Group Aerospace

Document: **P9112**	Revision: **L**	Date: 6/7/2021
Title: Purchase Order Clauses		

Contents

Purpose

This document describes the general and special product assurance requirements that are in addition to the requirements in the Parker Hannifin Corporation - Supplier Quality Requirements Manual (PH-SQRM), Parker Terms & Conditions of Purchase – Commercial, and Parker Terms & Conditions of Purchase – Government Supplement. The purpose of this document is to clearly define all applicable technical and quality requirements with which the supplier must comply to meet the requirements of Parker Aerospace, its customers, and/or regulatory authorities. For this document, the term “Parker Aerospace” means the Parker Aerospace division which has entered into a contract with the supplier.

Scope and Application

This document was developed and has been issued for use by the divisions of Parker Aerospace, however, when deemed appropriate, other Parker Hannifin Corporation divisions and facilities may use it by referencing P9112 in the contract to the supplier.

Unless expressly excluded by the contract, clauses within Q010, Section 1 herein are mandatory and applicable to all contracts. The clauses within Q010 Section 2 herein are Conditionally Required when applicable to the product, process or service being procured. The "Q" clauses listed in Section 3 apply only when the specific clause number is included on the contract.

The supplier shall flow-down these requirements to, and ensure compliance by, the supplier's sub-tier sources performing work for delivery to Parker Aerospace.

Compliance by the supplier to all contract requirements is subject to on-site verification by Parker Aerospace, representatives of Parker Aerospace, its customers and/or regulatory authorities, or, Parker Aerospace may request the supplier to provide objective evidence of compliance with all contract requirements.

These requirements apply to all Parker Aerospace Divisions and Sites.

1 Q010 - General Requirements Mandatory Clauses

These clauses are mandatory requirements and applicable to all contracts.

1.1 Quality Management System Requirements

1.1.1 Quality Management Systems

Supplier shall maintain an accredited Industry Controlled Other Party (ICOP) certification to the applicable Quality Management System (QMS) Standard stated below including equivalent international Aerospace Standards. All work performed by the supplier will be in accordance with one or more of the below listed Aerospace Standards.

a) AS9100 Quality Management Systems - Requirements for Aviation, Space and Defense Organizations. Applicable to suppliers that design, manufacture, assembly and test products for Parker.
b) AS9110 Quality Management Systems – Requirements for Aviation Maintenance Organizations. Applicable to suppliers that perform maintenance tasks to ensure the continuing airworthiness of an article including any one or combination of overhaul, inspection, testing replacement, defect rectification, and modification or repair.
c) AS9115 Quality Management Systems - Requirements for Aviation, Space and Defense Organizations – Deliverable Software. Applicable to suppliers that provide deliverable software or products containing deliverable software.
d) AS9120 Quality Management Systems - Requirements for Aviation, Space and Defense Distributors. Applicable to suppliers that procure parts, materials, and assemblies and resell these products to Parker

Suppliers shall ensure compliance with Parker Hannifin Supplier Quality Requirements Manual (PH-SQRM).

The supplier shall immediately notify Parker upon loss of ICOP certification. The supplier will also provide to Parker Aerospace the details, circumstances, and third-party audit report that resulted in the QMS certification status change or disapproval.

If the supplier fails to maintain satisfactory performance as defined by Parker Hannifin supplier quality requirements, feedback may be provided to the Certification Body via OASIS. Alternate improvement plans included Supplier Funded Source Inspection may also be invoked.

1.1.2 Non-ICOP Quality Management System

ISO9001 may be adequate as a Quality Management System standard depending on the product, customer, and service provided. Approval for ISO9001 may be granted with Division Quality Director approval.

1.1.3 Quality Management System Approval

Prior to addition of a supplier to the Parker Aerospace Approved Supplier List (ASL), an initial on-site or virtual assessment of the supplier's ability to comply with one of the applicable QMS requirements must be accomplished by Parker Quality. Such assessments may include the supplier's sub-tier sources.

Parker recognition of Suppliers QMS certification does not affect Parker's right to schedule and conduct supplier audits and issue findings at the suppliers' facility. Parker reserves the right to provide Parker identified quality system findings associated with quality system data and quality performance data to supplier's certification or registration body (CB).

Parker reserves the right to make the final determination of the supplier's compliance with the applicable QMS Aerospace Standard.

The supplier is required to give Parker Aerospace written notice when making changes to their Level 1 Quality Management System document (Quality Manual) or when significant changes in management personnel that have responsibility for quality of product or service furnished to Parker Aerospace occur.

1.2 Prohibited Practices

The following acts and practices are prohibited, unless approved by Parker Aerospace in writing. Any violation by the supplier, or the suppliers sub-tier sources, may result in disqualification of the supplier for future business with Parker Aerospace.

1.2.1 Unauthorized Product Rework, Repairs & Salvage

The supplier shall not perform repairs on products damaged or found to be discrepant during fabrication or processing, or on defects in castings or forgings, unless such repairs are specifically permitted by the applicable drawing or specification or are authorized by Parker Aerospace in writing for each occurrence. Unless specifically authorized by Parker Aerospace, this prohibition also applies to reworking products by removing plating (stripping) and re-plating. In those cases, where Parker Aerospace authorized product repair, salvage or stripping has been accomplished, the supplier shall include on the packing list/shipper or on a separate attached document a list of the products that have been subjected to such Parker Aerospace approved repair, salvage or stripping, and the method used.

1.2.2 Unauthorized Product Changes or Substitutions

The supplier shall not make any changes or substitutions to any products or services required by the contract, drawing, specification, standard, or other applicable document without prior written authorization by Parker Aerospace. Authorization may be contingent on Parker Aerospace conducting an on-site review of the proposed product or service changes at the supplier's facilities, or the facilities of the supplier's sub-tier sources.

1.2.3 Use of Non-Conventional Manufacturing Methods

The supplier shall not use Electrical Discharge Machining (EDM), Electro Chemical Machining (ECM), laser or abrasive water jet cutting or drilling, flame spray coatings, or any other non-conventional manufacturing method or process on products scheduled for delivery to Parker Aerospace without prior written authorization by Parker Aerospace. Authorization by Parker Aerospace may be contingent on Parker Aerospace conducting a review and approving the method, facilities, equipment and qualified personnel at the supplier's facilities or the facilities of the supplier's sub-tier sources that will perform the operation or process. In addition, when authorized, such operations and processes may only be performed by Parker Aerospace approved sources.

1.2.4 Altering Data on Documents

The use of any method that causes the original data on documents to be obliterated and unreadable (i.e. the use of correction fluids, correction tape, write-over, or other methods) to correct, modify or otherwise alter the data and/or entries on any certifications, test reports or other documents required by the contract, is strictly prohibited. Corrections may be made on records providing it is clearly obvious that a correction was made, and it is signed (initialed) or stamped by an authorized individual. Upon receipt at Parker Aerospace, products or services represented by documents that show evidence that they have been corrected or altered in an unauthorized manner are subject to return to the supplier at supplier's expense.

1.3 New Production, Facility Changes, & Work Transfers

All new sources of material initiated by Parker, or changes to Supplier sub-tier sources, or changes in Suppliers manufacturing location, shall require Parker APQP (Advanced Product Quality Planning) / PPAP (Production Part Approval Process) in accordance with AS9145. The following APQP deliverables are required:

a) Process Flow Diagram

b) Process Failure Mode and Effects Analysis (PFMEA) per AS13004
c) Control Plan per AS13006
d) Measurement Systems Analysis (MSA) per AS13003
e) Initial Process Capability Studies
f) Packaging, Preservation, and Labelling Approvals
g) First Article Inspection Report (FAIR) per AS9102
h) PPAP Approval Form

The following PPAP requirements may be required by the contract or Purchase Order when required by the program or customer:

1) Design Records
2) Design Risk Analysis (e.g. DFMEA)
3) Customer PPAP Requirements

Upon request, Parker may require APQP/PPAP in accordance with the above for legacy products to mitigate risk.

The supplier shall notify Parker Aerospace a minimum of 90 days prior to relocating any production, inspection or processing facilities, transferring work between different facilities, or transfer of work or sourcing changes with subcontractors and suppliers.

1.3.1 Supplier Planned Relocation Notification

The supplier to Parker Hannifin is responsible to alert the Parker Hannifin Quality organization responsible for the maintenance of the required, 14 CFR Part 21.307 quality system, at least 6 months prior to any planned relocation under the following:

1. Relocation of the manufacturing of Parker Hannifin FAA Production Approved Aeronautical products (FAA PMA and FAA TSOA Articles) outside of the United States.
2. A change in foreign supplier away from a foreign supplier with an existing FAA Undue Burden determination.

For each of the above, Parker Hannifin Quality organization is responsible for the maintenance of the required 14 CFR Part 21.307 quality system, is required to make application to the FAA for a Undue Burden determination in accordance with FAA Order 8100-11 – “Requirements for Finding Undue Burden and No Undue Burden Under 14 CFR Part 21” or ensure products are 100% inspectable and are 100% inspected upon receipt at the U.S. manufacturing facility.

The Parker Hannifin Quality organization responsible for the maintenance of the required 14 CFR Part 21.307 quality system, under which the FAA Production Approval is issued, and must be involved in a foreign supplier's approval prior to their use.

An FAA determination of Undue Burden for a given foreign supplier received by another organization is not eligible to be used to meet this obligation.

1.4 Supplier Inspection

Supplier shall inspect or otherwise verify that all Products and Services, including those components procured or furnished by subcontractors or suppliers, comply with the requirements of the Contract prior to shipment. Supplier is responsible for all tests and inspections of the product during receiving, manufacture, and final inspection. Copies of test and/or inspection data will be furnished or upon request provided via Net Inspect.

Supplier shall perform 100% inspection of all design characteristics for in-process and final inspection or comply with the statistical product acceptance requirements of 1.10.

Parker reserves the right to disallow a supplier's statistical methods for product acceptance for specific sites/programs, parts or characteristics, and to conduct surveillance at the supplier's facility to access inspection capability and conformance to 1.10.

Supplier agrees to work with Parker to develop and implement processes designed to improve quality performance. Processes for improvement shall include enough detail and metrics to allow Parker to evaluate progress.

1.4.1 Visual Acuity for Inspection

Supplier personnel performing the functions described below shall receive eye examinations by trained personnel designated by the organizations Responsible NDT Level 3 (as applicable) or by qualified medical personnel, who can provide an optometric examination in accordance with relevant testing standards. Visual acuity testing shall be administered annually. All levels are for at least one eye, natural or corrected, near vision: For operators, inspection/test personnel, engineers and others conducting product evaluation and acceptance activities, including in-process checks where such data is used for final product acceptance,

- Snellen 14/18 minimum
- Jaeger No. 2 at 14 inches 20/25 minimum

- Ortho-Rater 8

Visual weld inspection shall meet the requirements of AWS D17.1.

Non-Destructive Test (NDT) inspection personnel shall meet the requirements of NAS 410.

Color perception testing shall be administered at least one time: All types of inspection/NDT personnel shall be able to differentiate among colors used in the methods for which the individual is being qualified. For NDT personnel, testing of color perception shall be administered prior to certification and every five years.

1.5 Certifications

1.5.1 Delivery Certification

The supplier shall include on the packing list/shipper or on a separate attached document, a written statement titled “Certificate of Conformance” which complies with the requirements of this section, and the product/process specific requirements per 2.2.

1.5.2 Certification Requirements

The supplier shall furnish with the delivery of products and/or services on the contract, all certifications, test reports and other documents (hereafter certifications), issued by the supplier or by the supplier’s sub-tier sources that are required by the contract. The supplier is responsible to ensure that all certifications furnished by the supplier, or by the supplier’s sub-tier sources, are complete, legible and reproducible, accurate and in compliance with all contract requirements. Parker Aerospace reserves the right to return all products to the supplier at supplier's expense when the certifications that support the products and/or services are not properly executed.

The supplier shall maintain the original certifications and test reports in a manner so that upon Parker Aerospace’s request, they can be retrieved and furnished to Parker Aerospace within twenty-four (24) hours. The supplier shall notify Parker Aerospace in writing prior to disposal or destruction of the original certifications and test reports listed on the Summary Report and give Parker Aerospace an opportunity to obtain possession of the original certifications and test reports.

When the contract includes provisions for incremental deliveries by the supplier, after the initial delivery of products/services and required certifications, the supplier may, on

subsequent deliveries, either provide additional copies of the certifications, or note on the packing list/shipper and the Certificate of Conformance (CofC), the date when the original certifications applicable to the current delivery were initially furnished to Parker Aerospace.

Alternatively, supplier may furnish a completed Material & Process Summary Report with each delivery of products on the contract. Unless otherwise specified, the Summary Report format is optional, however, as a minimum it shall contain the following information:

a) Part number;
b) Drawing revision;
c) Contract Number and if applicable the line & release number;
d) Packing list/shipper number;
e) Material and/or process description;
f) Material and/or process specification number and revision, including type, grade, class, etc.;
g) Material and/or process quantity;
h) Name and location of Parker Aerospace approved special processor and/or material supplier, including country of origin for all raw material used
i) Material heat lot and/or traceability number to processes
j) Statement of conformance attesting that the information on the Summary Report is accurate and true; and
k) The supplier's company name and the name, title and signature of the authorized company official who issued the Summary Report.

Mat'l & Process Summary Report.doc›

All materials and processes listed on the Summary Report shall comply with the applicable requirements of 2.3 – Control of Raw Material, and 2.4 – Control of Special Processes.

1.5.3 Certification Language & Content

All certifications shall be in the English language and as a minimum include the following information and data:

a) Name of the issuing organization (supplier and/or supplier's sub-tier source)
b) Part number and revision. Unless specified by contract, revision status is not required for off-the-shelf electronic components, catalog items and/or standard parts
c) Quantity processed and/or delivered

d) Lot or batch number (when applicable)
e) Parker Aerospace contract number, and if applicable the line item & release number (Parker Aerospace direct suppliers only)
f) Authorized signature that meets the requirements of 1.5.4 and 1.5.5.
g) Certifications issued by supplier's sub-tier sources shall include information and data required by (a), (b), (c), (d), and (f) above
h) Suppliers that are required to furnish certification(s) to Parker Aerospace that were issued by their Sub-tier source shall reference the certification(s) on their shipping documents, Certificates of Conformance and/or Materials & Processes Summary Report.
i) Supplier is to furnish, with each shipment, a copy of the chemical and physical analysis documentation as required by the applicable specification or drawing, and identifiable to the material by heat and/or lot number as required by 2.3 – Control of Raw Material. Specification revision level must be referenced on all certifications. Each test report is to certify that testing was performed in accordance with specification requirements by an approved testing agency.

1.5.4 Acceptable & Authorized Signatures

All certifications and test reports shall include the title and acceptable signature of the authorizing company official. The following methods are the only Parker Aerospace approved and acceptable methods for applying signatures to certifications:

a) Actual signatures rendered in ink by the signing official;
b) Facsimiles of actual signatures such as rubber stamps; or
c) Machine or computer graphics generated facsimile signatures.

The title of the authorizing company official may be in a printed or hand-written format. When quality or inspection stamps are used in lieu of actual signatures, such stamps shall clearly identify the issuing organization and the authorized individual to whom the stamp is assigned. The issue use and control of such stamps shall be governed by documented procedures in the supplier's Quality Management System.

1.5.5 Electronic Signatures

When the supplier elects to use electronic signatures on electronic documents, the following rules apply:

a) Application of electronic signature must be under the direct control of the person whose name appears on the document,

b) Electronic signature may only be applied at the location or facility where the individual is located, and the individual must have direct access to the products or services, and supporting data to monitor the process, perform inspections and ensure that the products or services conform to all contract requirements,
c) The preparation of electronic documents and application of electronic signatures is governed by documented procedures in the supplier's Quality Management System to ensure the validity and integrity of all electronic documents, and
d) By application of an electronic signature, the supplier certifies that the signature was applied by the authorized company official in compliance with (a), (b) & (c) above

1.6 Contract Changes & Effectivity

1.6.1 Parker Aerospace Initiated Changes

The supplier shall incorporate, at the specified and agreed upon effectivity points, all changes initiated by Parker Aerospace and communicated to the supplier through a formal contract change and/or amendment. Such changes may be in the form of revised drawings, specifications, tests, inspection or fabrication methods, etc., and may apply to products as well as to the supplier's management and administrative systems. The supplier's business management system shall include appropriate controls and records, including controls at the supplier's sub-tier sources, which provide objective evidence that changes were incorporated as required by the contract. Objective evidence may be in the form of date, lot, serial number, revision letter, or other positive identification. Such records are subject to on-site verification by Parker Aerospace at the supplier's facilities or the facilities of the supplier's sub-tier sources.

1.6.2 Supplier Initiated Changes

The supplier shall not make changes in product design, drawings, performance specifications, materials, special processes, or manufacturing processes, procedures, and methods without specific approval by Parker Aerospace in writing prior to making such changes in products or data. The supplier will submit product/process change notifications consistent with AS9116 describing all design and process changes for Parker approval.

1.7 Nonconforming Products & Material Review

1.7.1 Identification, Segregation & Control

Any products found to be nonconforming to Parker Aerospace drawings, specifications, contract, or other applicable requirements either by the supplier or the supplier's sub-tier

sources, shall be identified, segregated and reworked or replaced with conforming products prior to delivery to Parker Aerospace. Parker Aerospace reserves the right to reject and return any nonconforming products to the supplier at the supplier's expense.

1.7.2 Preliminary Review Authority

The supplier is authorized to conduct Material Review and disposition nonconforming products identified by the supplier using the following disposition alternatives:

a) Rework to applicable requirements,
b) Scrap, or
c) RTV – return to (the supplier's) sub-tier source for rework or replacement.

