the manufacturing process,

6.2.4.3.6 A lapse in production for two years or as specified by a specific Qarbon Aerospace Purchase Order Quality Requirement.

6.2.5. Supplier Sub-Assembly and Kit First Article

6.2.5.1 When the supplier chooses to procure sub-assemblies and parts, these FAI requirements shall be imposed by the supplier upon the sub-tier supplier. These requirements in no way limit, supersede, or abrogate any contractual obligations specified in Qarbon Aerospace's procurement document.

6.2.5.2 If the supplier is furnishing kits, a FAI must be performed and documented by the supplier for each item in the kit, as well as the kit level part number.

6.2.6. First Article Digital Product Definition (DPD)

6.2.6.1 When the engineering is based on Digital Product Definition the following guidelines shall be taken into account:

6.2.6.1.1 All features that are defined by the 3-D model must be included in the product acceptance plan and accounted for as part of the FAI documentation.

6.2.6.2 When the dimensional characteristics are not defined by either a standard linear tolerance or GD&T feature control frame on the face of the model, these features are defined in the parts list and / or notes on the drawing.

6.2.6.2.1 Examples of un-dimensioned part characteristics include but not limited to, gage thickness, surface locations, and part periphery.

6.2.6.3 The FAI shall account for the entire engineering dataset (i.e., the general / flag notes, parts list, all features / characteristics per defined tolerances).

6.2.7. First Article Parts shall be identified as First Article

6.2.7.1 To facilitate Qarbon Aerospace's identification and verification of First Article parts and data, suppliers are required to identify the part tagging or packaging by a suitable means that conspicuously identifies the First Article part as such.

6.2.8. Qarbon Aerospace Review and Approval of Individual Part First Article Submissions.

6.2.8.1 Qarbon Aerospace's Quality Assurance personnel will review the First Article inspection report data for compliance to engineering requirements and for required content in accordance with SAE AS9102. Qarbon Aerospace may also re-inspect parts to validate supplier First Article reports.

6.2.8.2 Suppliers will be notified of any rejection pertaining to their First Article submission through the appropriate Qarbon Aerospace site.

- 6.2.8.3 Rejected First Articles will require resubmission of the complete or partial First Articles data and where requested, parts. Partial or complete re-accomplishment of the First Article Inspection for affected characteristics is required for changes in product design; any change in the supplier's manufacturing process, or other events as prescribed within SAE AS9102 and this document.
- 6.2.8.4 Qarbon Aerospace's site may also require any sample parts used in the First Article process. Qarbon Aerospace's Quality Assurance personnel reserve the right to review the First Article parts and associated data to assure supplier compliance to engineering requirements and for required content in accordance with AS9102.
- 6.2.8.5 A rejected First Article may result in the issuance of a Supplier Corrective Action Request by the respective Qarbon Aerospace Supplier Quality in order to identify the reason the rejected First Article was not detected by the supplier's Quality System.

6.2.9. Qarbon Aerospace Review and Validation of Supplier First Article Processes

- 6.2.9.1 Where appropriate, Qarbon Aerospace's Supplier Quality may utilize a specifically tailored Process Review in order to validate the thoroughness and effectiveness of those processes developed and deployed by individual suppliers for purposes of generating and verifying their First Article documentation in accordance with SAE AS9102. Those suppliers whose processes are successfully validated in this manner will still be required to transmit their First Article Inspection reports along with the labeled part from which the data was derived but will not be required to seek Qarbon Aerospace First Article Verification approval for individual parts prior to commencing ongoing production shipments.

6.3. Qualified Dies for Castings & Forgings Procured to an Engineering Drawing (Part Number)

- 6.3.1. Prior to initial production, the die or pattern must be qualified per the requirements of the blueprint specifications, the supplier of the castings or forgings shall perform first piece inspection. Actual dimensions are to be recorded on the First Article Inspection SAE AS9102 Form. Supplier equivalent forms are acceptable providing they address all the elements of the AS9102 form. To clarify, when the forging or casting is to be procured to an engineering drawing, the FAI along with the qualification package (as defined by governing specifications) shall be submitted to the appropriate Qarbon Aerospace for review and approval.