Nonconforming products are defined as any products that fail to meet the requirements of the Parker Aerospace engineering drawing, specification, contract or other approved product description, including products under the supplier's proprietary design control which fail to meet requirements established and controlled by the supplier or the supplier's sub-tier sources. The supplier may propose and formally request a “use-as-is” or repair (salvage) disposition from Parker Aerospace by submitting the appropriate request to the Parker Aerospace Buyer in accordance with the requirements defined in section 1.7.4. The supplier's Material Review and nonconforming product disposition records, as well as the Material Review records at the supplier's sub-tier sources are subject to on-site verification by Parker Aerospace to ensure that the supplier complies with the requirements of this clause. The supplier shall have a documented system to mitigate risk when performing Rework dispositions to ensure that parts reworked at the supplier or its sub tier comply fully with blueprint requirements including process stability.

1.7.3 Supplier Material Review Authority

Unless the supplier is granted Material Review authority by inclusion of Clause Q160 on the contract, all nonconforming material shall be submitted to Parker Aerospace for disposition in accordance with 1.7.4.

1.7.4 Submittal to Parker Aerospace MRB for Disposition

Unless otherwise specified in the contract, the supplier shall submit nonconforming products to Parker Aerospace Material Review Board (MRB) for disposition. The supplier shall document all nonconforming conditions in accordance with the requirements of 9131 and submit a request to the Parker Aerospace Buyer. Parker Aerospace MRB will not accept for review and disposition any products that can be reworked to meet drawing or specification

requirements, or, are obviously scrap. After review and disposition by Parker Aerospace MRB, a copy of the form describing the MRB disposition will be returned to the supplier. A 'use-as-is' or 'repair' (salvage) disposition by MRB does not relieve the supplier of the legal responsibility and liability for such products.

The Supplier may not ship to Parker Aerospace any nonconforming products that have not been dispositioned by Parker, unless authorized by Parker Aerospace in writing. When Parker Aerospace dispositioned products are delivered to Parker, the Supplier shall reference on the packing list/shipper the number of the MRB document which describes the Parker Aerospace disposition. When the Supplier's shipment includes products dispositioned by Parker Aerospace MRB along with conforming products, the products shall be segregated and marked or tagged to permit easy identification of the nonconforming product upon receipt at Parker.

1.7.5 Supplier Notification of Nonconforming Products Delivered to Parker Aerospace

When the supplier has determined that nonconforming product(s) have been delivered to Parker Aerospace, the supplier shall notify the Parker Aerospace Buyer within twenty-four (24) hours of the initial discovery. The supplier shall use receipt acknowledged e-mail or other positive notification method. The notification shall include the following information:

a) Supplier name
b) Parker Aerospace contract number
c) Part number and description
d) Affected quantity and serial numbers (if known)
e) Dates delivered (if known)
f) Brief description of the nonconforming condition

The initial notification shall be followed by a formal "Disclosure Letter" delivered to the Parker Aerospace Buyer within five (5) days of the initial notification. The Disclosure Letter shall include the following information:

1) Complete description of the nonconforming condition(s)
2) The affected quantity of products (including serial numbers when applicable) and dates delivered to Parker Aerospace
3) Potential effect of the nonconformance on the performance, reliability, safety and/or usability of the product(s) if known
4) Recommendations for Parker Aerospace action including for products that Parker Aerospace may have already delivered to its customers

5) Immediate action taken by supplier to contain the nonconformance and nonconforming products
6) Root cause analysis of the nonconforming condition
7) Root cause corrective action plan and schedule
8) The plan and schedule for verifying the effectiveness of the corrective action

In those cases where (1) through (8) above are under investigation and incomplete, the supplier may request, from the Parker Aerospace Buyer, authority to submit an interim disclosure letter. The interim letter shall include as much information as available and identify the due date for completion of the investigation and the date final disclosure letter that includes all (1) though (8) data will be submitted to Parker Aerospace. Parker Aerospace reserves the right to participate in the nonconforming product investigation at the facilities of the supplier or its sub-tier sources.

1.8 Special Process - Qualified Process Sources

Processing specifications found on Parker designs fall into three distinct categories with corresponding requirements for processor accreditation and approval.

- Industry/Military Specifications - All special processes certified to an Industry/military standard (i.e. ASTM, Mil-Std, AMS, etc.) shall be performed by sources that are accredited and approved by Nadcap.
- Parker Specifications - All special processes certified to Parker Aerospace standards shall be performed by sources approved by Parker and listed on the Approved Process Suppliers List (APSL).
- Customer Specifications - All Special processes certified to a customer standard shall be performed by sources approved by the Parker Aerospace customers. Parker will provide a list of the approved process sources.

Unless otherwise directed by the contract or the procuring Parker Aerospace Division, use of processes and/or process sources that do not meet the above requirements will result in a nonconformance, and all products may be returned to the supplier at the supplier’s expense.

1.9 First Article Inspection Requirements (FAIR)

1.9.1 First Article Inspection

A First Article provides confidence that the product realization processes can produce conforming product and that the organization understands the associated engineering requirements. To meet the requirements of the Level I First Article, the supplier shall submit a

First Article Inspection Report (FAIR) in accordance with the requirements of the current revision of AS9102 for new product and when any of the following occur:

- A change in design.
- A change in any manufacturing source, processing source, process, inspection method (including functional test requirements), location of manufacture, tooling, or materials.
- A change in numerical control program or translation to another media.
- A natural or man-made event, which may adversely affect the manufacturing process.
- A lapse in production for two years or as specified by Parker.
- A Parker drawing which references a standard hardware item (e.g., "NAS," "MS") and that item is modified from the original purchased configuration and/or has additional characteristics. In this case, the FAIR shall include data for only those characteristic(s) that were changed and/or added.
- Altered Item Drawings with specific dimension requirements.
- Parker made to customer print items.
- When requested by either internal/external customer.
- When the revision of the drawing is changed, even if it has not affected the specific configuration.

Any reference to exceptions to performing a First Article Inspection based on potential impact to form, fit, and function exceptions as cited in AS9102, does not apply to Parker products.

Exceptions not requiring a FAI are:

- Contractually excluded parts/assemblies.
- Raw materials produced to an industry standard
- Standard hardware where all characteristics are established by industry standards

Excess products, remaining from a previous production lot, may not be used to fulfill the FAIR requirements.

All First Article Inspections (FAI) are to be performed to the Parker drawings and specifications. The practice of performing the First Article against transposed manufacturing data is prohibited.

When it is not physically possible to perform the FAI on a single product, data from multiple products can be used, providing all parts have been manufactured using the same engineering definition, bill of material, supply chain, and method of manufacture. The FAI

report shall be annotated to signify the use of multiple products and provide traceability of those products used to obtain the inspection results.

Supplier personnel programming Coordinate Measuring Machine (CMM) for FAI inspection shall be independent to those programming N/C machining centers and product measurement equipment for a specific product to preclude a single interpretation error advancing undetected.

When a CAD model developed by the supplier from 2D Parker drawings is used for programming, the model shall not be used to create both the manufacturing and CMM / Inspection programs.

Parker provided Model Based Definition models can be used to create both the manufacturing and CMM/inspection programs. All explicit and implicit design characteristics within the Dataset shall be positively identified within the FAI plan. This shall include all the engineering characteristics requiring traceability:

a) All the features annotated within the 3D model (explicit)
b) Features of the 3D model not annotated (implicit)
c) All characteristics applicable to the 2D drawings / reduced content drawings
d) All applicable notes and material lists
e) All feature tolerances per standard / general notes

Note: 100% of all feature characteristics are to be documented within the FAI results

The supplier shall furnish a copy of the completed FAIR results prior to shipping the initial delivery of products on the contract for Parker approval. The Parker approved FAIR shall be included with the initial shipment. The FAIR results will be submitted and approved in advance of the initial delivery via Net Inspect.

1.9.2 Initial Process Capability Study (Statistical FAI)

An initial process capability study provides confidence that the processes used in the manufacture of the product are repeatable and statistically stable and capable. To meet the requirements of the initial process capability study, the supplier shall perform an analysis on each design characteristic based on data collected from a minimum of 25 measurements that fully represent the process behavior considering for example multiple batches, operators, shifts, setups.

The following or equivalent Statistical FAIR report format shall be provided to Parker

Aerospace via Net Inspect.

Statistical FAIR Template.xlsx

1.10 Statistical Product Acceptance Requirements per AS13002

When statistical methods for product acceptance are planned, the supplier shall submit their initial process capability study and proposed control plan to Parker Aerospace for review and concurrence prior to use. Unless otherwise specified, Statistical Product Acceptance Requirements shall conform to AS 13002 and the requirements herein. In addition, on-going inspection data will be managed through Net Inspect.

In determining capability of the production measurement system, and when capability is demonstrated using Gage R&R, the maximum acceptable R&R percentage is 10%. A gage R&R over 10% may be acceptable for certain applications with Parkers approval.

Sample inspection shall be suspended immediately following any non-conformance and until corrective action has been implemented and the process has once again demonstrated acceptable capability through statistical data and/or appropriate technical justification as approved by Parker.

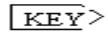
All characteristics affected by a design or process change shall revert to 100% inspection until process stability and capability is demonstrated. Parker approval is required prior to resuming an alternate inspection frequency plan for those characteristics.

No characteristic where variable data is reasonably available will be inspected as an Attribute. Attribute characteristics shall be sampled per a mutually agreed C=0 inspection plan.

A relevant capability analysis is completed for all characteristics. Process based studies may be acceptable to allow qualification by similarity to completed process capability studies, (e.g., similar parts, geometries, tolerances, design characteristics) with Parker approval.

The sampling tables per AS13002 shall be used for all characteristics, except classified characteristics as shown below. All characteristics with a total tolerance less than or equal to 0.005”, plus those characteristics designated as Major on the engineering drawing, will be treated as a Major characteristic. All other characteristics will be treated as a Minor characteristic unless otherwise designated on the engineering drawing.

Unless otherwise specified, sampling is not permitted on any characteristic classified as Key, Critical, Safety Critical, Fracture Critical, Installation Critical, Assembly Critical, designated as a critical safety item, or drawing explicitly requires 100% inspection. Classified characteristics are typically denoted and defined as follows:



Key Characteristic (KC) - Features whose variation has the greatest impact on the fit, performance, or service life of the finished product from the perspective of the customer.

Critical Characteristics: (1) Characteristics that judgment and experience indicate that if defective could result in hazardous or unsafe conditions for individuals using or maintaining the product or vehicle on which it installed. (2) Affect flight safety objectives, or (3) prevent performance of a military vehicle's operational function as a weapon (e.g., mission abort).

Critical Assembly Characteristics: Characteristics where omission of detail parts or subassemblies from the assembly or where improper installation of detail parts or subassemblies into the assembly would not be detected during acceptance testing.

Customer Interface Characteristics: Characteristics, which are determined, through coordination with the customer, as having an effect on installation or interchangeability.

Fracture or Fatigue Critical Characteristics: A fracture of fatigue critical area or part is one where the stress level is sufficiently high, that if a defect occurs in the area or part, it could result in a fatigue failure, which could result in the loss of an aircraft.

1.11 Supplier E-Business Requirements

Parker suppliers are required to use the Parker Aerospace supplier Management System Web page. Parker utilizes PHConnect System as the main tool for conducting quality related e-business transactions with our suppliers.

Seller is required to access PHConnect (Parker Suppler Portal) to review & confirm Drawing revision levels and all associated process specs initially when the PO is received and at least once per month thereafter. This requirement is auditable by Parker representative via electronic PHConnect usage report and or on-site visits/audits. Any noncompliance to this requirement will affect the Quality rating and will require corrective action.

1.12 Imported Product

Product imported into the U.S. shall be permanently, legibly, and conspicuously marked, in English, with the words "made in [foreign country]." If the product is imported in a package, such as a box or bag, the outside of the package should also be marked legibly and conspicuously with the words "made in [foreign country]." The outer packing crates and shipping boxes in which products enter the U.S. should also be legibly and conspicuously marked "made in [foreign country]." If not specifically noted on the drawing or contract, contact Parker Aerospace Buyer for location and method.

1.13 Obsolescence Management Program

Suppliers with design responsibility shall maintain a comprehensive obsolescence management program to mitigate delivery disruption of products due to electronic, mechanical or chemical obsolescence or any other unforeseen material or processing changes. Obsolescence should be monitored in accordance with lead-time management. Should a replacement of products be required, Supplier shall notify Parker at least twenty-four (24) months prior to an anticipated obsolescence issue, or otherwise as soon as reasonably practical. If Supplier is not able to fully mitigate Parker’s risk associated with the anticipated obsolescence, then Supplier shall prepare an anticipated detailed obsolescence replacement plan that assesses available alternatives and possible design modifications, including associated testing and qualification. Such plan shall be mutually agreed to. Should an obsolescence issue result in a change to the product, and Supplier has demonstrated compliance with a comprehensive obsolescence management program, both Buyer and Seller agree to discuss an equitable resolution in accordance with the “Changes” clause of the applicable Parker Terms & Conditions of Purchase.

1.14 Counterfeit Parts Prevention

To prevent the inadvertent use of counterfeit parts and materials all fasteners and/or electrical, electronic and electro-mechanical parts delivered and/or used in the manufacture of deliverable products shall be from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEM) or their franchised dealer or an authorized distributor chain. Parts shall not be used or reclaimed and misrepresented as new. Parts shall not be acquired from independent distributors or brokers unless specifically authorized in writing by the buyer.

1.14.1 Counterfeit Materiel - Assuring Acquisition of Authentic and Conforming Materiel per AS6174

The Supplier shall develop and implement a materiel authenticity assurance plan that

documents: (a) its processes used for assuring that only authentic and conforming materiel is procured from legally authorized sources, and (b) its' planning to be used for risk mitigation, disposition, and reporting in the event any counterfeit materiel is encountered in its supply chains per the requirements of AS6174. Materiel as defined by the AS6174 standard refers to material, parts, assemblies, and other procured items (except for electronic parts, which are covered by AS5553).

The Suppliers material authenticity assurance plan is subject to Parker Aerospace approval, and may be disapproved if it does not incorporate appropriate guidance from the appendices considered necessary to provide for an appropriate level of assurance for procuring authentic and conforming materiel.

1.14.2 Fraudulent/Counterfeit Electronic Parts - Avoidance, Detection, Mitigation, and Disposition per AS5553

Suppliers providing electronic parts or electronic parts integrated into electronic assemblies or equipment to Parker Aerospace shall, prior to processing production hardware, establish, and implement a Counterfeit Electronic Parts Control Plan in compliance with the requirements of AS5553. Parker reserves the right to review and approve, including on-site examination when appropriate, the Suppliers Counterfeit Electronic Parts Control Plan.

1.15 Acceptance Authority Media & Product Safety

Supplier will comply with AS9100 requirements and 14CFR Part 21.2 regarding application of the Acceptance Authority Media (AAM) requirements.

Supplier shall ensure that the use of AAM is clearly defined within its Quality Management System (QMS) and be able to demonstrate evidence of communication to its employees and supply chain that the use of AAM is a personal warranty of compliance and conformity. Further ensure that all persons doing work under the organization's control are aware of their contribution to product and service conformity, their contribution to product safety, and the importance of ethical behavior.

1.16 Contract Line Item & Release Number

Parker Aerospace may issue contracts that contain more than one contract line item and may also contain one or more release numbers against each contract line item. In such cases, the supplier shall include on the supplier's packing list/shipper the Parker Aerospace contract line item & release number against which the delivery of products or services is made.

1.17 FOD Control Program

The supplier shall establish, document and maintain a program to control and eliminate Foreign Object Damage (FOD) and/or contamination during the supplier's manufacturing, assembly, test and inspection, and packaging/shipping operations. The supplier's FOD control program shall include controls to preclude FOD or contamination at the supplier's sub-tier sources. AS9146 shall be used as a guide to establish and implement the supplier's FOD program. All parts shall be free of foreign debris, burrs and sharp edges, unless otherwise specified on the drawing. The supplier's FOD program is subject to on-site review and approval by Parker Aerospace.

1.18 Corrective Action

When Parker notifies supplier of a detected nonconformance, supplier shall immediately act to eliminate the nonconformance on all products in suppliers' control. Supplier shall also maintain verification that the root cause corrective action has occurred and has resolved the subject condition. Parker reserves the right to review the verification data at the supplier's facility or to have the data submitted to Parker.

When the supplier is requested to submit a corrective action report, the report shall be submitted in an 8D format within the time allotted. If the supplier is unable to respond in the allotted time, the supplier shall submit a written request for extension subject to Parker's approval.

Parker reserves the right to reject any root case and/or corrective action determination provided by the supplier and may request subsequent investigation or corrective action. If the supplier is late in responding to corrective action request from Parker, or if additional corrective action efforts are required, Parker reserves the right to withhold acceptance of shipments either at source or destination until the supplier corrective action is submitted to Parker's satisfaction.

2 Q010 – General Requirements Conditionally Required Clauses

Clauses in this section are conditional and applicable as appropriate for the product, process, or service being procured.

2.1 Inspection & Quality Assurance Requirements

2.1.1 Requirements for the Calibration of Measuring and Test Equipment per ANSI/NCSL Z540.3

The supplier shall establish, document and maintain a system that complies with the applicable revision of ANSI/NCSL Z540.3 (Systems exceeding Z540 like ISO/IEC 17025 are acceptable). The supplier's calibration system is subject to audit, verification and approval by Parker or its designated representative(s).

2.1.2 Quality System – FAA-PMA Holder

When the contract is for products for which the supplier has received Federal Aviation Administration (FAA) Parts Manufacturer Approval (PMA), the supplier shall establish and maintain an Inspection System in compliance with the current requirements of 14 CFR 21 (Title 14, Code of Federal Regulations, Part 21), Subpart "K" - Approval of Materials, Parts, Processes and Appliances. The supplier's Inspection System is subject to audit, verification and approval by Parker Aerospace designated representative(s). A copy of the current FAA PMA approval letter or “Certificate” shall be furnished to Parker Aerospace with the initial delivery of products on the contract.