7. Suppliers Sub-tier Controls

7.1. Sub-Tier Supplier Controls Overview

- 7.1.1. It is the contractual requirement of suppliers to ensure items procured to support a Qarbon Aerospace's purchase order meets and conforms to all specified requirements. **Qarbon Aerospace does not authorize delegated product inspection on behalf of the supplier without providing written approval.**

7.2. Qarbon Aerospace Suppliers Management of Sub-tier Suppliers

- 7.2.1. Qarbon Aerospace suppliers are responsible for management of their subcontractors. This management shall include compliance in addition to acceptable quality performance.
- 7.2.2. It is strongly recommended that suppliers to Qarbon Aerospace utilize sub-tier suppliers that are certified to the most current versions (or as allowed by a recognized accreditation agency transition plan) of AS/EN/SJAC9100, 9110, 9120, AS9003, AC7004 or ISO9001 by a recognized standard accreditation agency (as noted in Table 1, ref. para. 3.5).
- 7.2.3. Sub-tier suppliers can be categorized as compliant if a compliance audit is performed by the supplier and the results are available for review by Qarbon Aerospace.. Any risk of utilizing sub-tiers without the recommended Quality System capability shall be borne solely by the supplier.
- 7.2.4. Suppliers shall provide purchasing information to their suppliers that adequately describe the product/service to be procured. It is recommended that suppliers provide specific information in lieu of general reference to specification or documentation.

7.3. Requirement Flow Down

- 7.3.1. Suppliers are responsible for flow down of all the requirements and provisions of Qarbon Aerospace's purchase order and this document to the supplier's sub-contractors. Deviations to this document and/or Qarbon Aerospace's purchase orders are not authorized without written consent of Qarbon Aerospace. When Customer specific documents are flowed down to the supplier, the supplier shall also flow down the same documents to their sub-tier suppliers as applicable to the process / service being provided to the supplier by its sub-tiers.

7.4. Special Process Approvals

- 7.4.1. Qarbon Aerospace suppliers are also **required** to utilize prime contractor approved suppliers when designated, e.g., Boeing D1-4426. Qarbon Aerospace suppliers and their sub-tiers are responsible to ensure that only approved process sources are used. When required by Qarbon Aerospace purchase order or Quality Requirement, Nadcap approved processor shall be utilized.
- 7.4.2. Customer approval does not assure nor imply that work performed by a processor listed on the approved processor list is acceptable. Qarbon Aerospace suppliers and their sub-tier **suppliers are solely responsible** to assure that a processor meets all contract, purchase order, drawing and process specification requirements. When processors are not

designated, the supplier must approve the processor and the supplier becomes responsible for the processor's performance as an approved supplier.

7.5. Drawings Specifications and Quality Requirements

- 7.5.1. The supplier's Quality System shall assure that the applicable drawings, specifications, and quality requirements revisions are compatible with current purchase order agreements and are available and in use by the supplier's manufacturing and inspection areas. Military standards and specifications utilized shall be to the latest revision in effect on the date of process or manufacturing process performance, unless otherwise specified.
- 7.5.2. For specifications controlled by OEM and / or industry sources, suppliers shall independently verify the correct revision of the same and utilize the information in support of purchase order performance. Qarbon Aerospace **will not** actively provide applicable revision levels for these types of documents.
- 7.5.3. Suppliers may contact the applicable Qarbon Aerospace Supplier Quality Representative for information in regard to OEM or industry web access points where the required revisions are available. Many OEM or industry access points are provided on <https://qarbonaerospace.com/supplier-portal/> ➔ [Approved Processors](#) ➔ [Customer Approved Processors](#)
- 7.5.4. It is the responsibility of the supplier to notify the appropriate Qarbon Aerospace representative, when Engineering does not agree with the revision data provided on the purchase order. Product or process nonconformance resulting from the failure of the supplier to notify the applicable Qarbon Aerospace representative shall be deemed supplier responsibility.