2.1.3 Quality System – Production Certificate (FAA-PC) Holder

When the contract is for products for which the supplier holds a Federal Aviation Administration (FAA) Production Certificate (PC), the supplier shall establish and maintain a Quality System in compliance with the requirements of 14 CFR Part 21, Subpart G. The supplier’s Quality System is subject to audit, verification and approval by Parker Aerospace designated representative(s). A copy of the current FAA Production Approval shall be furnished to Parker Aerospace with the initial delivery of articles on the contract.

2.1.4 Quality System – FAA-TSOA Holder

When the contract is for products for which the supplier holds a Federal Aviation Administration (FAA) issued “Technical Standard Order Authorization” (TSOA), the supplier shall establish and maintain a Quality System in compliance with the current Requirements of 14 CFR 21 Subpart G. The supplier's Inspection/Quality System is subject to audit, verification and approval by Parker Aerospace designated representative(s). A copy of the current FAA approval letter or “Certificate” shall be furnished to Parker Aerospace concurrent with the initial delivery of products on the contract.

2.1.5 SQA Program Requirements per RTCA/DO – 178

When the contract is for deliverable software or product containing deliverable software, the supplier shall establish and maintain a Software Quality Assurance (SQA) Management and Development Program in compliance with the current requirements of documents RTCA/DO-178. The supplier's SQA Management and Development Program is subject to audit, verification and approval by Parker Aerospace designated representative(s).

2.1.6 Design Assurance Requirements, Airborne Electronic Hardware (Firmware) RTCA/DO-254

When the contract is for Airborne Electronic Hardware/Firmware, the supplier shall establish and maintain a Design Assurance Management and Development Program for airborne electronic hardware (i.e. ASIC's, FPGA's, and PLD's) in compliance with the requirements of Radio Technical Commission for Aeronautics document RTCA/DO-254 – "Design Assurance Guidance for Airborne Electronic Hardware." The supplier's electronic hardware Design Assurance Management and Development Program is subject to audit, verification and approval by Parker Aerospace designated representative(s).

2.1.7 Other Quality Systems as Directed by Parker Contract

Other specific Quality Management Systems when directed by contract.

2.2 Supplier Statements of Quality (Certifications & Test Reports)

2.2.1 Certificate of Conformance (CoC) – Manufactured to Parker Designs

The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that all products or services delivered on this contract (number) and packing list/shipper (number) are compliant with all requirements of the contract. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

2.2.2 Certificate of Conformance (CoC) – Maintenance, Repair & Overhaul (MRO)

For Maintenance, Repair, and Overhaul related products and services. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify the all products delivered on this contract (number) and packing list/shipper (number) have been (repaired)/ (overhauled)/ (replaced) in compliance with the requirements of drawing or specification) and (revision) and have been functionally tested (if applicable) in compliance with (test procedure number) and (revision). Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

2.2.3 Supplier Proprietary Design Products

The supplier shall certify that the product is of supplier's proprietary design and are available as standard off-the-shelf or catalog products and comply with all the supplier's engineering drawing, specification, construction, and performance requirements. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that all products delivered on this contract (number) and packing list/shipper (number) comply with all requirements specified in the product catalog or specification data sheet. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request"

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

2.2.4 Source Control Drawing (SCD) Certification

A Source Control Drawing (SCD) Certification is to be submitted by suppliers that provide parts, materials and assemblies manufactured, assembled and tested to Parker Aerospace Source Control Drawing or Specification. The supplier shall certify that the products have been designed and manufactured in compliance with the requirements of the current revision

of Parker Aerospace SCD. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that the products delivered on this contract (number) and packing list/shipper (number) comply with all requirements specified by the Parker Aerospace (SCD number) and (revision). Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Company Name:	
Address:	
Title of Authorized Individual:	
Parker Aerospace SCD No.:	Rev:
Supplier P/N:	Rev:
Manufactured By: (as required):	
Title of Authorized Individual:	
Signature/Stamp:	Date

In addition to the certification requirements above, authorized SCD Distributors or Parker Aerospace Divisions must also include on their certification the name of the approved SCD manufacturer as shown on the Parker Aerospace Engineering Drawing and/or Specification.

2.2.5 Fasteners – Certificate of Conformance

All fasteners delivered on this contract shall be manufactured, tested and controlled in compliance with the requirements of PUBLIC LAW 15 CFR 280 – generally known as the “Fastener Quality Act”. In addition, the supplier shall verify and certify that the manufacturer (or other source) of the fasteners is not currently listed as a “debarred, suspended, or ineligible Contractor” on the current issue of the “lists of parties” published by the US Government, General Services Administration (GSA). The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all fasteners delivered on this contract (number) and packing list/shipper (number) have been:

a) Manufactured, tested and controlled in compliance with the requirements of the “Fastener Quality Act”,
b) Have not been commingled with fasteners from other manufacturers, or with fasteners from other lots or batches, and

c) The fasteners comply with all applicable requirements. The certificate issued by the fastener manufacturer states that the fasteners have been manufactured according to the applicable standards and specifications and have been inspected and tested by an approved laboratory and that all original laboratory test reports are on file and available for review. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

2.3 Control of Raw Material

2.3.1 Raw Material Verification Program

The supplier shall develop, document, and implement a raw material (sheet, plate, bar, rod, etc.) verification program that will ensure that all material received from the supplier's sub-tier sources meet all applicable technical and quality requirements. The supplier's verification program shall include provisions for monitoring and testing all raw materials. In addition to this testing the supplier shall compare the chemical, physical and mechanical properties data stated on the mill certification against the material specification requirements and document the comparison.

The raw material verification program shall include an over-check of the chemical composition of every piece of material (rod, sheet, bar, plate, etc.) to verify specification compliance. The over-check is accomplished by conducting a quantitative chemical analysis such as X-ray Fluorescence (XRF), Optical Emission Spectroscopy (OES), or Energy Dispersive X-ray Spectroscopy (EDS). A laboratory accredited by PRI-Nadcap, A2LA or other accreditation body recognized by the International Laboratory Accreditation Cooperation (ILAC) and listed in the Signatories to the ILAC Mutual Recognition Arrangements (MRAs) is an acceptable alternative.

Records showing the results of the supplier's material verification program and its effectiveness shall be available to Parker Aerospace for review upon request.

The supplier shall implement appropriate storage and controls to preclude commingling of different heat/lots or batches of material.

2.3.2 Parker Aerospace Furnished Material

When Parker Aerospace furnishes raw material (bar stock, castings, forgings, etc.), machined or partly machined parts, and/or components to the supplier for use in or on products to be delivered on this contract, the supplier shall establish and maintain strict accountability for all Parker Aerospace furnished material to ensure that it is properly used and accounted for. The supplier shall establish required controls to ensure traceability of the raw material to the finished product and furnish material traceability records with the delivery of products to Parker Aerospace. For components, unless individual component traceability is required by contract, the supplier shall ensure that such components are used only on products to be delivered to Parker Aerospace. The Supplier shall report to the Parker Buyer any Parker furnished material found damaged, malfunctioning or otherwise unsuitable for use. In the event of damage or malfunction during or after installation, the Supplier shall determine and record probable cause and necessity for withholding from use. Unless otherwise specified by the contract, the supplier shall return any unused Parker Aerospace furnished material to Parker Aerospace with the last delivery of products on the contract. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all products delivered on this contract (number) and packing list/shipper (number), were manufactured using:

a) Material furnished by Parker Aerospace;
b) The material identified on the material and/or the Parker Aerospace shipper, and
c) No material substitution was made.
d) Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

2.3.3 Supplier Furnished Raw Material

The supplier shall provide positive traceability of each individual product to the material certification/test report that represents the raw material from which each of the products was manufactured.

Supplier shall provide chronological, complete traceable documents from each company that handled, sold, drop shipped, owned, tested, or otherwise, manipulated or treated the material during its lifetime from producing mill to finished product shipment to Parker Aerospace.

With each lot of raw material delivered or used to fabricate products on this contract, the supplier shall furnish a “Certification/Material Test Report.” If more than one heat/lot of raw material was used to fabricate products, the products produced from each heat/lot shall be identified and/or packaged separately to maintain integrity and to provide traceability to the applicable material Certification/Material Test Report.

Prior to delivery or use of any raw material produced outside the United States in a Nonqualifying Country as defined in DFAR 225.003, the supplier shall submit a request to the Parker Aerospace Buyer for approval to use the raw material for each Part Number being supplied, demonstrating compliance to all applicable requirements. Along with the approval request, the supplier shall:

- Submit a “Certification/Material Test Report” that establishes the country of origin.
- Provide material test and analysis reports by a Parker approved laboratory or PRI-Nadcap ISO/IEC 17025 accredited laboratory.

Parker Aerospace approval may be contingent on on-site evaluation of the source of the material as well as additional and independent material testing and analysis to determine that the material meets all applicable requirements. Parker Aerospace reserves the right to reject and return to the supplier at supplier’s expense any raw material, or products made from raw material, when the source that produced the raw material is not in the United States or a Qualifying Country per DFAR 225.003. The supplier shall submit a copy of the Parker Aerospace “approved” request to use raw material from foreign nonqualifying sources with each delivery of products where the raw material from the foreign nonqualifying source was used.

Material Test Report - Unless otherwise specified by the contract, each Certification/Material Test Report shall include name of the company that furnished the material and the following information and data:

a) Material description, including, as applicable, name or designation, size or weight, alloy, type, class, grade or condition,
b) Lot, batch or heat number, and
c) Chronological traceability from mill through all processing and distribution sources
d) The applicable specification and revision to which the material complies.

The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that all material and / or products delivered on this contract complies with and were fabricated from material represented by the attached Certifications/Material Test Reports. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

In addition to the requirements above, when the material furnished or used to fabricate products, is one of the types listed below, the Certification/Material Test Report shall include the following information and data:

- Metallic Materials - The Certification/Material Test Report shall include data that shows the actual test results obtained from the lot or heat of material versus the values required by the applicable material specification for:
    a) Chemical composition, and
    b) Physical properties
    c) Include a statement that the material conforms to the applicable material specification.
- Non-Metallic Materials - The Certification/Test Report, issued by the manufacturer of the material, shall show:
    a) The specification and revision to which the material conforms,
    b) The lot/batch number (if applicable),
    c) The date manufactured,
    d) Any other technical data (material test results, composition, chemical or physical properties, etc.) required by the applicable material specification or contract.

2.4 Control of Special Processing

2.4.1 Heat Treat Certifications

The supplier shall furnish a time/temperature certification that includes the following data:

a) Part number and revision;
b) Quantity heat treated; and
c) The actual temperature range & duration of each heat treat cycle.

2.4.2 Heat Treat Furnace Charts

The supplier shall furnish the original, or a legible copy, of the furnace temperature chart, which shows the part number, the date and the actual time the part was moved in/out of the furnace.

2.4.3 1st Article Destructive Metallurgical Test Report (DMTR)

The supplier shall furnish a DMTR for all Priority Processes specified on the engineering drawing and/or specification except for NDT as part of the FAI Certification or PPAP Warrant. The Parker Aerospace document BPS 4127 – Control of Priority Processes provides a list of all processes listed as Priority Processes. The testing shall be accomplished on an actual part or a suitable test sample produced and processed simultaneously with the lot of production parts. The testing shall be accomplished and a DMTR issued by an organization approved and/or certified by one of the following:

a) American Association for Laboratory Accreditation (A2LA);
b) Nadcap in accordance with SAE PRI AC7101 Nadcap Audit Criteria for Materials Test Laboratories;
c) Third party certification body issued certificate indicating the testing organization complies with ISO 17025 – “General Requirements for the Competence of Testing and Calibration Laboratories”; or
d) A laboratory approved by Parker Aerospace.

2.4.4 Test Samples and Process Control

Upon request, the supplier shall furnish for verification testing by Parker Aerospace one (1) additional product or suitable test sample produced from the same material lot and processed simultaneously with the lot of products delivered. When more than one lot of material was used, a sample is required for each lot of material. The sample shall be marked or tagged to identify the material or process that it represents and noted on the packing list/shipper.

2.4.5 Nondestructive Test (NDT) Reports

When NDT is specified by the contract, drawing or specification, the supplier shall furnish a certified test report that shows that the required NDT (i.e. penetrant, magnetic particle, radiographic, ultrasonic, etc.) test was performed on 100% of delivered products. The test report shall be issued by the organization that performed the NDT and include:

a) A complete description of the test, test name, specification, revision, type, method, etc.

b) The acceptance criteria document number and revision, that applies to the NDT operation
c) The number and revision level of the NDT procedure used, and
d) When applicable, identity of the qualified/certified personnel who performed the NDT.

All products subjected to NDT and found to be acceptable shall be identified as required by the applicable NDT specification. When products are serialized the serial numbers shall be referenced on the NDT reports and certifications.

2.4.6 Parker Aerospace Approval of NDT Techniques

Parker approval of NDT Techniques is required whenever the engineering drawing requires a Magnetic Particle Inspection (MPI) requirement and “High Strength Steel” materials. High Strength Steel is any material that is through hardened with core strength of 260 ksi ultimate tensile strength or higher (Hardness greater than RC 50), steels such as 52100 or 440C, or materials which are surface hardened by carburizing, or induction hardening to 260 ksi or higher.

Prior to conducting any nondestructive testing (NDT) required by drawing or specification on products scheduled for delivery on the contract, the supplier shall prepare and submit to Parker Aerospace for review and approval a detailed procedure describing the NDT to be performed. The supplier’s procedure shall include all necessary information including pictures or sketches, materials, tooling and/or equipment to be used, safety precautions and any other pertinent information required to successfully conduct the NDT operation. The procedure shall be:

a) Identified with a control number;
b) Reference the applicable NDT specification and revision with which it complies, and
c) Include the name, signature and date of the qualified and certified technician who prepared and/or approved the NDT technique. Changes to Parker Aerospace approved NDT techniques shall be submitted to Parker Aerospace for approval prior to their use in production.

Changes to a Parker approved NDT technique shall be cause for a new FAIR or PPAP Warrant to be submitted to Parker along with the revised NDT technique sheet for approval prior to using in production.

2.4.7 Radiographic (x-ray) Inspection

When radiographic inspection is required by the engineering drawing or contract, the supplier shall furnish a certified test report of radiographic (x-ray) inspection performed on the products. The document package supporting the radiographic inspection shall be issued by the organization that performed the radiographic inspection and include:

a) A test report showing the accept/reject quantities, and
b) A copy of the approved shooting sketch; the shooting sketch or test report shall include the number and revision of the approved radiographic technique.
c) Unless otherwise specified, the exposed x-ray film or digital images of the products.

2.4.8 Parker Aerospace Braze or Weld Schedule Approval

When welding or brazing is required by the engineering drawing or contract, the supplier shall prepare and submit a detailed braze or weld schedule to Parker Aerospace for review and approval prior to production. Upon request, a braze or weld sample or an actual part that was produced using the braze or weld schedule will be submitted. The braze or weld schedule shall identify:

a) Part Number and revision;
b) Applicable braze or weld specification and revision, and
c) Name & signature of the qualified/certified individual that approved the braze or weld schedule.

2.4.9 Abrasive Blasting prior to Brazing

The recommended abrasive materials are silicon carbide, tungsten carbide, and diamond. Abrasives which are NOT permitted include, but are not limited to, silicon dioxide (SiO2), glass bead or other quartz/silica oxide materials, aluminum oxide, aluminum zirconia, garnet, almandite, and nitrides.

2.4.10 Proprietary Process

Prior to initial application of a process that is controlled by a proprietary specification developed by the supplier or the supplier's sub-tier source, the supplier shall furnish a copy of the specification, or sufficient technical data to Parker Aerospace (subject to normal proprietary rights consideration and nondisclosure agreement) so that Parker Aerospace can determine whether adequate process controls exist to ensure that the proprietary process will

yield products that meet all Parker Aerospace technical and quality requirements. In addition, the supplier shall notify Parker Aerospace when any changes to the proprietary process are planned so that Parker Aerospace can evaluate the potential impact on product technical or quality requirements.

2.5 Acceptance Test Procedure (ATP) Approval

The supplier shall submit to Parker Aerospace, for review and approval, a copy of the ATP or other quality conformance procedure that describes the final tests to be performed by the supplier on products scheduled for delivery to Parker Aerospace prior to initial delivery. The ATP shall include a list of equipment used and any test diagrams or sketches necessary for technical interpretation of the ATP. Any revisions to a Parker Aerospace approved ATP shall be submitted to Parker Aerospace for review and approval prior to incorporation into production.

2.6 Manufacturing Quality Instructions

The supplier shall comply with the special engineering, manufacturing and/or quality instructions and requirements that apply to the products ordered on this contract. Such requirements may be described in document(s) such as Engineering Work Instruction (EWI), Manufacturing Quality Instruction (MQI), Quality Work Instruction (QWI), Manufacturing Work Instruction (MWI), or other designation referenced on the contract.

2.7 Alcohol and Drug Prevention Program for MRO Purchase Orders

All Employees performing maintenance or safety-sensitive inspection of products scheduled for delivery to Parker Aerospace shall be part of a Federal Aviation Administration (FAA) approved Anti-drug and Alcohol Misuse Prevention Program. This requirement applies both to pre-employment and random testing of current employees in accordance with the requirements of US 14 CFR Part 120. Evidence of compliance with this requirement shall be made available to Parker Aerospace for review upon request.

2.8 Variation Management Program per AS9103

When Key Characteristics are required by drawing, specification, contract or other document, the supplier shall establish and maintain a Variation Management Program in compliance with the current requirements of AS9103 - “Variation Management of Key Characteristics.” AS9103 requires the use of statistical methods to control manufacturing and processing operations. The supplier's variation management program is subject to audit, verification, and

approval by Parker Aerospace designated representative(s).