7.6. Use of Non-US Suppliers on Commercial Programs

- 7.6.1. The use of suppliers or sub-tier suppliers in countries that maintain a bilateral agreement with the United States, as listed in FAA Advisory Circular AC 21-23, will require a routine validation of the product / service supplied upon receipt or at source. This may be in the form inspection or test as determined for the type of product and must be documented. The validation of the product or service may be accomplished by the Foreign Civil Aviation Authority and evidenced by an Airworthiness Tag supplied by that agency accompanying the shipment. The use of suppliers or sub-tier suppliers in countries that do not maintain a bilateral agreement with the United States must have a plan presented in advance for approval by the appropriate Qarbon Aerospace's Quality Assurance Department.
- 7.6.2. The plan must delineate how the supplier will control the product or service to assure conformance with all the approved design data. Secondly, the plan must incorporate how the foreign supplier's Quality Assurance Organization will specifically control their operations and any foreign sub-tier suppliers to assure conformance of the product / service

to the approved plan. The use of a supplier in a country that does not have a bilateral agreement with the United States is also predicated upon both that country's government and the supplier's documented assurance that the FAA will not be inhibited, in any manner, from performing a physical evaluation of the supplier.

7.7. Sub-tier Supplier/Processor Certification

7.7.1. If the supplier is not the original fabricator, processor or assembly source of the product(s) which make up the deliverable end item(s), the supplier shall obtain and retain on file sub-tier supplier/ processor certifications and test results. The supplier's sub-tier supplier/processor certifications and test results shall be made available to Qarbon Aerospace upon request. Additional requirements as applicable:

7.7.1.1 Serial Number,

7.7.1.2 Interchangeable and Replaceable (I&R) designated control numbers,

7.7.1.3 Required parts traceability forms associated with Section 5.4,

7.7.1.3.1 When required by Qarbon Aerospace purchase order or Quality Requirement, additional Certs shall be provided at no extra charge.

8. Supplier Measurement

8.1. Quality Performance Measurement Overview

8.1.1. The risk-based Supplier Quality Scorecard is calculated based on six independent components. The Supplier Quality Scorecard represents the Supplier's demonstrated performance based on those components as follows:

8.1.1.1 12-month cumulative delivered quality yield rating (percentage of supplied materials / services which meet all specified requirements). Example:

8.1.1.1.1 piece nonconforming / 1500 pieces delivered = 99.93% acceptance yield

8.1.1.2 12-month cumulative Cost of Poor Quality with respect to an estimate or actual Cost of Quality as determined by each respective Qarbon Aerospace Site (COQ / receipt dollars shown as a percentage) . Example:

8.1.1.2.1 \$300 cost / \$10,000 receipt value = 3% Cost of Poor Quality (COPQ)

8.1.1.3 Supplier Corrective Action (E-SCAR) first time yield (percentage of corrective action response for previous 12 months that were found acceptable on initial review)

8.1.1.4 Corrective action (E-SCAR) response on time (percentage of corrective action responses that were submitted on or prior to due date)

- 8.1.1.5 12 Month cumulative Notification of Escapes (E-NOE) (number of notifications submitted by the Supplier in the previous 12 months)
- 8.1.1.6 Latest Month Notification of Escapes (E-NOE) (number of notifications submitted by the Supplier in latest month)
- 8.1.2. Distinct nonconformances reported by the Supplier shall not be counted against the Supplier’s cumulative yield rating but may impact the Cost of Poor-Quality percentage. Repeat nonconformances, which at the judgment of Qarbon Aerospace Quality, that are not adequately addressed by the Supplier utilizing corrective action may be counted against the Supplier’s quality rating. Negative trends or duplications in the Supplier’s reported nonconformances may also be given due attention and consideration as a reflection of the Supplier’s corrective action process viability.
- 8.1.3. The supplier risk level (ranging in value from 1 to 5, with 1 being low risk and 5 being high risk) is calculated based on evenly weighting the Supplier’s performance in each of the six individual components (Table 3). For the purposes of calculating the risk score, red = 5, yellow = 3 and green = 1 (the total is divided by the number of components rated).
- 8.1.4. **NOTE:** If a component has no data to report, then the field will reflect “N/A” and the risk calculation will be adjusted accordingly. Qarbon Aerospace suppliers who do not maintain a satisfactory SQPR score may be required to provide formal documented corrective action plans and / or to participate in formal performance reviews with Qarbon Aerospace. Where these remedial activities are unsuccessful, suppliers may be subject to the actions and activities in accordance with the Supplier Performance Improvement Program and eventual removal from the ASL.