2.9 Critical Parts

The supplier shall establish and maintain strict controls during all manufacturing, processing and inspection operations when products or parts are identified as “Critical” (i.e. Fracture Critical, Mission Critical, Flight Critical, etc.) on the contract, drawing, specification or other applicable documentation. The supplier’s manufacturing documentation, i.e. travelers, routes, work orders, process instructions, etc. shall be identified with the notation “Critical Part” and submitted to Parker Aerospace for review. When work on critical parts is to be performed by a sub-tier source, the supplier’s documentation shall include the sub-tier supplier’s documents as part of the submittal for Parker Aerospace review. No changes are permitted in the raw material, manufacturing, processing or inspection operations on critical parts without prior review and written approval from Parker Aerospace. Any certifications and test reports issued by the supplier or sub-tier sources shall be identified with the notation “Critical Part”. All critical parts shall be permanently identified, using a method specified on the drawing or specification, with a serial number traceable to the raw material and processing certifications/test reports.

2.10 Alternate Materials and/or Process Specifications

An alternate specification list may apply to a purchase order or contract. The list defines the alternate material and/or process specifications that may be used when the material or process specification shown on the engineering drawing or other documents has been cancelled by DoD or industry initiatives and the material or process to the original specification is no longer available. The authorized alternate specification will be listed on the contract or on reference documents such as the Manufacturing Quality Instruction (MQI) applicable to the order. A copy of the BPS 4000 Approved Specification Index for alternate specifications may be obtained by contacting the Parker Aerospace Buyer.

2.11 Product Serialization Requirements

When serial numbers for products on the contract have been assigned by Parker Aerospace and are defined in the contract or reference documents, the supplier shall apply the specified serial numbers on all products and record the serial numbers on all applicable documentation. If product has serial numbers already applied to the parts the supplier is to maintain serial number legibility, control to the specific contract and record serial numbers on all documentation. The assigned serial numbers may not be altered or replaced without written authorization from Parker Aerospace.

2.12 Unique Identification (UID) Marking

Products on the contract that require Unique Identification (UID) Marking in accordance with the requirements of the current version of Mil-Std-130. The supplier is required to submit to Parker for review and approval the detailed UID marking procedures and methods prior to the application of the UID marking and delivery of products to Parker.

2.13 Control of Electronic Devices & Components

2.13.1 Electrostatic Discharge (ESD) Control Program

Suppliers of electrostatic sensitive devices shall establish, implement and submit to Parker Aerospace for review and approval, an Electrostatic Discharge (ESD) Control Program in compliance with the requirements of ANSI/ESD 20.20 or MIL-STD-1686.

The supplier shall package all products susceptible to damage from ESD in compliance with ANSI/ESD 20.20 or MIL-STD-1686, in static shielding conductive containers meeting requirements of MIL-PRF-81705. Protection shall be provided to prevent physical damage and to maintain leads and terminals in the manufactured condition under normal handling and transportation environments. The outside of packages containing ESD sensitive products shall have a clearly displayed ESD warning label conforming to ANSI/EOS/ESD S-8.1. The same labels shall be used to seal shielded bags.

2.14 Control of Age Sensitive Items

2.14.1 Control of Aerospace Elastomeric Seals & Seal Assemblies

Unless otherwise specified by the contract, the supplier shall control elastomeric seals and seal assemblies in accordance with the requirements of document AS5316 – “Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly”. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

2.14.2 Limited Shelf Life Materials

With each delivery of materials on this contract, that have a limited or specified shelf life, the supplier shall furnish the following data:

a) Cure or manufacture date;
b) Expiration date or shelf life;

c) Lot or batch number, and
d) When applicable, any special storage requirements/handling procedures to be followed.

The above information shall be marked on each container or certification and shall be in addition to normal identification requirements such as material name, part or code number, drawing, specification number and revision, type, size and quantity and other markings as applicable. For each delivery of limited shelf life materials on the contract the time lapse between the cure or manufacturing date of such materials, and the date of scheduled receipt by Parker Aerospace, shall not exceed one fourth (1/4) of the total shelf life of the material without prior written waiver from the Parker Aerospace Buyer.

2.15 Control of Castings

2.15.1 Foundry Control

Prior to making the first production run on any new castings, or castings for which new tooling (patterns or molds) have been made; or, when a change is made in gates, risers, chills, or as cast shape; or, when a pattern or mold is transferred to a different facility, the supplier shall establish a foundry control procedure and submit to Parker Aerospace, for review and approval the following:

- Sample Castings - Sample foundry control castings from the first production run representative of the controls, practices, and processes to be used on the production castings. The quantity of foundry control castings shall comply with the requirements of the applicable casting specification and/or as specified in the contract. First Article and PPAP castings shall be in addition to the production quantities required by the contract.
- AS9102 First Article Inspection Report (FAIR) – Showing the results of the FAI of the sample foundry control First Article castings.
- Mechanical Properties - The laboratory test report or certified statement of the test bar mechanical properties from the foundry control First Article castings. The test bars used for the mechanical testing shall be from the same melt and heat treat lot as the foundry control First article castings. The testing must be performed by a test facility with Parker Aerospace (APSL) or PRI-Nadcap approval for Materials Testing.
- Chemical Composition - The laboratory test report or certified statement of the chemical analysis of the material (melt) used in the foundry control First Article castings. The test results shall contain the actual percentage of each element contained in the test sample.

- Radiographic Procedure - The laboratory test report showing the sketch, radiographic technique, and approval from a Parker Aerospace Approved (APSL) or PRI-Nadcap approved Level III NDT inspection service. Film may be maintained by the foundry in accordance with the 15-year retention requirement defined by the supplier Parker Supplier Quality Requirements Manual (PH-SQRM).
- Macroscopic Examination - If a macroscopic evaluation is required by the drawing, a pre-production sample shall be macrosectioned to verify the quality of internal surfaces inspectable only by radiography. The macrosection(s) shall represent a full cross section of the casting. The samples shall be ground or polished (minimum 120 grit) and lightly etched. The prepared surface shall be examined at 10X magnification to establish size, distribution, and type of internal defects. The evaluation shall be correlated with the radiographic inspection results to verify that interpretation and grading was correct for the defects. At the discretion of the supplier, the macroscopic evaluation may be performed by a test facility with Parker Aerospace (APSL) and PRI-Nadcap approval for Materials Testing or by the Parker Aerospace Materials & Processes Laboratory. A copy of the macroscopic examination report shall be submitted to Parker Aerospace.

2.15.2 Production Castings

The supplier shall produce production castings using the same foundry control practices established and approved by Parker Aerospace in 2.16.1. The supplier shall furnish for each separate heat/melt of production castings in the lot, all certifications and test reports required by 2.3 – Control of Raw Material, and 2.4 – Control of Special Processes.

2.16 Control of Forgings, Extrusions & Pressings

2.16.1 Pre-Production Controls

Prior to making the first production run of forgings, extrusions or pressings, or on any forging or pressing where dies or a technique has been changed, the supplier shall submit to Parker Aerospace for review and approval the following:

- Sample Forging – A sample forging, extrusion or pressing from the first production run and representative of all manufacturing and processing operations scheduled to be used during production. First Article and PPAP Warrant sample forgings shall be in addition to the quantities required by the contract.
- AS9102 First Article Inspection Results (FAIR) – Showing the results of the forging sample First Article Inspection

- Mechanical Properties – The laboratory test report or certified statement of the test bar mechanical properties taken from the First Article.
- Chemical Composition –The laboratory test report or certified statement of chemical analysis of the material used in the First Article, or a specimen taken from the First Article, showing the actual percentage of each element contained in the First Article or specimen.
- Ultrasonic Technique – When required by the drawing or specification, the written technique used to perform the ultrasonic inspection on the First Article and production.
- Nondestructive Test (NDT) Reports – The laboratory test report of NDT accomplished in accordance with the applicable specification and showing acceptance of the First Article.
- Grain Flow Sample – When required by the applicable drawing or specification, the cross section and pictures of grain flow pattern taken from the First Article.

2.16.2 Production Forgings, Extrusions & Pressings

Production forgings, extrusions or pressings shall be produced using the methods and controls established and approved by Parker Aerospace in section 2.17.1. The supplier shall furnish for each separate heat/melt of production forgings, extrusions or pressings in the lot, all certifications and test reports required by 2.3 – Control of Raw Material, and 2.4 – Control of Special Processes.

2.17 Supply Chain Risk Management per ARP9134

The supplier shall utilize the current revision of ARP9134 – Supply Chain Risk Management Guideline to assess and mitigate risks associated with those elements other than the Quality Management System requirements that could affect the products and services being provided to Parker.

3 Quality Assurance Purchase Order Clauses

“Q” Clauses in this section apply only when specifically included on the contract.

3.1 Supplier Inspection & Quality System Requirements

3.1.1 Q060 Inspection System per NASA NHB 5300.4(1c) "Inspection System Provisions for Aeronautical & Space Materials, Parts and Services."

The supplier shall establish and maintain an inspection system that is compliant with the

current requirements of National Aeronautics and Space Administration (NASA) document NHB 5300.4(1c). The supplier's Inspection System is subject to audit, verification and approval by Parker Aerospace designated representative(s).

3.1.2 Q075 Quality System per EASA Part 21

The supplier shall establish and maintain a Quality System that is compliant with the requirements of the current revision of European Aviation Safety Agency (EASA) Regulation, Part 21 – “Certification Procedures for Aircraft and Related Products and Parts.” The supplier's Quality System must be approved by EASA and/or by the National Civil Aviation Authority (NCAA) of the country in which the supplier's facilities are located. A copy of the current EASA issued approval letter or “Certificate” shall be furnished to Parker Aerospace concurrent with the initial delivery of products on the contract.

3.1.3 Q080 Inspection System per US 14 CFR 145

The supplier shall establish and maintain an Inspection System that is compliant with the requirements of the current revision of 14 CFR 145 (Title 14, United States Code of Federal Regulations, Part 145) - “Repair Stations; Inspection System Requirements.” The supplier's Inspection System must be approved by the Federal Aviation Administration (FAA) with a rating applicable to the item called out on the Parker Aerospace contract. A copy of the current FAA issued approval letter or “Certificate” shall be furnished to Parker Aerospace concurrent with the initial delivery of products on the contract.

3.1.4 Q085 Inspection System for Maintenance Organization per EASA Part 145

The supplier shall establish and maintain an Inspection System in the supplier’s Maintenance Organization that is compliant with the current revision of European Aviation Safety Agency, (EASA) Regulation, Part 145 – “Approved Maintenance Organization; Inspection System Requirements.” The supplier's Inspection System must be approved by EASA, and/or the National Civil Aviation Authority (NCAA) of the country in which the supplier's facilities are located with a rating applicable to the item on the Parker Aerospace contract. A copy of the current approval letter or “Certificate” shall be furnished to Parker Aerospace concurrent with the initial delivery of products on the contract.

3.1.5 Q160 Full Material Review Authority

The supplier is authorized to conduct Material Review and disposition all ‘Minor’ nonconformances found on products that are under the supplier's proprietary engineering

design authority and control. 'Minor' nonconformances are defined as nonconformances which do not adversely affect product health or safety, performance, interchangeability, reliability, maintainability, effective use or operation, or weight or appearance when a factor. 'Major' nonconformances are defined as nonconformances other than 'Minor' that cannot be eliminated by rework or reduced to a 'Minor' by repair. All Parker Aerospace specified requirements are defined as 'Major' and disposition of products with 'Major' nonconformances is the sole prerogative of the Parker Aerospace Material Review Board (MRB). The supplier's authority to disposition products with 'Minor' nonconformances is contingent on the supplier having an established and documented Material Review system, which provides for a technically competent Material Review Board (MRB) chaired by a responsible member of the supplier's Quality organization.

The supplier's MRB System shall include:

a) Feedback of product nonconformance information to the supplier's product design function;
b) Analysis to determine 'root cause' of individual product nonconformance(s);
c) Implementation of positive corrective action;
d) Verification of corrective action to ensure effectiveness in eliminating recurrence of nonconforming products;
e) Evaluation and reporting of nonconformance trends to management.

3.2 Source Inspection Requirements

3.2.1 Q180 In-Process Source Inspection

Products to be delivered on this contract, require in-process source inspection, tests or both by a Parker Aerospace Quality Assurance representative. The points in the manufacturing sequence at which in-process inspection is required will be specified in the contract. The supplier shall notify Parker Aerospace at least forty-eight (48) hours in advance of the time the product will be ready for in-process source inspection. Upon request, the supplier shall make available to the Parker Aerospace representative any measuring and test equipment, facilities, records and personnel to facilitate the in-process source inspection.

Note: Q195 may be called out in conjunction to this quality code. For orders where Q195 is also applied, the In-process inspection may be performed by the supplier's Parker delegated inspector.

3.2.2 Q190 Final Source Inspection

Products to be delivered on this contract require final source inspection, tests or both by a

Parker Aerospace Quality Assurance representative, prior to delivery to Parker Aerospace. The supplier shall notify Parker Aerospace at least forty-eight (48) hours in advance of the time the products will be ready for final inspection. Upon request, the supplier shall make available to the Parker Aerospace representative any measuring and test equipment, facilities, records and personnel to facilitate the final source inspection.

Note: Q195 may be called out in conjunction to this quality code.

3.2.3 Q195 Delegated Source Inspection

Products or services to be delivered on this contract require final inspection, tests or both, by a representative(s) in the supplier's quality organization delegated and authorized by Parker Aerospace to perform inspection and/or tests on behalf of Parker Aerospace. Such inspection and/or tests shall be accomplished prior to delivery of products to Parker Aerospace and be accomplished at the supplier's facilities and/or the facilities of the supplier's sub-tier sources. The delegated representative(s) is responsible for assuring that products delivered to Parker Aerospace conform to all contract requirements. Upon receipt of this contract, notify the delegated representative(s) so that appropriate planning and scheduling can be accomplished to conduct the required inspection and/or testing to meet the contract required delivery schedules. The supplier shall make available to the delegated representative any measuring and test equipment, facilities, records and personnel to facilitate the delegated source inspection.

3.2.4 Q196 Supplier Self Release Authority

Under the Parker Aerospace supplier Self-Release Program, the supplier has been delegated authority to perform final inspection on behalf of Parker Aerospace and release product(s) for delivery to Parker Aerospace. Parker Aerospace Quality Assurance reserves the right to conduct product integrity audits, quality system assessments, verify supplier's conformance to the Parker Aerospace self-release program requirements and to revoke delegation authorization. Inability to maintain an acceptable level of quality performance by the supplier may result in cancellation of self-release authority by exclusion of specific part number(s) or the authority in its entirety. With each delivery of products on this contract, the supplier shall include on the packing list/shipper or a separate attached document a written statement titled "Self-Release Certificate" which complies with the requirements of section 1.5 herein and is worded substantially as follows:

"This is to certify that all products, Part (Number), authorized for self-release and delivered on this contract (number) and packing list/shipper (number) have been inspected in accordance with the Parker Aerospace supplier Self-Release Program and comply with all requirements of

the contract. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request"

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.2.5 Q200 Government Source Inspection (GSI)

US Government Source Inspection (GSI) is required prior to delivery to Parker Aerospace. Upon receipt of this contract, the supplier shall promptly notify the US Government representative who normally services the supplier's plant, in order that the US Government representative can accomplish appropriate planning for conducting source inspection at the supplier's facilities. If the supplier cannot locate the US Government representative to arrange for the required source inspection, the supplier shall notify the Parker Aerospace Buyer immediately. Upon request, the supplier shall make available to the US Government representative any measuring and test equipment, facilities, records and personnel to facilitate the Government source inspection.

3.2.6 Q210 Government Source Inspection (GSI) – NASA Contracts (From SPD SQAM Q410)

During performance on this Purchase Order, all work is subject to source inspection and/or test by the cognizant Government Representative.
Seller shall assure that the Government Representative who has been delegated NASA Quality Assurance Source Inspection functions on this Order at Seller's plant is notified immediately upon receipt of this Purchase Order and a minimum of forty-eight (48) hours in advance of the time any product(s) will be ready for Government inspection. If Seller cannot locate or contact the Government Representative, Seller shall notify the Buyer immediately.

3.2.7 Q220 Government Surveillance

During performance on this contract, the supplier's Inspection/Quality System, manufacturing operations and processes, including when applicable those at the supplier's sub-tier sources, are subject to review, verification and analysis by authorized representatives of applicable US Government agencies and personnel. Government source inspection (GSI) is not required unless Clause Q200 is also included in the contract.

3.3 Supplier Statements of Quality (Certifications & Test Reports)

3.3.1 Q230 Airworthiness Approval Tag (FAA Form 8130-3)

A completed FAA Form 8130-3, signed by the FAA, or authorized representative and attached to the products, is required with each delivery and upon receipt at Parker Aerospace. A separate 8130-3 tag is required for each part number and/or serial number delivered. If the Supplier is unable to furnish an 8130-3 tag, the Supplier shall notify Parker Aerospace Buyer immediately.

3.3.2 Q231 Authorized Release Certificate (EASA FORM 1)

Authorization by European Aviation Safety Agency (EASA), or by an authorized representative of EASA, is required prior to delivery to Parker Aerospace. A completed “Authorized Release Certificate – (EASA FORM 1), signed by a duly authorized representative of EASA, or by the National Civil Aviation Authority (NCAA) of the supplier's country, and attached to the products is required with each delivery and upon receipt at Parker Aerospace. If the supplier is unable to furnish the EASA FORM 1, the supplier shall notify Parker Aerospace Buyer immediately.

3.3.3 Q232 Maintenance Record and Release Certificate

All work performed on parts or components by a Federal Aviation Administration (FAA) approved repair station, shall be documented on a Maintenance Record and Release Certificate for that component or part in compliance with United States Code of Federal Regulations 14 CFR Part 43.9, and include the following information:

a) description of work performed,
b) the date of completion of the work performed,
c) the name of the person performing the work if other than the person specified in (d), and
d) if the work performed on the appliance or component part has been performed satisfactorily, the signature, the certificate number, and the kind of certificate held by the person approving the work. The signature constitutes the approval for return to service only for the work performed.

3.3.4 Q233 Airworthiness Approval Tag (FAA Form 8130-3 Return to Service)

A completed FAA Form 8130-3 Return to Service tag, signed by the FAA or a duly authorized representative of the FAA, and attached to the Article is required with each delivery to Parker Aerospace. A separate 8130-3 tag is required for each part number and/or serial number delivered. If the supplier is unable to furnish an 8130-3 Return to Service tag, the supplier

shall notify the Parker Aerospace Buyer immediately.

3.3.5 Q234 Authorized Release Certificate (FAA Form 8130-3 Dual Release Return to Service)

A completed FAA Form 8130-3 Return to Service tag with the EASA Dual Release statement signed by the FAA, or a duly authorized representative of the FAA, and attached to the Article is required with each delivery to Parker Aerospace. A separate 8130-3 tag is required for each part number and/or serial number delivered. If the supplier is unable to furnish an 8130-3 Dual Release Return to Service tag, the supplier shall notify the Parker Aerospace Buyer immediately. As an alternate, EASA Repair Stations may provide an EASA Form One Return to service tag with the FAA Dual Release statement.

3.3.6 Q235 Authorized Release Certificate (CAAC AAC-038 Return to Service)

A completed Civil Aviation Administration of China (CAAC) AAC-038 Return to Service tag, signed by the CAAC, or a duly authorized representative of the CAAC and attached to the Article is required with each shipment to Parker Aerospace. A separate original CAAC AAC-038 tag is required for each part number and/or serial number delivered. If the supplier is unable to furnish a CAAC AAC-038 Return to Service tag, the supplier shall notify Parker Aerospace Buyer immediately.

3.3.7 Q236 Certificate of Conformance (New Products/Parts/Sub-Components for Part 145 Repair Station)

A Supplier or service provider that is not the Production Approval holder (PAH) but is authorized to provide certification as new under Direct Ship Authorization (DSA) (14CFR 21.137(c), FAA Order 8120.23 Section 4), shall provide a Certificate of Conformance.

3.3.8 Q250 Certificate of Traceability (CoT)

The supplier shall include a Certification of Traceability per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all products delivered on this contract (number) and packing list/shipper (number) comply with all requirements of the contract and:

a) were purchased directly from the manufacturer or an authorized distributor;
b) the attached certifications/test reports are true and correct copies of the originals issued by the manufacturer and cover all products delivered on this contract; and

c) the products have not been altered, reworked, re-processed, or modified in any manner except as specified by the contract. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.3.9 Q252 Mercury Free Certification (From SPD SQAM Q502)

Seller shall provide on the packing list/shipper or on a separate document, a written statement that all products and/or services provided have not come in contact with or have been exposed to mercury bearing instruments or equipment, or mercury in any other form. This certification shall comply with 1.5 herein and contain as a minimum part number, revision, Parker Stratoflex Purchase Order number and packing list/shipper number.

3.3.10 Q260 Statement of Conformity (FAA Form 8130-9)

The supplier shall provide documentation to support the supplier's conformity inspection, including a completed FAA Form 8130-9 with each 1st Article product furnished on the contract.

3.3.11 Q265 Production Certificate

The production of products on this contract shall be accomplished in accordance with the detail requirements of the contract, including engineering drawings, specifications, manufacturing, processing and/or assembly and testing instructions furnished by Parker Aerospace. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that all products delivered on this contract (number) and packing list/shipper (number) were (manufactured) (processed) (assembled) (tested) in compliance with all applicable drawings, specifications and instructions furnished by Parker Aerospace. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request".

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.4 Control of Age Sensitive Items

3.4.1 Q450 Age Limits for Elastomers

Unless otherwise specified by the contract, the age limit or maximum time between the date of manufacture of elastomers (i.e. rubber goods such as o-rings, seals, gaskets, etc.) to the date of delivery to Parker Aerospace is a maximum of thirty-two (32) quarters or eight (8) years. The supplier shall establish and maintain an effective system of age control of elastomers to ensure that the age limits are met. Individual or bulk elastomers delivered to Parker Aerospace shall be properly identified in accordance with the applicable specification and include the cure date (quarter & year, i.e. 2Q03) either on the individual packages or on the bulk containers. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all elastomers delivered on this contract (number) and packing list/shipper (number) have been manufactured and controlled in accordance with the age control requirements, have not been commingled with elastomers from other manufacturers, or other lots or batches and comply with all of the requirements of the contract. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Cure Date(s):	
Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.4.2 Q452 Cure Date Marking

All products delivered on this contract that include elastomeric seals and seal assemblies subject to age limitations shall be identified with a cure date (Quarter & Year, i.e. 3Q98) of the oldest elastomer contained in the product.

3.4.3 Q455 O-Ring Requirements for Manned Space Programs

The O-rings on this contract are for critical manned space flight applications. For each lot of O-Rings delivered on this contract, the supplier shall furnish certifications and test reports, which include the following data:

a) Specific gravity
b) Durometer hardness reading

c) Minimum tensile strength (PSI)
d) Elongation (%), and
e) Compression set under 0.100 inches.

The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all O-rings delivered on this contract (number) and packing list/shipper (number) have been manufactured, tested and controlled in accordance with all applicable requirements, have not been commingled with O-rings from other manufacturers, or other lots or batches and comply with all of the requirements of the contract. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request”.

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.4.4 Q457 Packaging Requirements for Ethylene Propylene Soft Goods

O-rings and other seals shall be individually packaged by the manufacturer. They shall be thoroughly clean before packaging. Packaging shall be done under conditions ensuring freedom from contamination or damage to the rings/seals. The unit package shall be of such material and construction as to protect the seal from contamination until the package is opened.

f) Each package shall bear the following identification in purple colored print of a size that can be easily read.
   Phosphate Ester
g) Packing, Preformed (O-Ring) or type of specialty seal
h) Vendor’s Part Number (if any)
i) Industry Part Number
j) Industry Specification – (e.g. NAS1613)
k) Cure Date (Quarter and Year)
l) Legend “Ethylene Propylene” and “Do Not Fold”

3.4.5 Q458 Packaging Requirement Exemption for Ethylene Propylene Soft Goods

O-rings and other seals are exempt from any requirement to be individually packaged by the manufacturer (e.g. NAS1613, Rev.6, para 5.2). All other specified requirements regarding packaging, handling damage, and traceability still apply.

3.4.6 Q465 Packaging and Labeling

All seals, O-rings, elastomers, seal kits/sets delivered on this contract shall be individually packaged and labeled in opaque heat-sealed bags that conform to MIL-PRF-121 (waterproof) and MIL-PRF-131 (water vapor proof). The package or container for each individual item shall be identified with part number, nomenclature, specification number governing the material, cure date and the Parker Aerospace contract number.

3.4.7 Q466 Batch Packaging

Quantity per unit package shall be one (1) item per package or in multiples of five (5) pieces (e.g. 5, 10, 15, 20 etc.). Batch bagging or sub-group packaging is allowed for smaller sized, large lot quantity components such as nuts, bolts, screws, packing, O-rings, etc. Batch sizes shall be in quantities of 10, 25, 50 or 100 per batch or plastic bag, not to exceed 100 per bag. The plastic bag size shall be a minimum of 5 X 7 and a maximum of 10 X 12 inches. The batch package or container shall be identified with the Part Number, nomenclature, drawing or specification number governing the material, cure date or manufacturing date and the Parker Aerospace contract number. Parts requiring test data shall be individually packaged and include the test data in and/or attached to the package. The test data shall be packaged to avoid damage by preservation oils or other fluids. Small parts such as solenoids, check valves and relief valves may be sub-grouped into lots of five (5) including their test data. NOTE: For those items not covered by this requirement, the supplier shall contact the Parker Aerospace Buyer for packaging instructions prior to shipment of parts to Parker Aerospace.

3.5 Control of Electronic Devices & Components

3.5.1 Electronic Products – General Requirements

The materials, methods, and acceptance criteria for producing soldered electrical and electronic assemblies shall meet the requirements of IPC-A-610 – “Acceptability of Electronic Assemblies”, and IPC/EIA J-STD-001 – “Requirements for Soldered Electrical and Electronic Assemblies” for Class 3 High Performance (Aerospace) Electronic Products.

3.5.2 Q486 Industrial Electronic Products – General Requirements

The material, methods and acceptance criteria for producing soldered electrical and electronic assemblies shall meet the requirements of IPC-A-610 – “Acceptability of Electronic Assemblies” and IPC/EIA J-STD-001 – “Requirements for Soldered Electrical and Electronic Assemblies” for Class 2 Dedicated Service (Industrial) Electronic Products.

3.5.3 Q490 Certifications & Test Reports – Electronic Devices

With each delivery of electronic devices and/or components on this contract, the supplier shall submit to Parker Aerospace certifications traceable to the manufacturing and/or screening process. Certifications and test reports shall meet the requirements of section 1.5 herein and include the following data:

a) Applicable drawing and/or specification and revision;
b) Part number and revision;
c) Manufacturers identity,
d) Manufacturers lot and date code; and
e) The quantity delivered.

3.5.4 Q500 Identification of Electronic Devices

Each electronic device or component delivered on this contract shall be identified in accordance with the applicable specification by lot or batch, traceable to the actual manufacturing process and manufacturer. The lot or batch number may be a date or the supplier shop order code and shall provide the capability to effectively and positively screen the lot or batch to remove defectives, if it is determined that a defective product condition exists in the lot.

3.5.5 Q 510 Control of Printed Wiring

With each delivery of printed wiring on this contract, the supplier shall furnish the following:

a) One sample printed wiring board or coupon, as required by the Parker Aerospace contract, from each ‘plating lot’, which represents the lot, delivered to Parker Aerospace; the sample board may be taken from the supplier’s electrical rejects;
b) Rigid printed wiring that conforms to the quality assurance provisions of MIL-P-55110, or IPC-6012, including group ‘A’ and group ‘B’ inspections;
c) Flexible and rigid-flex printed wiring that conforms to the quality assurance provisions of MIL-P-50884 or IPC-6013, including group ‘A ‘and group ‘B’ inspections. Unless otherwise specified in the contract, electrical test for group ‘A’ inspection per MIL-P-50884 or IPC-6013 shall be limited to Types 2,3,4 & 5;
d) An electrical continuity test certification for all multi-layer boards.

3.5.6 Q515 Component Obsolescence Management

Suppliers of electronic components or assemblies, shall develop, document and implement an electronic component management process that addresses all aspects of the product life cycle from design through service, including component selection, application, and standardization and obsolescence management. The supplier’s program shall address the

following issues:

a) If a component becomes obsolete or otherwise unprocurable, the supplier's obsolescence management process shall include provisions for alternate parts, end-of-life buys, and/or upgraded parts.
b) When alternate parts are considered, parts shall be selected from alternate sources, which are form fit, and function replacements & meet the same quality, reliability & selection criteria as the original parts.
c) Note that form-fit-function alternate parts that require modification to the printed wiring board layout also require Parker Aerospace approval.
d) When end-of-life buys are being considered, the supplier shall formally notify Parker Aerospace of its intent and the life time buy requirement shall be negotiated and approved by Parker Aerospace.
e) When alternate parts cannot meet form-fit-function requirements or when upgraded parts are being considered, the supplier shall formally notify Parker Aerospace of its intent and shall provide a detailed engineering analysis of the re-screening or testing requirements which will provide form-fit-function equivalency to the original parts.
f) The supplier's analysis report to Parker Aerospace for upgraded parts shall substantially respond to the following questions:
    1) Reason for change
    2) Will the component be substituted into a Critical Function?
    3) List equipment in which new component will be used, and the quantities each
    4) Existing component part number
    5) Existing component rated temperature range
    6) Operating temperature environment
    7) Existing component quality assurance process, e.g. MIL-SPEC screening, etc.
    8) New component Part No.
    9) New component rated temperature range
    10) New component quality assurance process, e.g. MIL-SPEC, screening, etc.
    11) What is impact of the substitution on equipment reliability and safety? (report analysis results)
    12) Briefly describe the analysis and results that show the new component will be reliable in this application e.g. in-service data, etc.
g) In the case of out-of-production equipment where obsolescence issues render the equipment to be unsupportable, Parker Aerospace shall be notified of the circumstances that caused the un-supportability of the product. Parker Aerospace and the supplier will work together to provide, timely, accurate, standardized communications to notify customers of an impending product obsolescence and/or discontinuance.

3.6 Control of Contamination & Foreign Object Damage (FOD)

3.6.1 Q530 FOD Certification

The supplier shall include a FOD Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all products delivered on this contract (number) and packing list/shipper (number) have been produced, controlled and examined in accordance with the applicable requirements of the FOD Control Program. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.7 Inspection & Test Reports & Documentation

3.7.1 Q565 Controlled Planning

The products on this contract are considered critical for aerospace applications and require strict control of manufacturing and processing operations. The supplier shall furnish a complete First Article Inspection Report (FAIR) in accordance with the requirements of the current revision of 9102, accompanied by copies of supplier’s manufacturing and processing routing sheets to be used during production. Upon Parker Aerospace review and approval of the first article and planning documentation, the supplier’s manufacturing and process planning shall be considered as ‘frozen’. Any changes proposed by the supplier to the approved frozen planning shall be submitted to Parker Aerospace for review and approval prior to implementation. The supplier shall furnish a revised FAIR, reflecting the changes in product as a result of changes in planning approved by Parker Aerospace, with the next delivery of products on the contract. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all products delivered on this contract (number) and packing list/shipper (number) have been produced in accordance with “controlled planning” approved by Parker Aerospace. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Company Name:
Address:
Title of Authorized Individual:

Signature/Stamp:	Date:

3.7.2 Q570 100% Inspection Report

The supplier shall perform 100% inspection of all characteristics on all products delivered on this contract. The supplier's 100% inspection data shall show the part number and drawing revision and the actual values obtained during inspection versus the requirements of the drawing (including block data and notes) or specification. When applicable, copies of material and/or process certifications shall be attached to the inspection report.

3.7.3 Q575 Dimensional Inspection Certification (DIC)

When the contract is for assemblies or sub-assemblies, where the detail component characteristics cannot be verified by Parker Aerospace upon receipt, a DIC is required. The supplier shall include a Dimensional Inspection Certification per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that the products (part number and revision) delivered on this contract (number) and packing list/shipper (number) have been assembled using components (part number and revision) have been inspected and conform to all applicable requirements. Copies of inspection records to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.7.4 Q580 Supplier Inspection Report (SIR)

When this clause is included in the contract, Parker Aerospace will provide the supplier with blank copies of SIR forms and define the specific product inspection to be accomplished by the supplier on this contract. The supplier shall perform the required inspections and record the actual results on the SIR forms. The SIR shall include the name and signature of the supplier's authorized representative responsible for quality and be included with each delivery of products on this contract.

3.7.5 Q585 Supplier Inspection Report of Classified Characteristics

Classification of characteristics on the drawing is a means by which Parker Aerospace Engineering conveys the potential seriousness of non-conformance of certain product characteristics. Classification of characteristics is not intended to indicate that other drawing

requirements are not important or need not be met. The purpose is to establish a common basis for placing emphasis on the more important characteristics during all phases of tooling, production, inspection, and testing. Any characteristic found to be nonconforming during inspection is cause for rejection regardless of classification.

On all products delivered on this contract, the supplier shall furnish an Inspection Report showing the actual results of inspection of all classified characteristics in accordance with the inspection requirements for each classified characteristic defined below. The supplier's inspection report shall show the part number, drawing revision and the actual values obtained during inspection versus the requirements of the drawing (including block data and notes) or specification. When applicable, copies of material and/or process certifications shall be attached to the inspection report. Inspection requirements for each classified characteristic are as follows:

Critical Characteristics: (1) Characteristics that judgment and experience indicate that if defective could result in hazardous or unsafe conditions for individuals using or maintaining the product or vehicle on which it installed. (2) Affect flight safety objectives, or (3) prevent performance of a military vehicle's operational function as a weapon (e.g., mission abort). Critical characteristics shall be inspected 100%.

Critical Assembly Characteristics: Characteristics where omission of detail parts or subassemblies from the assembly or where improper installation of detail parts or subassemblies into the assembly would not be detected during acceptance testing. Assembly critical characteristics shall be inspected 100%.

Customer Interface Characteristics: Characteristics, which are determined, through coordination with the customer, as having an effect on installation or interchangeability. Customer Interface characteristics shall be inspected 100%.

Major Characteristics: Characteristics, other than critical, which if defective, could: (1) Result in product failure (other than critical), or (2) materially reduce the usability of the

vehicle on which the defective product is installed. Unless otherwise specified in the contract, major characteristics shall be inspected in accordance with a Parker Aerospace approved sampling plan.

Fracture or Fatigue Critical Characteristics: A fracture of fatigue critical area or part is one where the stress level is sufficiently high, that if a defect occurs in the area or part, it could result in a fatigue failure, which could result in the loss of an aircraft. All fracture or fatigue critical characteristics shall be inspected 100%.

3.7.6 Q590 Final Inspection Report (FIR)

Prior to delivery of products to Parker Aerospace, the supplier shall perform final inspection on all products and document the results on a FIR. The format of the FIR is optional; however, it shall show the actual inspection results obtained, versus the drawing or specification requirements. The supplier shall maintain the completed FIR as part of the supplier’s quality records. Upon request, the FIR will be made available to Parker Aerospace, or Parker Aerospace customers or regulatory agencies for review.