Table 3

Activity	Measure	Green Threshold%	Yellow Threshold%	Red Threshold%
12 Month Cumulative Quality Yield Rating	Percent Acceptance	100 - 99.50	99.49 - 98.0	97.99 - Less
12 Month Cumulative Cost of Quality	Percent of Receipt Dollars	0 - 0.50	0.51 - 2.00	2.01 - Higher
Latest Month Notification of Escapes	Quantity	0	1	2
12 Month Cumulative Notification of Escapes	Quantity	0	1 - 5	6 - More

On Time Corrective Action Response for Each Phase	Percent on Time	100 - 99.50	99.49 - 98.0	97.99 - Less
Corrective Action 1 st Time Yield	Percent Acceptance	100 - 99.50	99.49 - 98.0	97.99 - Less

8.2. Supplier Quality Performance Rating (SQPR) Reporting

- 8.2.1. Resultant scores are provided to individual suppliers through supplier access of Qarbon Aerospace Supplier Portal.
- 8.2.2. On a monthly basis it is the supplier’s responsibility to access their supplier profile at <https://qarbonaerospace.com/supplier-portal/> and review their performance data. Suppliers shall access with their secure password and review the performance data available for their business

8.3. Delivery Performance Measurement Overview

- 8.3.1. Supplier Delivery Performance Ratings (SDPR's). SDPR's are the supplier’s demonstrated performance with respect to on time delivery. Ratings will be calculated as the number of pieces received on time versus the total number of pieces received in a reporting period. $\text{Total pieces received on time for a reporting period} / (\text{Total pieces received for a reporting period}) = \% \text{ on time}$. The resulting % on time calculation is a measurement of total number of PIECES received on time versus total number of PIECES received. Units of measure (UOM) will not affect the calculation.
- 8.3.2. Any one UOM will be viewed as one PIECE. The on-time delivery window will be +7 days early /-5 days late.

Table 4

Qarbon Aerospace Supplier Delivery Performance Rating (SDPR) Thresholds				
12 Month Rolling Performance				
Performance Designation	Level	High Threshold%	Low Threshold%	Supplier Performance Position
Gold		100	100	Exceptional Supplier Performance
Silver		99.99	98.00	Very Good Supplier Performance
Bronze		97.99	96.00	Acceptable Performance

Yellow	95.99	90.00	Marginal Performance Informal Supplier Improvement may be Requested
Red	<90.00	-	Unsatisfactory Performance

8.3.3. The supplier’s month to month performance will be posted as an YTD cumulative measure of their performance.

8.3.4. The supplier’s performance shall be monitored within a 12-month rolling SDPR window.

8.4. Supplier Performance Rating Thresholds

8.4.1. Tables 3 and 4 illustrates Supplier Quality and Delivery Performance Rating thresholds for Qarbon Aerospace suppliers. The Quality and Delivery performance ratings are independent of each other and are not comingled.

8.4.2. Gold Suppliers - Excellent Performance

8.4.2.1 Suppliers whose rolling 12-month ratings demonstrate excellent will retain their existing business and will be considered eligible for new business opportunities, single source supplier opportunities, supplier partnerships and business collaboration.

8.4.3. Silver Suppliers – Very Good Performance

8.4.3.1 Suppliers whose 12 month rolling ratings demonstrate very good performance will retain their existing business and will be considered eligible for new business opportunities.

8.4.4. Bronze Suppliers – Satisfactory Performance

8.4.4.1 Suppliers whose 12 month rolling ratings demonstrate satisfactory performance will retain their existing business and will be considered eligible for new business opportunities.

8.4.5. Yellow Suppliers - Marginal Performance

8.4.5.1 Those suppliers whose 12 month rolling ratings demonstrate marginally acceptable performance will be allowed to retain existing business but may not be considered eligible for new business opportunities unless specifically directed to do so by a Qarbon Aerospace customer.

8.4.6. Red Suppliers - Unsatisfactory Performance

- 8.4.6.1 Failure to achieve or maintain an acceptable performance level may also result in on Company assessments, formal Supplier Corrective Action and / or more extensive remedial action as described in Section 11 - Supplier Performance Improvement Program (SPIP) or source inspection control being imposed by Qarbon Aerospace or the appropriate Qarbon Aerospace Site. Any source inspection requirements, performed at either the supplier's facility or a Qarbon Aerospace Site, imposed by the appropriate Qarbon Aerospace Site on a supplier due to performance issues may be done at the supplier's expense.
- 8.4.6.2 Suppliers subject to SPIP shall both achieve and sustain targeted improvements, or they may have their existing business re-sourced and be removed from Qarbon Aerospace Approved Supplier Listing.
- 8.4.6.3 It is Qarbon Aerospace's option to report poor supplier performance to the suppliers Quality System certification body via the OASIS feedback process.

8.5. Supplier Appeal Process

- 8.5.1. Suppliers may contest a specific Quality or Delivery rating by submitting a written appeal to their Qarbon Aerospace Procurement Representative within 10 working days of issuance of their SQPR/SDPR Reports. The appropriate Qarbon site will review the appeal and respond within an additional 10 working day period. Appeals are accomplished by contesting data specific to the month of the Quality or Delivery report.

8.6. Supplier Pay for Source Inspection

- 8.6.1. When specified by Qarbon Aerospace Company purchase order or Quality Requirement, products supplied to Qarbon Aerospace are subject to Pay for Source Inspection. Pay for Source Inspection requirements are normally utilized for new suppliers; suppliers who have not qualified for or have been removed from Qarbon Aerospace's DPRV Program, inspection delegation program or have quality / performance issues. Pay for Source Inspection requirements can be applied at the purchase order line item level for individual part numbers that have had repetitive quality escapes.
- 8.6.2. Pay for Source Inspection shall only be performed by a Qarbon Aerospace approved inspection service provider or authorized Qarbon Aerospace employee. A listing of authorized inspection service providers is available on <https://qarbonaerospace.com/supplier-portal/> ➔ [Approved Processors](#) ➔ [Authorized Service Providers](#).
- 8.6.3. Qarbon Aerospace and Government Source Deliverable product(s) are subject to Qarbon Aerospace and U.S. Government's source inspection or surveillance in accordance with the provisions stated above for each respectively.

8.6.4. Qarbon Aerospace inspection requirements are noted on the purchase order. Supplier shall refer to this section for Qarbon Aerospace inspection instructions.

9. Delegated Product Release Verification (DPRV)

9.1. Delegated Product Release Verification Overview

- 9.1.1. Qarbon Aerospace Delegated Product Release Verification (DPRV) is a delegated supplier inspection program intended to recognize superior supplier performance. The Program gives suppliers preferential consideration for Qarbon Aerospace purchases and allows them to perform inspection functions and acceptance of product authorized by purchase order on behalf of Qarbon Aerospace.
- 9.1.2. Qarbon Aerospace DPRV suppliers are authorized to perform inspection functions and acceptance of product and associated paperwork on behalf of Qarbon Aerospace. A supplier's DPRV authority is defined per the scope of approval document created during the DPRV authorization process. The application of DPRV authority is at the discretion of the appropriate Qarbon Aerospace Site and may be revoked at any time. Delegated inspection processes **MAY NOT** be delegated to another supplier's employee or delegated by the supplier to a sub-tier supplier. DPRV authority is limited to the scope as defined by the Qarbon Aerospace site.
- 9.1.3. DPRV suppliers that lose their delegated source inspection status due to quality performance reasons may be required to contract and "Pay for Source" Inspection through a Qarbon Aerospace Approved service provide. The DPRV supplier may regain their delegated status when all the following conditions are met:
 - 9.1.3.1 Successful corrective action resolution of the issue / event causing removal of delegation,
 - 9.1.3.2 Three (3) consecutive deliveries with no recurrence of the issue / event involved in the loss of delegation if the loss was based on a single issue / event,
 - 9.1.3.3 Positive nonconformance improvement trend for the latest quarter quality Performance metrics,
 - 9.1.3.4 A minimum of ninety days loss of delegation

9.2. Product Release

- 9.2.1. For suppliers that are not approved for DPRV, product(s) associated with a Qarbon Aerospace purchase order may be subject to Qarbon Aerospace inspection or source surveillance.
- 9.2.2. At the discretion of the issuing Qarbon Aerospace site, the right is reserved to perform Supply Chain Quality Source Surveillance at supplier facilities when invoked in Qarbon

Aerospace’s Purchase Order and / or when the supplier’s product quality becomes unacceptable.