3.7.7 Q605 Product Serialization by the Supplier

Products ordered on this contract shall be serialized by the supplier using serialization scheme selected by the supplier. The supplier’s serialization scheme shall include provisions to ensure that serial numbers are not duplicated on products with the same part number.

3.7.8 Q607 ATA SPEC2000 Serial Number Formatting

Serial numbers assigned by the supplier shall comply with the serial number formatting requirements of the latest revision of Air Transport Association (ATA) SPEC 2000, Chapter 9.

3.7.9 Q620 Functional Test Data Sheets

With each delivery of products on this contract, the supplier shall furnish to Parker Aerospace a functional test data sheet, which shows the actual results (values) obtained during the functional tests performed on each unit of product versus the requirements specified in the Parker Aerospace approved Acceptance Test Procedure (ATP) or specification. The test data sheets shall identify the part number and drawing revision, individual products by serial number, meet the requirements of section 1.5 herein and be signed or stamped (inspection or functional test/acceptance stamp) by the supplier’s authorized representative.

3.7.10 Q630 Functional Test Certificate (FTC)

The supplier shall include a Functional Test Certificate per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all products delivered on this contract (number) and packing list/shipper (number) have been tested as required by the applicable drawing, specification, or approved acceptance/functional test procedure, and comply with all requirements of the contract. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.7.11 Q640 Registered Components

The products ordered on this contract are designated as ‘Registered Components’. Registered component designation is applied to all products whose failure in service or operation would most probably result in catastrophic failure and are critical to the safe operation of the system or vehicle in which installed. All registered components require strict controls and traceability throughout the manufacturing and inspection operations. Prior to start of production, the supplier shall submit to Parker Aerospace, for review and approval, a written control plan describing the supplier’s procedure which will be used to effectively control these components during the supplier’s manufacturing, inspection and testing operations and processes. When applicable such controls shall include the controls exercised by the supplier’s sub-tier sources. The supplier’s control plan shall describe the following in detail:

a) Detail sequence of manufacturing operations and the product characteristics generated at each;
b) The method, type and points during the manufacturing sequence where special processing (heat treatment, plating, etc.) will be performed and the sources to be used;
c) Points during (a) and (b) above, where inspections and/or tests will be accomplished and documented,
d) Product characteristics that will be inspected and verified during I above;
e) Methods of identification, preservation and packaging to be used,
f) Handling and transportation precautions that will be implemented, and
g) Any other controls required by the contract.

All changes in the plan shall be submitted to Parker Aerospace for review and approval prior

to production implementation. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

“This is to certify that all products delivered on this contract (number) and packing list/shipper (number) were manufactured and controlled in accordance with the Parker Aerospace approved control plan for registered components. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request.”

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.7.12 Q645 Controlled Components

The products ordered on this contract are designated as ‘Controlled Components’. A controlled component designation is applied to all products where judgment and experience indicates that if defective, the product could result in hazardous or unsafe conditions for individuals using or maintaining the product or vehicle on which it is installed; affect flight safety; prevent performance of a military vehicle’s operational function as a weapon e.g.: mission abort; result in product failure (other than critical); materially reduce the usability of the vehicle on which the defective product is installed or, one which has been determined, or through coordination with the customer, as having an effect on installation interchangeability.

Prior to start of production, the supplier shall submit to Parker Aerospace, for review and approval, a written Process Control Document (PCD) describing the supplier’s methods, processes, key process parameters, process parameter settings and control methods related to the product and its sub-components which will be used to effectively control the product during the supplier’s manufacturing, inspection and testing operations and processes. When applicable, the supplier shall also submit to Parker Aerospace, for review and approval, the PCD(s) applicable to operations performed by the supplier’s sub-tier sources. The supplier’s PCD shall describe the following in detail:

a) Detail sequence of manufacturing operations and the product characteristics generated at each step of the manufacturing process.
b) Method, type and points during the manufacturing sequence where special processing (heat treatment, plating, etc.) will be performed and the sources to be used.
c) Points during (a) and (b) above, where inspections and/or tests will be accomplished and documented.
d) Product characteristics that will be inspected and verified during (c) above.
e) Methods of identification, preservation and packaging to be used.

f) Handling and transportation precautions that will be implemented.
g) Any other applicable controls as required by the contract.
h) The supplier's approved PCD shall be marked with the following legend that identifies the product is under a controlled component plan:

CONTROLLED COMPONENT – FROZEN PROCESS This item is a controlled product and has been manufactured in accordance with process controls established and documented on the current Process Control Document (PCD) approved by Parker Aerospace.
All changes to the PCD shall be submitted to Parker Aerospace for review and approval prior to production implementation. The supplier shall include a Certification of Conformance per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that all products delivered on this contract (number) and packing list/shipper (number) were manufactured and controlled in accordance with the current Parker Aerospace approved Process Control Document (PCD). No changes to the approved PCD were made during the manufacturing and processing of these products. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name:	
Address:	
Title of Authorized Individual:	
Signature/Stamp:	Date:

3.7.13 Q650 Qualified Parts Certificate (QPC)

The supplier shall include a Qualified Parts Certificate per the requirements of 1.5 worded substantially as follows with each delivery of products.

"This is to certify that all products delivered on this contract (number) and packing list/shipper (number) are listed on or have been approved for listing on the applicable 'Qualified Products List' (QPL) or 'Preferred Parts List' (PPL) of the applicable specification. Objective evidence to support this certification will be made available to Parker Aerospace for review upon request."

Company Name: _____
Address: _____
Title of Authorized Individual: _____
Signature/Stamp: _____ Date: _____

3.8 Customer Specific Requirements

3.8.1 Q810 Quality Program Per Boeing D6-82479

Seller shall establish and maintain a quality program in compliance with the requirements of Boeing D6-82479 latest revision.

3.8.2 Q815 BELL QPS-101 APPROVED PROCESS SOURCES REQUIRED

Seller's system shall assure that only approved sub-tier sources listed on the Bell QPS-101 are used. Use of specified sub-tier sources does not relieve Seller of compliance to all applicable technical and quality requirements. (If raw material / if applicable).

3.8.3 Q820 BOEING D1-4426 APPROVED PROCESS SOURCES REQUIRED

Seller's system shall assure that only approved sub-tier sources listed on the Boeing D1-4426 are used. Use of specified sub-tier sources does not relieve Seller of compliance to all applicable technical and quality requirements.

3.8.4 Q825 LOCKHEED QCS-001 APPROVED PROCESS SOURCES REQUIRED

Seller's system shall assure that only approved sub-tier sources listed on the Lockheed QCS-001 are used. Use of specified sub-tier sources does not relieve Seller of compliance to all applicable technical and quality requirements.

3.8.5 Q830 HONEYWELL SPOC 165 (SECTION 2) APPROVED PROCESS SOURCES REQUIRED

Seller's system shall assure that only approved sub-tier sources listed on the Honeywell SPOC 165 (section 2) are used. Use of specified sub-tier sources does not relieve Seller of compliance to all applicable technical and quality requirements.

3.8.6 Q835 GENERAL ELECTRIC AIRCRAFT ENGINES (YELLOW PAGES) APPROVED PROCESS SOURCES REQUIRED

Seller's system shall assure that only approved sub-tier sources listed on the GEAE yellow pages are used. Use of specified sub-tier sources does not relieve Seller of compliance to all applicable technical and quality requirements. Seller and sub-tiers shall be incompliance with S1000 for all GE end use parts.

3.8.7 Q840 ELASTOMERIC HOSE MANUFACTURING QUALITY SYSTEM REQUIREMENTS

Hose manufacturer’s quality system must comply with the requirements outlined within Stratoflex - Ft. Worth, TX. Procedure 2.9 DIV.

3.8.8 Q845 Quality PROGRAM IN ACCORDANCE WITH PRATT AND WHITNEY PW-QA-6078

Seller shall establish and maintain a quality program in compliance with the requirements of Pratt and Whitney document PW -QA6078 titled “Quality Control Requirements for Bar stock, Castings, Forgings, Extrusions, Rolled or Welded Rings and Sonic Configuration Parts Produced by Suppliers” latest revision.

3.8.9 Q850 QUALITY PROGRAM PER Rolls Royce

Seller shall establish and maintain a quality program in compliance with the requirements of Rolls Royce (SABRe), Quality Requirements for Suppliers, latest revision.

3.8.10 Q855 Boeing Q31 Note for Production Certificate 700

This procurement is under Boeing's Federal Aviation Administration (FAA) issued Production Certificate 700 quality system supplier control program.
THE SELLER WILL PLACE THE FOLLOWING STATEMENT WITH ALL SHIPMENTS:

Seller hereby acknowledges that the parts and/or materials being shipped under this order are intended for use under Boeing's Federal Aviation Administration (FAA) issued Production Certificate 700.

3.8.11 Q860 Honeywell Detailed Inspection Plan (DIP) per SPOC 128.

DIP is required to be submitted to the Buyer for each manufacturing lot of machined components produced by the Seller.

3.8.12 Q865 Material & Process Certifications

Suppliers are required to provide chain of custody for all raw material used in the manufacture of products submitted to Stratoflex. The chain of custody must provide traceability from the producing mill to heat treat, if required, to the distributor, if purchased from a distributor, and subsequently to the supplier who provides the product to Stratoflex. Product received without the documented chain of custody will be subject to rejection.

3.8.13 Q870 PRATT & WHITNEY LCS CONTROL

Materials and controls required of suppliers of materials, parts, processes, and assemblies subject to P&W laboratory control at source (LCS). Required certification statement: "parts/material has been controlled to P&W requirements for LCS per P&W MCL SECTION F-17" or a similar statement.

3.8.14 Q875 PRATT & WHITNEY ESA

The hose manufacture cannot modify the hose construction without Pratt and Whitney's authorization per PWA370.

3.8.15 Q880 PARKER GAS TURBINE DIVISION CONTROL

Raw material shall be certified by the Material Source / Seller / Distributor using a GE-A S-400/S-450 Approved Lab or Independent Testing by a GE-A S-400/S-450 Approved Lab. Certification(s) shall be provided for each heat lot of material being shipped to Parker.

3.8.16 Q885 QUALITY PROGRAM PER PRATT & WHITNEY ASQR-01

Seller shall establish and maintain a quality program in compliance with the requirements of United Technologies/Pratt & Whitney (ASQR-01), Quality Requirements for Suppliers, latest revision.

Note***This also denotes this part as a Pratt & Whitney End Use Item.

3.9 Miscellaneous Requirements

3.9.1 Q660 Manufacturers Catalogs, Drawings, etc.

With the initial delivery of products on this contract, the supplier shall furnish to Parker Aerospace one (1) copy of the current manufacturers catalog, drawing, blueprint, or specification which fully and clearly describes the products delivered and can be used by Parker Aerospace to verify product conformance to requirements.

3.9.2 Q710 Component Traceability Requirements

The supplier shall establish and maintain traceability of all detail components used in the manufacture or assembly of products delivered on this contract. Data (such as parts inventory or bill of material lists, that include lot numbers, job numbers or work orders., etc.) which provides traceability of each detail component, including sub-assemblies, to the raw material

from which it was made, including all processing, testing and inspection operations performed during manufacturing operations shall be furnished with the delivery of products to Parker Aerospace on this contract.

3.9.3 Q720 Digital Data Requirements

Seller shall meet all applicable digital data requirements as defined in Procedure 6.1.3 Form Digital Product Definition/Model Based Definition Checklist. Supplier shall complete and submit completed Procedure 6.1.3 Form.

3.9.4 Q770 Ship to Stock (STS)

Products on this contract have been approved and designated for STS processing. The supplier shall identify all containers, packages and shipping documents with the word's "STS" in bold format.

3.9.5 Q771 Shipping & Documentation Requirements

Seller shall assure that product(s) are complete to Purchase Order requirements and that all manufacturing and product inspection and acceptance requirements have been satisfied prior to shipment.

Seller shall submit shipping documentation via Aerospac Electronic Document system, to which Parker SPD subscribes and funds. There will not be any license cost or fees to the supplier for access and use of Aerospac. Access to Aerospac can be found here: https://ai.aerospac.com/account/requestaccount

Seller shall use Certificate of Conformance (Form SQA-D-001) as the first page of the uploaded shipping documents in Aerospac. SQA-D-001 shall be completed and submitted with each shipment in Aerospace.

Seller shall assure that product(s) are packaged in accordance with applicable requirements and are accompanied by the required inspection and technical documents.

In the event, more than one lot or heat of raw material is used by the seller, each fabricated lot of products shall be identified and/or packaged in separate lots to maintain traceability and integrity to the applicable material certifications and/ or process certifications quantity must be clearly stated for each lot.

3.9.6 Q780 Pre-Production Review

Products on this contract have been designated as complex and require close control of manufacturing and processing operations and/or sequence. The supplier shall notify Parker Aerospace at least seven (7) days before start of production so that Parker Aerospace may schedule and conduct an on-site review and approval of the supplier's equipment, methods, processes and controls to be used during production. All changes proposed by the supplier shall be submitted to Parker Aerospace for review and approval prior to implementation into production.

3.9.7 Q800 UID Marking

Products on this contract require Unique Identification (UID) marking in accordance with the requirements of current revision of MIL-STD-130. The supplier is required to submit to Parker Aerospace for review and approval, the supplier's detail UID marking procedures and methods prior application of UID marking and delivery of products to Parker Aerospace.

3.9.8 Q999 Internal Parker Aerospace Quality Instructions and/or Inspection Routing

Specific Manufacturing Quality Instructions must be applied to this shipment upon receipt at Parker Receiving Inspection. This Q-Code is for Parker Aerospace internal use only.

4 Applicable / Reference Documents

Parker Document:

- Parker Supplier Quality Requirements Manual (PH-SQRM). Access this document at https://www.parker.com
- Parker General Terms & Conditions of Purchase – Commercial (TCP-C). Access this document at https://www.parker.com
- Parker General Terms & Conditions of Purchase – Government Supplement (TCP-GS). Access this document at https://www.parker.com
- Parker Approved Process Suppliers List (APSL https://www.parker.com
- BPS 4000 – Approved Specification Index
- BPS 4127 – Control of Priority Processes

Regulation:

- 14 CFR 21 (Title 14, Code of Federal Regulations, Part 21), Subpart K – Approval of Materials, Parts, Processes and Appliances
- FAR Part 21.93 Classification of Changes in Type Design. Click here to see this site:

www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgFAR.nsf/mainframe?openframeset

- PUBLIC LAW 15 CFR 280 – Fastener Quality Act

Aerospace Standard:

- 5316 – Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly
- 5553 – Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition
- 6174 – Counterfeit Material, Assuring Acquisition of Authentic and Conforming Material
- 9003 – Inspection and Test System
- 9100 - Quality Management System Requirements for Aviation, Space, and Defense
- 9102 – First Article Inspection Requirement
- 9103 – Variation Management of Key Characteristics
- 9104-001 – Requirements for Aviation, Space and Defense Quality Management System Certification Programs
- 9115 - Requirements for Aviation, Space and Defense Organizations – Deliverable Software.
- 9116 – Notice of Change (NOC) Requirements
- 9120 – Quality Management Systems – Requirements for Aviation, Space and Defense Distributors
- 9131 - Quality Systems-Nonconformance Standard
- 9145 - Aerospace Series – Requirements for Advanced Product Quality Planning and Production Part Approval Process
- 9146 – Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space, and Defense Organizations
- 13002 – Requirements for Developing and Qualifying Alternate Inspection Frequency Plans

ISO & NADCAP Standards

- SAE PRI AC7101 Nadcap Audit Criteria for Materials Test Laboratories
- ISO 17025 – General Requirements for the Competence of Testing and Calibration Laboratories

Specification

- Air Transport Association (ATA) SPEC 2000
- ANSI/EOS/ESD S-8.1
- IPC/EIA J-STD-001 – Requirements for Soldered Electrical and Electronic Assemblies
- MIL-STD-130 – UID Labels
- MIL-STD-1686 – Electrostatic Discharge Control Program for Protection Of Electrical And Electronic Parts, Assemblies And Equipment (Excluding Electrically Initiated Explosive Devices)

- MIL-PRF-81705 – Military Specification: Barrier Materials, Flexible, Electrostatic Protective, Heat-Sealable
- MIL-PRF-121 – Performance Specification: Barrier Materials, Greaseproof, Waterproof, Flexible, Heat-Sealable
- MIL-PRF-131 – Performance Specification Barrier Materials, Water Vapor Proof, Greaseproof, Flexible, Heat-Sealable
- National Aeronautics and Space Administration (NASA) document NHB 5300

Guidance:

- IAQG Supply Chain Management Handbook
- RTCA/DO-178 – Software Considerations in Airborne Systems and Equipment Certification
- RTCA/DO-254 – Design Assurance Guidance for Airborne Electronic Hardware.

5 Definitions

Aviation Critical Safety Item (ACSI) – A part, an assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapon system that contains a characteristic which failure, malfunction, or absence of could cause a catastrophic or critical failure resulting in the loss of or serious damage to the aircraft or weapon system, significant impact to mission capability, an unacceptable risk of personal injury or loss of life, or an un-commanded engine shutdown that jeopardizes safety or mission capability.

Contract Specified Requirements – All requirements that are specified in a contract or reference document such as Source Control Drawings (SCD's), Specifications, or design requirements.

Critical Characteristics – Any feature throughout the life cycle of a CSI/ACSI (e.g., dimension, finish, material or assembly, manufacturing or inspection process, installation, operation, field maintenance, or depot overhaul requirement) which if nonconforming, missing, or degraded could cause failure or malfunction of the CSI/ACSI. Critical characteristics may be identified on drawings, in technical data packages, in contract quality assurance provisions, or through other contract requirements/clauses.

Critical Safety Item (CSI) – A part, an assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapon system; ground based military vehicle; military vessel, or system that contains a characteristic upon which failure, malfunction, or absence could cause a catastrophic or critical failure resulting in the loss of or serious damage to the aircraft or weapon system, significant impact to mission

capability, an unacceptable risk of personal injury or loss of life, or an un-commanded shutdown that jeopardizes safety.

Customer Design Material – Parts subassemblies and assemblies on which all requirements, dimensions, tolerances, etc., are specified by a customer, i.e., 'make-to-print' items.

Identification and Segregation– For the purpose of establishing control of nonconforming material, is defined as physically separating and/or positively identifying nonconforming material from acceptable material within the confines of the lot so that the nonconforming material can be readily identified and/or retrieved from the lot.

Key Characteristic – A characteristic whose variation has the greatest impact on the fit, form, function, performance, or service life of the finished part or system from the perspective of the Customer.

Major Nonconformance – A "major" nonconformance is defined for this specification as a nonconformance to the requirements specified in the contract, specification, drawing or other approved product description which is equivalent to a "major change in type design" as defined by FAR Part 21.93. It is also defined as a feature which, if nonconforming, left uncorrected, or unable to be reduced to a "minor" nonconformance by repair, may result in operational or functional failure of the item, or may materially reduce the usability, physical or functional interchangeability or durability of the end product for its intended purpose.

Minor Nonconformance – A "minor" nonconformance is defined for this specification as a nonconformance to the requirements specified in the contract, specification, drawing, or other approved product description which is equivalent to a "minor change in type design" as defined by FAR Part 21.93. It is also defined as a nonconformance that will not affect the usability of the product or material for its intended purpose. Minor nonconformances do not adversely affect health or safety; performance; interchangeability, reliability or maintainability; effective use or operation; weight or appearance (when a factor).

MRB (Material Review Board) – A board consisting of qualified and specifically designated Design and Quality Engineering representatives responsible for reviewing, evaluating, and determining or recommending disposition of nonconforming product. Unless specifically required by contract or letter of delegation, a Government Quality Representative is not a member of the MRB.

Nonconformance – A failure of a characteristic to conform to the requirements specified in the contract, specification, drawing or other approved product description.

Nonconforming Material – Any material, item, part, assembly or product with one or more characteristics with a nonconformance.

Nonqualifying country - means a country other than the United States or a qualifying

country as defined in DFAR 225.003. Substantial limits exist regarding the use of materials from these countries.

Product Substitution - Substituting materials (whether considered equivalent or even superior) without notifying and/or obtaining customer approval, as required by contract; delivering similar goods made from lower quality materials without a waiver from the customer; delivering materials that have not been tested (or inspected) as required; providing foreign-made material when domestic materials are required by contract; performing unauthorized repair of a production part.

Proprietary Design Material – Parts, subassemblies and assemblies that are within scope of Parker design authority, i.e. Parker developed and established dimensions, tolerances, test limits, process controls or any requirements which are specified by Parker, including requirements which are either more stringent than specified by contract or are not specifically covered by contract. Such requirements may deal with the physical configuration, tolerances, material or design criteria of detail parts, subassemblies and assemblies and which are included in Parker engineering, manufacturing and process drawings and specifications.

Qualifying country - a country with a reciprocal defense procurement memorandum of understanding or international agreement with the United States. Qualifying Countries are defined in DFAR 225.003. Purchasing materials from these countries complies, and does not require pre-authorization from Parker.

Repair – Processing nonconforming material to an approved process designed to reduce, but not eliminate a nonconformance. The purpose of repair is to bring nonconforming material into an acceptable condition. Repair is distinguished from rework in that the item after repair still does not completely conform to the applicable drawing, specification or contract requirements.

Rework – Processing applied to nonconforming material to make it conform completely to the drawing, specification or contract requirements.

Scrap – Nonconforming material that is not usable for its intended purpose and cannot be economically reworked or repaired.

Standard Repair Process (SRP) – A documented technique for repair of a type of nonconformance developed by Parker and approved by the Parker MRB for recurrent use. It can be used when it has been demonstrated that the technique properly applied, will result in an adequate and cost-effective method of repair. When required by contract, SRP's shall be submitted to customer/government for approval.

Supplier – The terms subcontractor, supplier, vendor, seller, or any other term used to identify

the source from which the Division obtains support or product are considered synonymous for the purpose of this Policy.

6 Coordination Information:

Rev:	
L	Group Aerospace Division Quality Directors, Bill Schmiege
K	Group Aerospace Division Quality Directors, Bill Schmiege
J	Group Aerospace Division Directors, Shaun Ohlson, Bill Schmiege, Judy Chapman, Jeff Horton, Jerry King
H	Group Aerospace Division Directors, Shaun Ohlson, Bill Schmiege, Judy Chapman, Desmond Kasavan, Jeff Horton
G	Group Aerospace Division Directors, Shaun Ohlson, Bill Schmiege, Judy Chapman, Mark Anderson, Kevin Greer
F	Group Aerospace Division Directors, Jeff Horton, Judy Chapman, Shaun Ohlson, Bill Schmiege, Bill Maben, Kirk Walberg, Rick Peyatt, Kent Johnson
E	Group Aerospace Division Directors, Judy Chapman, Shaun Ohlson, Bill Schmiege

7 Revision Description

Rev:	Change Detail	Date
L	1) Substantially re-written to meet the expectations of the Aviation, Space, & Defense Industry	2021/06/07
K	1) Changed Contents Section - 1.3.2 from: "Unauthorized Facility Changes." To:" Facility Changes." 2) Changed Contents Section - 1.11 from: "Statistical Product Acceptance Requirements per SAE ARP9013." To: "Statistical Product Acceptance per AS13002." 3) Changed 1.3.2 from: "Unauthorized Facility Changes – During performance on the contract, the supplier shall give Parker Aerospace written notice before relocating any production, inspection or processing facilities; or, transferring work between different facilities; or, when applicable, prior to initiating any changes in the source of major components procured by the supplier and designated for use in or for installation on products scheduled for delivery to Parker Aerospace; or, making any other changes which may affect product quality, reliability or integrity. Such changes are subject to approval/disapproval by Parker Aerospace. A change in ownership or a change in the individual designated as the management representative with respect to the supplier's Quality/Inspection System shall be construed as a facility change and requires the supplier to notify Parker Aerospace." To: "Facility Changes – During performance on the contract, the supplier shall give Parker Aerospace written notice 90 days before relocating any production, inspection or processing facilities; or, transferring work between different facilities; or, when applicable, prior to initiating any changes in the source of major components procured by the supplier and designated for use in or for installation on products scheduled for delivery to Parker Aerospace; or, making any other changes which may affect product quality, reliability or integrity. Such changes are subject to Parker Aerospace review and concurrence prior to shipment of affected products. A change in ownership or a change in the individual designated as the management	2018/02/05

Rev:	Change Detail	Date
	representative with respect to the supplier's Quality/Inspection System requires the supplier to notify Parker Aerospace within 30 days. Supplier shall establish an internal procedure for formal notification to Parker that includes; risk assessment/mitigation, transfer plan, demonstration of capacity and demonstrate the existence of buffer stock to mitigate risks to on-time delivery and quality. 4) Changed 1.4.2 from: "Supplier Initiated Changes - The supplier may not make any changes in product design, drawings, performance specifications, materials or processes that will result in a Class I change (as defined by EIA-649) without specific approval by Parker Aerospace in writing prior to making such changes in products or data. When applicable, the supplier shall flow-down this requirement to the supplier's sub-tier sources. The supplier may make changes on products under supplier's proprietary engineering design control that result in a Class II change (as defined by EIA-649). The supplier shall furnish a copy of the Class II change to Parker Aerospace prior to the initial delivery of the (changed) products, so that Parker Aerospace can verify that the change does not violate the above requirements." To: "The supplier shall not make changes in product design, drawings, performance specifications, materials, special processes, or manufacturing processes, procedures, and methods without specific approval by Parker Aerospace in writing prior to making such changes in products or data. The supplier shall flow-down this requirement to the supplier's sub-tier sources. The supplier will submit product/process change notifications consistent with AS9116 describing all design and process changes for Parker approval." 5) Changed 1.6 from: "The supplier shall submit a First Article Inspection (FAI) in accordance with the requirements of the current revision of AS9102 for new product and when any of the following occur: • A change in design affecting fit, form, or function of the part. • A change in any manufacturing source, processing source, process, inspection method (including functional test requirements), location of manufacture, tooling, or materials that can potentially affect fit, form, or function.	

Rev:	Change Detail	Date
	• A change in numerical control program or translation to another media that can potentially affect fit, form, or function. • A natural or man-made event, which may adversely affect the manufacturing process. • A lapse in production for two years or as specified by Parker. • A Parker drawing which references a standard hardware item (e.g., "NAS," "MS") and that item is modified from the original purchased configuration and/or has additional characteristics. In this case, the FAIR shall include data for only those characteristic(s) that were changed and/or added. • Altered Item Drawings with specific dimension requirements. • Parker made to customer print items. • When requested by either internal/external customer. • When the revision of the drawing is changed, even if it has not affected the specific configuration. 6) Note: Each revision requires a FAIR. If multiple revisions are incorporated, they may be included on one FAIR and would include an update of all characteristics that changed for each revision. 7) Exceptions not requiring a FAI are: • Parts and assemblies rejected on a previous FAI do not require another Full FAI. The characteristic(s) noted as nonconforming and any affected characteristic as deemed necessary by the responsible Quality Assurance Representative (QA) are inspected and documented on a partial First Article Inspection Report (FAIR). • Standard hardware, proprietary off the shelf if unmodified and whose characteristics are established 100% by non-customer drawings (e.g., NAS, MS), or deliverable software. • Contractually excluded parts/assemblies. 8) The FAIR data package includes a ballooned drawing and completed 9102 forms as follows:	

Rev:	Change Detail	Date
	• Form 1 - a list of the applicable detail drawings; • Form 2 - a list of the standard parts, material or processes; and • Form 3 - the actual results for each drawing dimension and notes. 9) Excess products, remaining from a previous production lot, may not be used to fulfill the FAIR requirements. 10) The supplier shall furnish a copy of the completed FAIR results with the initial delivery of products on the contract. • To: “The supplier shall submit a First Article Inspection (FAI) in accordance with the requirements of the current revision of AS9102 for new product and when any of the following occur: • A change in design. • A change in any manufacturing source, processing source, process, inspection method (including functional test requirements), location of manufacture, tooling, or materials. • A change in numerical control program or translation to another media. • A natural or man-made event, which may adversely affect the manufacturing process. • A lapse in production for two years or as specified by Parker. • A Parker drawing which references a standard hardware item (e.g., "NAS," "MS") and that item is modified from the original purchased configuration and/or has additional characteristics. In this case, the FAIR shall include data for only those characteristic(s) that were changed and/or added. • Altered Item Drawings with specific dimension requirements. • Parker made to customer print items. • When requested by either internal/external customer. • When the revision of the drawing is changed, even if it has not affected the specific configuration.	

Rev:	Change Detail	Date
	11) Note: Each revision requires a FAIR. If multiple revisions are incorporated, they may be included on one FAIR and would include an update of all characteristics that changed for each revision. 12) Note: The potential impact to form, fit, and function exceptions as cited in AS9102 do not apply to Parker products. 13) Note: If the supplier is planning to use statistical methods for product acceptance for production (less than 100% inspection) the requirements of P9112 paragraph 1.11 apply. 14) Exceptions not requiring a FAI are: • Parts and assemblies rejected on a previous FAI do not require another Full FAI. The characteristic(s) noted as nonconforming and any affected characteristic as deemed necessary by the responsible Quality Assurance Representative (QA) are inspected and documented on a partial First Article Inspection Report (FAIR). • Standard hardware, proprietary off the shelf if unmodified and whose characteristics are established 100% by non-customer drawings (e.g., NAS, MS), or deliverable software. • Contractually excluded parts/assemblies. 15) The FAIR data package includes a ballooned drawing and completed 9102 forms as follows: • Form 1 - a list of the applicable detail drawings; • Form 2 - a list of the standard parts, material or processes; and • Form 3 - the actual results for each drawing dimension and notes. 16) Excess products, remaining from a previous production lot, may not be used to fulfill the FAIR requirements.	

Rev:	Change Detail	Date
	17) When it is not physically possible to perform the FAI on a single product, data from multiple products can be used, providing all parts have been manufactured using the same engineering definition, bill of material, supply chain, and method of manufacture (including measurement method). The FAI report shall be annotated to signify the use of multiple product and provide traceability of those products used to obtain the inspection results. 18) Programmers for Coordinate Measuring Machine (CMM) during FAI activity shall be independent to those programming product measurement equipment supporting the production process. 19) Note: Coordinate Measuring Machines used for FAI do NOT have to be independent to those used for product measurement during production activities. 20) When a CAD model is used for programming, the model shall not be used to create both the manufacturing and CMM/Inspection programs. 21) The supplier shall furnish a copy of the completed FAIR results with the initial delivery of products on the contract. 22) Changed 1.11 from: “Statistical Product Acceptance Requirements per SAE ARP9013 – When the supplier elects to use statistical methods for product acceptance, unless otherwise specified by the contract, the supplier’s statistical acceptance method(s) shall be in compliance with the requirements established by ARP9013, ARP9013/1, ARP9013/2, ARP9013/3 or ARP9013/4. When statistical methods for product acceptance planned for use, the supplier shall submit their proposed statistical product acceptance method to Parker Aerospace for review and concurrence prior to use. To: “Statistical Product Acceptance Requirements per AS13002 – When statistical methods for product acceptance are planned, the supplier shall submit their proposed alternate inspection frequency plan to Parker Aerospace for review and concurrence	

Rev:	Change Detail	Date
	prior to use. Statistical Product Acceptance Requirements shall conform to AS 13002 unless an alternate method is specified by contract. 23) Exceptions to AS13002: 24) In determining capability of the production measurement system, and when capability is demonstrated through the use of Gage R&R, the maximum acceptable R&R percentage is 10% (Ref. AS13002, section 5.1.5). • 25) Note: An R&R percentage between 10 and 30 percent may be acceptable for some applications with Parker approval. 26) Sample inspection shall be suspended immediately following any non-conformance and until corrective action has been implemented and the process has once again demonstrated acceptable capability through statistical data and/or appropriate technical justification as approved by Parker (Ref. AS13002, section 5.6.3). 27) Any characteristic affected by process change and subject to a full or partial FAI, as defined in Parker First Article Inspection Requirements, shall be reviewed with Parker to determine what actions and/or re-approval may be required to continue with the alternate inspection frequency plan. As a minimum, all characteristics affected by the process change shall demonstrate acceptable capability through statistical data and/or appropriate technical justification, as approved by Parker, prior to continuing the alternate inspection frequency plan for those characteristics (Ref. AS13002, section 5.7.3). 28) A relevant capability analysis assessed against minimum acceptable criteria Ppk 1.65 for Key characteristics, 1.33 for Major characteristics or 1.0 for Minor characteristics is required as part of the Data Pack Contents (Ref. AS13002, section 7.1.1 Data Pack Contents Column).	

Rev:	Change Detail	Date

29) In addition to AS13002 Sampling Tables (Ref. Table 2 - Major characteristics sampling table and Sample Table 3 – Minor characteristic sampling table) the following sampling table shall be used for all characteristics designated by Parker as “Key” characteristics:

30) Key characteristics sampling table

31) Key	32) Batch Size							
33) Ppk	34)	35)	36)	37)	38)	39)	40)	41) 121 to 150
42) 2 and above	43)	44)	45)	46)	47)	48)	49)	50) 6
51) 1.66 to 1.99	52)	53)	54)	55)	56)	57)	58)	59) 15
60) 1.33 to 1.65	61)	62)	63)	64)	65)	66)	67)	68) ALL
69) Less than 1.33	70)	71)	72)	73)	74)	75)	76)	77) ALL

78) Key	79) Batch Size						
80) Ppk	81) 151 to 2	82) 21 to 2	83) 251 to 3	84) 31 to 5	85) 501 to 7	86) 751 to 10	87) 1001 to 2

Rev:	Change Detail	Date

	00	50	00	00	50	00	000
88) 2 and above	89) 8	90) 10	91) 12	92) 20	93) 30	94) 40	95) 50
96) 1.66 to 1.99	97) 20	98) 20	99) 20	100) 25	101) 38	102) 40	103) 50
104) 1.33 to 1.65	105) ALL	106) ALL	107) ALL	108) ALL	109) ALL	110) ALL	111) ALL
112) Less than 1.33	113) ALL	114) ALL	115) ALL	116) ALL	117) ALL	118) ALL	119) ALL

120) NOTE: Batch sizes above 2000, sample size to be agreed upon with Parker.

121) Changed 1.18 FOD Control Program from: “NAS-412 may be used . . .” To:” AS9146 shall be used . . . “

122) Changed 2.1.7 Q041 Continuous Improvement Plan from: “Key Characteristics have been identified on this Purchase Order.

- Variation management of Key Characteristics via the use of statistical methods to control manufacturing processes is required. Capability analysis (Cpk or equivalent) of the key characteristic is required.