9.2.3. At the discretion of Qarbon Aerospace, suppliers may be subjected to “Pay for Source” when stated in the issuing Qarbon Aerospace’s Purchase Order.

9.2.4. Product(s) associated with this PO are subject to Qarbon Aerospace’s inspection. Qarbon Aerospace’s inspection requirement is stated in the body of the PO for each respective line item (Figure 1b). Qarbon Aerospace’s inspection options and descriptions are shown below:

9.2.5. **Inspection Code: Purchase Representative Plant / Qarbon Aerospace Site.** Qarbon Aerospace shall inspect deliverable product(s) upon receipt at Qarbon Aerospace’s facility

9.2.6. **Inspection Code: Supplier Pay for Source - Unless Delegated**

9.2.6.1 Supplier required to contract with a Qarbon Aerospace approved service provider. The list of approved service providers can be found on Qarbon Aerospace Supplier Portal Link / Approved Suppliers / Authorized Service Providers at: <https://qarbonaerospace.com/supplier-portal/> ➡ [Approved](#) ➡ [Processors Authorized Service Providers](#)

Note: Not applicable if the supplier has Delegation granted by Qarbon Aerospace.

9.2.7. **Inspection Code: Qarbon Aerospace Source.**

9.2.7.1 Deliverable product(s) are subject to Qarbon Aerospace Source Inspection. Unless otherwise specified by Qarbon Aerospace Buyer, Qarbon Aerospace source inspection shall be performed by Qarbon Aerospace’s Approved Service Providers as identified on Qarbon Aerospace Supplier Portal Link / Approved Suppliers / Authorized Service Providers at: <https://qarbonaerospace.com/supplier-portal/> ➡ [Approved](#) ➡ [Processors Authorized Service Providers](#)

9.2.8. **Inspection Code: Qarbon Aerospace and Government Source.**

9.2.8.1 Deliverable product(s) are subject to Qarbon Aerospace and U.S. Government’s source inspection or surveillance in accordance with the provisions stated above for each respectively.

9.2.9. **Inspection Code: See Remarks / Inspect per PO Remarks by sampling/ Inspect per Special Instructions.**

9.2.9.1 Qarbon Aerospace’s inspection requirement is noted in the “remarks” section of the purchase order. Supplier shall refer to this section for Qarbon Aerospace inspection instructions.

9.2.10. **Inspection Code: None / No Receiving Inspection.**

No Qarbon Aerospace inspection is required for deliverable items in this purchase order.

NOTE: Exceptions will be source inspection items noted in Item 7 below.

Inspection Code: Delegated Product Verification Program – DPRV

Qarbon Aerospace DPRV suppliers are authorized to perform inspection functions and acceptance of product and associated paperwork on behalf of Qarbon Aerospace. Qarbon Aerospace Supplier’s DPRV authority is defined in the PO agreement, at the P.O. line-item level (see Figure 1b).

NOTE: DPRV suppliers shall perform inspection and acceptance of product in accordance with this QA-MAN-0002 Section 9.1

10. Corrective Action and Continual Improvement

10.1. Corrective Action and Continual Improvement Process Overview

- 10.1.1. Qarbon Aerospace site’s employ an electronic, closed loop, Corrective and Preventive Action methodology in order to address product, process, performance, Quality System and audit nonconformances.
- 10.1.2. Responses for corrective action are designated within the E-SCAR process.

10.2. Initiation of a Supplier Corrective Action Request

- 10.2.1. Qarbon Aerospace and / or Qarbon Aerospace site may initiate an Electronic Supplier Corrective Action Request (E-SCAR) process by documenting the nonconforming product, process, Quality System or performance condition and notifying the supplier.
 - 10.2.1.1 E-SCARs are accessed via the supplier portal @ <https://qarbonaerospace.com/supplier-portal>.
- 10.2.2. A supplier E-SCAR should be given the highest priority within the supplier’s operations and thus requires the urgent and active participation of the supplier’s management team. A request for supplier corrective action can be prompted by either nonconforming supplied parts / materials, supplier performance, Quality System issue or process / assessment finding that has produced a need for corrective action.
- 10.2.3. The appropriate Qarbon Aerospace Quality personnel will review the supplier’s response for timeliness, completeness of the submission and the suitability of the responses. Late and / or rejected responses will be recorded and the data reviewed to determine supplier capability to perform adequate corrective action.
- 10.2.4. Suppliers who demonstrate a consistent inability to provide acceptable responses to Supplier Corrective Action Requests or within the deadlines established are subject to a probationary status or introduction to the Supplier Performance Improvement Process detailed in Section 11.

11. Supplier Performance Improvement Program (SPIP)

11.1. Supplier Performance Improvement Program Overview

- 11.1.1. The Supplier Performance Improvement Program is utilized by Qarbon Aerospace and/ or Qarbon Aerospace sites to address chronic and / or severe performance issues with approved suppliers. This process utilizes root cause corrective action to correct supplier performance issues. Where necessary, Qarbon Aerospace may terminate business with suppliers that demonstrate they are incapable of the required improvement.
- 11.1.2. Qarbon Aerospace Procurement manages the SPIP process with suppliers. Once a supplier is placed in SPIP, the supplier may become ineligible for new work until all issues are successfully corrected and sustained performance improvement is achieved. All Qarbon Aerospace sites shall be notified of any supplier designated for the SPIP process.
- 11.1.3. For suppliers successfully recovering from performance issues, the supplier shall be taken out of SPIP and designated as probationary. Any recurrence of the same issues during the supplier’s probationary period will result in the supplier being placed back in SPIP or considered for immediate termination.
- 11.1.4. Suppliers terminated from the ASL shall be required to participate in a supplier Assessment Audit prior to the supplier being considered for ASL approval reinstatement.

12. References

12.1. Referenced Documents

AIA/NAS NAS412	Foreign Object Damage/Foreign Object Debris (FOD) Prevention
SAE AS/EN/SJAC9100	Quality Management Systems – Aerospace - Requirements
SAE AS9102	Aerospace First Article Inspection Requirement
SAE AS/EN/SJAC9110	Quality Management Systems - Requirements for Aviation Maintenance Organizations
SAE AS/EN/SJAC9120	Quality Management Systems - Aerospace Requirements for Stockist, Distributors
SAE AS9003	Inspection and Test Quality System
ISO 9001:2015	Quality Management Systems – Requirements
SAE AS9117	Delegated Product Release Verification

12.2. Definitions and Acronyms

AS9102 First Article Inspection: - The SAE Aerospace Standard (AS) that establishes requirements for First Article Inspection. Method of gathering objective evidence to support that all design and specification requirements are properly understood, accounted for, and verified

Authorized or Responsible Quality Representative A supplier employee that has the responsibility and authority to make authoritative statements for the supplier in association with part/material quality and process compliance Company ASL Qarbon Aerospace Approved Supplier List. Company Approved Supplier List is a subset of Qarbon Aerospace Approved Supplier List Authorized or Responsible Quality Representative A supplier employee that has the responsibility and authority to make authoritative statements for the supplier in association with part/material quality and process compliance

Qarbon Aerospace ASL: Qarbon Aerospace Approved Supplier List

Certificate of Conformance: A statement of quality by the supplier ensures that all inspections and tests have been performed. It must be signed and dated by an authorized agent of the supplier with appropriate identification of the position held by the signer

Corrective Action: Actions planned and implemented to eliminate or reduce the causes of a nonconforming product, process, or service in order to prevent recurrence

DFAR: -Defense Federal Acquisition Regulation

DPD: - Digital Product Definition- The electronic data elements that specify the 3-D Computer Aided Design (CAD) geometry and all design requirements for a product (including notation and parts lists), and the use of this data throughout an integrated CAC/Computer Aided Manufacturing (CAM) and Coordinate Measurement Systems (CMS)

Disposition: Engineering determination of the appropriate further actions associated with nonconforming parts/materials. Typical options include Scrap, Rework, Use as Is, etc.

E-SCAR Electronic Supplier Corrective Action Request (E-SCAR): A request to a supplier for formal documented corrective and preventive action in response to a nonconformance or performance concern

Feature : Any hardware design attribute or characteristic. This includes physical portion of hardware such as a surface, face, edge, radius, hole, tab, slot, pin, etc., and requirements such as non-destructive inspection (NDI) and interchangeability and replaceability (I&R). All features require validation to conform the product to the design authority. All features have associated notes and/or Geometric Dimensioning and Tolerance Feature Control Frames (FCF) and one note or FCF may refer to several features

First Article Inspection: The development of objective evidence to support that all engineering design and specification requirements are properly understood, accounted for, and verified

GD&T: Geometric Dimensioning and Tolerancing

N/C: Numerical Control

On-Site Supplier Assessment: An on-site review of a supplier’s processes, systems, and capabilities as conducted by QarbonAerospace personnel, Customer or regulatory authority NoE Notification of Escape

Pay for Source: Qarbon Aerospace source inspection is required, and the supplier is required to contract with a Qarbon Aerospace approved service provider

Partial FAI: A Partial FAI addresses differences between the current configuration and prior approved configurations, and/or addresses features that failed the original FAI. When a partial FAI is performed, the Organization shall complete only the impacted fields in the original or partial FAI form(s). The partial FAI will inspect 100% only those features that have been addressed for the current configuration and/or that failed the original/partial FAI

Permanent Specification Change: A modification to any specified product requirement (blueprint, specification, etc.) as approved by the appropriate design authority which is unbounded by quantity or time

PO: Purchase Order

Process Change : Any change to the materials, methods, machinery, or location from that previously approved by a Qarbon Aerospace

Quality Assurance Requirements: A defined special purchase order condition relative to quality assurance needs for procured direct parts/materials or processing services

RAB: Registrar Accreditation Board

SPIP: Supplier Performance Improvement Program. The process used to address unsatisfactory supplier performance

SPR: Supplier Process Reviews - Periodic detailed on-site examination of the manufacturing processes, procedures, and controls used in the fabrication, assembly, inspection, and delivery of individual purchased parts/materials

QA-MAN-0002: Qarbon Aerospace Supplier Quality Assurance Manual

SQPR: Supplier Quality Performance Rating – QarbonAerospace quantified measure of supplier performance

SQPR Report Scorecard: Monthly report detailing the performance rating (SQPR) for the supplier. This report consists of the Supplier Quality Rating and the Supplier Delivery Rating

Supplier Application: A Supplier Application provides an overall representation of a new Supplier’s business. It is the 1st step of the new Supplier approval process Supplier Assessment A formal documented activity performed at a Supplier’s facility by Qarbon Aerospace personnel in order to assess compliance with targeted systems and measures of performance prior to addition to Qarbon Aerospace Approved Supplier List

Supplier-Responsible Nonconformance: Any violation of a specified contractual requirement imposed by a Qarbon Aerospace Purchase order.

Temporary Specification Change: A modification to any specified product requirement (blueprint, specification, etc.) as approved by the appropriate design authority which is bounded by quantity or time.

Qarbon Aerospace ASL: Qarbon Aerospace Approved Supplier List

Qarbon Aerospace Site: A Qarbon Aerospace Company Location

<https://qarbonaerospace.com/supplier-portal/>: Qarbon Aerospace Supplier Portal. Website that houses Qarbon Aerospace approved supplier list, supplier performance and supplier requirements. Often referred to as “the system” or “the portal”.

3-D: Three Dimensional

13. Revision History

Rev.	Date	Summary of change	Authorized by
Original	09/23/2022	Initial Issue	Head of Process Engineering
A	11/08/2022	Paragraph 3.2.8 – Added verbiage to clarify requirement.	Head of Process Engineering