- For key characteristics that have been identified by Parker on the drawing or by separate documentation, (MQI, CPI or other), the supplier will be required to measure those features and

Rev:	Change Detail	Date
	demonstrate capability by performing data analysis and calculating Cpk (or an equivalent attribute measure of Capability) for each characteristic. • The supplier is required to provide copies of the capability study, (histogram showing Cpk), with each delivery, until a minimum of three manufacturing lots, having a Cpk of 1.33 or greater, are shipped. After this point the supplier is still required to periodically monitor capability to ensure continued compliance. Key characteristics that have not achieved a Cpk of 1.33 will require data submittals with each delivery. • Sample Lot size shall be a minimum of twenty (20) pieces from a continuous manufacturing lot (Same material, Tooling and set up). Sample lot/batch number shall be documented on copies of capability studies. • The supplier's variation management program is subject to audit, verification and approval and/or disapproval by Parker Aerospace designated representative(s), or its customers. • The requirements for process capability and control does not supersede drawing requirements and shall not be used as accept or reject criteria for the noted feature. i. A Cpk greater than 1.33 is preferred ii. For Cpk of 1.0 to 1.33 an improvement plan is recommended iii. For Cpk less than 1.0, an improvement plan is required • When the supplier has achieved a Cpk of 1.33 on all key characteristics, a statement shall be included on supplier’s certificate of conformity for the life of the program stating “The	

Rev:	Change Detail	Date
	supplier certifies are key characteristics identified by Parker meet or exceed a 1.33 Cpk". • To:"Key Characteristics have been identified on this Purchase Order. • Variation management of Key Characteristics using statistical methods to control manufacturing processes is required for key characteristics identified by Parker on the drawing or by separate documentation, (MQI, CPI or other). The supplier will be required to measure those features and demonstrate capability by performing data analysis and calculating Cpk (or an equivalent attribute measure of Capability) for each characteristic. • The supplier is required to provide copies of the capability study, with each delivery, until a minimum of three manufacturing lots, having a Cpk of 1.67 or greater, are shipped. Key Characteristic demonstrating capability may be monitored with statistical process control per P9112, Section 1.11. Key characteristics that have not achieved a Cpk of 1.67 will require data submittals, showing 100% inspection, with each delivery. • Sample Lot size shall be a minimum of thirty (30) pieces from a continuous manufacturing lot (Same material, Tooling and set up). Sample lot/batch number shall be documented on copies of capability studies. • The supplier's variation management program is subject to audit, verification and approval by Parker Aerospace designated representative(s), or its customers.	

Rev:	Change Detail	Date
	• The requirements for process capability and control does not supersede drawing requirements and shall not be used as accept or reject criteria for the noted feature. • When the supplier has achieved a Cpk of 1.67 on all key characteristics, a statement shall be included on supplier's certificate of conformity for the life of the program stating "The supplier certifies all key characteristics identified by Parker meet or exceed a 1.67 Cpk". 123) Changed 2.8.2 Q451 Control of Aerospace Elastomeric Seals & Seal Assemblies to replace SAE ARP5316 with new AS5316 Standard and to correct the Title of AS5316 from: "Storage of Aerospace Elastomeric Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly". To: ""Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly". 124) Changed 2.9.1 Q470 Electrostatic Discharge (ESD) Control Program to replace reference to MIL-B-81705 to MIL-PRF-81705. 125) Added note to 2.11.1 Q540 1st Article Inspection at Source "Note: The requirements of Q010 paragraph 1.6 First Article Inspection Requirements (FAIR) apply." 126) Added note to 2.11.2 Q550 1st Article Inspection at Parker Aerospace "Note: The requirements of Q010 paragraph 1.6 First Article Inspection Requirements (FAIR) apply." 127) Changed 2.12.8 Q754 Measurement System Analysis Required from: "A MSA (Measurement System Analysis) is required on this contract for those characteristics identified as key or critical by either Parker and/or the supplier. The supplier's MSA shall be submitted to Parker Aerospace for review and approval prior to start of work on this contract or as agreed upon in writing by Parker. • To: "A MSA (Measurement System Analysis) is required on this contract for those characteristics identified as key or critical by either Parker and/or the supplier. The supplier's MSA shall be submitted to Parker Aerospace for review and approval prior to	

Rev:	Change Detail	Date
	start of work on this contract or as agreed upon in writing by Parker. When capability is demonstrated through the use of Gage R&R, the maximum acceptable %R&R is 10%. • Note: A %R&R between 10 and 30 percent may be acceptable for some applications with Parker." 128) Added to Section 3 Applicable / Reference Documents under Standard: • "5316 – Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly"; • "9116 – Notice of Change (NOC) Requirements"; • "13002 – Requirements for Developing and Qualifying Alternate Inspection Frequency Plans"; and • "9146 – Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space, and Defense Organizations" 129) Removed from Section 3 Applicable / Reference Documents under Guidance: • "SAE ARP9013 Statistical Product Acceptance Requirements"; and • "SAE ARP5316 – Storage of Aerospace Elastomeric Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly" 130) Removed from Section 3 Applicable / Reference Documents under Specification: "NAS-412 – Foreign Object Damage/Foreign Object Debris (Fod) Prevention" 131) Revised Section 3 Applicable/ Reference Documents under Specification: From: "MIL-B-81705" To: "MIL-PRF-81705. 132) Added under Section 4 Definitions: "Key Characteristic – A characteristic whose variation has the greatest impact on the fit, form, function, performance, or service life of the finished part or system from the perspective of the Customer."	
J	1) Changed 1.7.3 from - "b) Part number and revision. Unless specified by contract, revision status is not required for off-the-shelf electronic components, catalog items and/or standard parts" to – "• Control Systems	2016/10/15

Rev:	Change Detail	Date
	Division only - Part number on the certification is not required for Raw Material (RM****) for the supplier's sub-tier source." 2) Changed 1.9.1 from …."(excluding Source Controlled Product and Standard Hardware):" to "(excluding Source Controlled Product, Standard Hardware, and Raw Material Mill and Conversion Company):" 3) Changed 2.3.1 from "Authorization by European Aviation Safety Agency (EASA), or by an authorized representative of EASA, is required prior to delivery to Parker Aerospace. A completed "Authorized Release Certificate – (EASA FORM 1), signed by a duly authorized representative of EASA, or by the National Civil Aviation Authority (NCAA) of the supplier's country, and attached to the products is required with each delivery and upon receipt at Parker Aerospace. If the supplier is unable to furnish the EASA FORM 1, the supplier shall notify Parker Aerospace Buyer immediately." To "A completed FAA Form 8130-3, signed by the FAA, or authorized representative and attached to the products, is required with each delivery and upon receipt at Parker Aerospace. A separate 8130-3 tag is required for each part number and/or serial number delivered. If the Supplier is unable to furnish an 8130-3 tag, the Supplier shall notify Parker Aerospace Buyer immediately." 4) Changed 2.3.7 from "Q236 Moved to Q010 paragraph 1.16" to "2.3.7 Certificate of Conformance (New Products/Parts/Sub-Components for Part 145 Repair Station) A Supplier or service provider that is not the Production Approval holder (PAH), but is authorized to provide certification as new under Direct Ship Authorization (DSA) (14CFR 21.137l, FAA Order 8120.23 Section 4), shall provide a Certificate of Conformance. 5) Changed 2.2.1 Q180 Note from "Note: "For orders where Q195 is also applied, the In-process inspection may be performed by the supplier's Parker delegated inspector." to "Note: Q185 or Q195 may be called out in conjunction to this quality code. For orders where Q195 is also applied, the In-process inspection may be performed by the supplier's Parker delegated inspector. 6) Added Note to 2.2.3 Q190 "Q185 or Q195 may be called out in conjunction to this quality code."	

Rev:	Change Detail	Date
	7) Changed 2.2.2 Q185 from "Third Party Source Inspection at supplier's Expense - The supplier shall contract with a Parker Aerospace approved third party supplier to perform source inspection (in-process or final) at the supplier's facilities. The following conditions may necessitate this action: a) supplier's quality performance falls below established minimum threshold; b) supplier's delegated inspection authority has been revoked by Parker Aerospace due to a nonconformance(s) detected by Parker Aerospace (or its customer) after receipt of products/services from the supplier; c) supplier's failure to implement effective corrective action on previous nonconformance(s) resulting in recurrence of the nonconforming condition; or d) At the request of the supplier." to "Third Party Source Inspection at supplier's Expense - The supplier shall contract with a Parker Aerospace approved third party supplier to perform source inspection either in-process (Q180), or final (Q190), or both, at the supplier's facility(s). The supplier shall contract with the third party source inspection firm at least of 30 days before source inspection is required, unless other arrangements are made in writing with Parker Quality Engineering through the cognizant Parker Buyer." 8) Changed 2.2.4 Q195 from "Products or services to be delivered on this contract require inspection, tests or both, by a representative(s) in the supplier's quality organization delegated and authorized by Parker Aerospace to perform inspection and/or tests on behalf of Parker Aerospace. Such inspection and/or tests shall be accomplished prior to delivery of products to Parker Aerospace, and may be accomplished at the supplier's facilities and/or the facilities of the supplier's sub-tier sources. The delegated representative(s) is responsible for assuring that products delivered to Parker Aerospace conform to all contract requirements. Upon receipt of this contract, notify the Parker Aerospace delegated representative(s) so that appropriate planning and scheduling can be accomplished to conduct the required inspection and/or testing to meet the contract required delivery schedules. The supplier shall make available to the delegated Parker Aerospace representative any measuring and test equipment, facilities, records and personnel to facilitate the delegated source inspection." to "Products or services to be delivered on this	

Rev:	Change Detail	Date
	contract require final inspection, tests or both, by a representative(s) in the supplier's quality organization delegated and authorized by Parker Aerospace to perform inspection and/or tests on behalf of Parker Aerospace. Such inspection and/or tests shall be accomplished prior to delivery of products to Parker Aerospace and be accomplished at the supplier's facilities and/or the facilities of the supplier's sub-tier sources. The delegated representative(s) is responsible for assuring that products delivered to Parker Aerospace conform to all contract requirements. Upon receipt of this contract, notify the delegated representative(s) so that appropriate planning and scheduling can be accomplished to conduct the required inspection and/or testing to meet the contract required delivery schedules. The supplier shall make available to the delegated representative any measuring and test equipment, facilities, records and personnel to facilitate the delegated source inspection."	
H	1) Moved Q236 Contract Line Item & Release form Paragraph 2.3.7 to Q010 Paragraph 1.16 and updated all references in the document. 2) Added note "Note: (Old Q235 formerly titled "Contract Line Item & Release Number" has moved to Q010 paragraph 1.16.)" to Paragraph 2.3.5 for clarification of change in revision G. 3) Moved Q240 from Paragraph 2.3.8 to Q010 Paragraph 1.17 and updated all references in the document. 4) Moved Q560 from paragraph 2.11.3 to Q010 paragraph 1.6. Renamed "1st Article Inspection Requirements (FAIR)" to "First Article Inspection Requirements (FAIR)." Revised the FAIR requirement text for better control over the process. 5) Moved Q520 FOD Control Program to Q010 paragraph 1.18 6) Deleted all codes moved or deleted more than 2 revisions previous to this revision and renumbered remaining affected paragraphs. 7) Changed Certification section references formerly 1.5 base to 1.7 base. 8) Changed all references of 9006 – Deliverable Aerospace Software Supplement for 9100 to 9115 Requirements for Aviation, Space and Defense Organizations – Deliverable Software.	2016/05/20

Rev:	Change Detail	Date
	9) Added section 1.5 Quality Management System Requirements for Parker Aerospace Suppliers – All new – Also removed text from Q30 and Q91 and replaced with Moved to Q010 and their respective paragraph. 10) Changed text in Q342 to add parker.com as an option for suppliers to view the Nadcap approved supplier list as follows: …" For a list of Nadcap accredited sources go to parker.com – Working with Parker or contact the Parker Aerospace Buyer." 11) 2.12.4 Removed "(MQI)" from title to avoid confusion with manufacturing and quality instruction documents which may include engineering work Instruction (EWI), Manufacturing Quality Instruction (MQI), Quality Work Instruction (QWI), Manufacturing Work Instruction (MWI), or other designation referenced on the Contract. Corrected typo in last sentence, "ore" changed to "or." 12) Section 3 remove ISO 17025 from "Specification" paragraph to the "Standard" paragraph. 13) Moved 1.13 Requirements for Calibration Laboratories per ANSI/NCSL Z540-3 to Q010 paragraph 1.5.6 for a better fit under the newly added Quality Management System Requirements section 1.5. 14) Changed Q645 Controlled Components section item "d)" in list in third paragraph from – "Product characteristics that will be inspected and verified during I above." – to – "Product characteristics that will be inspected and verified during I above." 15) 2.1.8 Marked as removed requirements under Q050 Removed – Do not use – Inspection & Test System per SAE AS9003. 16) Changed all references of "registrar" to "certification body"	
G	1) Under 2.0 Changed from – ("Q" Clauses from Section 3….) Changed to – ("Q" Clauses from Section 2….). 2) Renumbered paragraph 2.3.4 to 2.3.7 and changed from "Q235 Contract Line Item & Release Number" to "Q236 Contract Line Item & Release"	2016/04/01

Rev:	Change Detail	Date
	3) Added new paragraphs and codes 2.3.4 – Q233, 2.3.5 – Q234, and 2.3.6 – Q235.	
F	1) 1.6.1 Added: (excluding Source Controlled Product and Standard Hardware): 2) Corrected formatting and reference numbering in index. Corrected spelling errors 3) Changed: Section 3 Reference to SAE AS9120 to – SAE AS 9120 Quality Management Systems – Requirements for Aviation, Space and Defense Distributors. 4) Changed: 3.5.2 from - …the National Aerospace and Defense Contractors Accreditation Program (Nadcap)..to - …Nadcap. 5) Removed references to cancelled MIL standards and added active replacements 6) Added Q457 7) Added to 1.6.1: "(excluding Source Controlled Product and Standard Hardware)" 8) Added Q041 Continuous Improvement Plan 9) Changed Q410 added Parker APSL and altered F. Macroscopic Examination 10) Changed: Requirements for Calibration Laboratories per ANSI/NCSL Z540-1 to Requirements for Calibration Laboratories per ANSI/NCSL Z540-3 11) Added move reference to Q020. 105, 145, 155, and 340. 12) Added Q458 Packaging Requirement Exemption for Ethylene Propylene Soft Goods	2014/08/06
E	1) Q010: General Requirements Clause- Removed reference to Q155 from 1.6.3 supplier Material Review Authority. 2) Moved Requirements of Q155 to Q010 General Requirements Clause 1.7.2 and Renamed to Preliminary Review Authority. Deleted Q155. 3) Moved Requirements of Q105 to Q010 – General Requirements Clause- 1.9 Statistical Process Acceptance Requirements Per SAE ARP9013. Deleted Q105. 4) Add to: Q010 – General Requirements Clause- 1.10 supplier E-Business Requirements	2014/05/20

Rev:	Change Detail	Date
	5) Moved Requirements of Q145 Requirements for Calibration Laboratories Per ANSI/NCSL Z540-1 to Q010 – General Requirements Clause- 1.11. Deleted Q145. 6) Changed Q520 FOD Control Program first sentence to "The supplier shall establish, document and maintain a program to control and eliminate Foreign Object Damage (FOD) and/or contamination during the supplier's manufacturing, assembly, test and inspection, and packaging/shipping (e.g. use of FOD causing materials like Styrofoam packing beads) operations." 7) Add to: Q010 General Requirements Clause- 1.12 Imported Product 8) Changed Q030 text to: …."Quality Management Systems – Requirements for Aviation, Space and Defense Distributors." 9) Changed Q035 Inspection System – FAA PMA Holder – Changed "Inspection System" to "Quality System". 10) Replaced: Q036 Parker Aerospace Document BQMS-1000, FAA Part 21 Supplement – Rewritten. 11) Added: Q037 Quality System – Production Certificate (FAA-PC) Holder 12) Q038 Quality System – FAA-TSOA Holder. Delete "inspection system" and remove reference to obsolete AC 21.1. 13) Added text to Q245 as follows …. And meet the requirements of section 2.5.herein. 14) Change: Q260 Statement of Conformity (FAA Form 8130-9) – The supplier shall …..furnished on the Contract. Deleted the remaining verbiage. 15) Changed: Q677 Alcohol and Drug Prevention Program – was "US 14 CFR part 121 Appendix "I" and "J". Is "14 CFR Part 120" 16) Change: P9112 Q300 Raw Material Verification Program 17) Changed text in Q310 to: Parker Aerospace furnished raw material (bar stock, castings, forgings, etc.), machined or partly machined parts (not for in-process manufacturing) and/or components (fittings, connectors, etc.) to the supplier for use in or on products to be delivered on this Contract. The supplier shall establish and maintain strict accountability for all Parker Aerospace furnished material to ensure that it is properly used and accounted for. The supplier shall establish required controls to ensure traceability of the raw material to the finished product and furnish	

Rev:	Change Detail	Date
	material traceability records with the delivery of products to Parker Aerospace…. 18) Moved requirements of Q340 to Q010 clause section 1.6. 19) Change: P9112 Q470 Electrostatic Discharge (ESD) Control Program 20) Change: P9112 Q185 – Third Party Source Inspection at supplier's Expense 21) Rewrote: Q750 and Q755. 22) Added: Q752, Q754 and Q757. 23) New: P9112 Q760 – AQP/PPAP (Advanced Quality Planning/Production Product Approval 24) P9112 Q180 – Q180 In-Process Source Inspection 25) Change: P9112 Q410 Foundry Control 26) Added to Q600: If product has serial numbers already applied to the parts the supplier is to maintain serial number legibility, control to the specific contract and record serial numbers on all documentation. 27) Change: P9112 Q755 Process FMEA Requirements 28) Change: P9112 Q999 Internal Parker Aerospace Quality Instructions and/or Inspection Routing 29) Reformatted Entire Document.	
D	1) Entire document revised to remove requirements already in PH-SQRM 2) Parker is now Parker Aerospace	2008/10/15
C	1) Section 2. Last sentence added representatives of Parker Aerospace 2) Section 3.2.3 added sources for documents 3) Section 3.2.4 – 2nd paragraph, 2nd sentence – deleted "when specified 4) by Contract" (It now requires the supplier to return all Parker Aerospace 5) furnished proprietary documents at the end of Contract performance) 6) Section 3.6 revised to include types of records minimum request time 7) Section 3.7.4 (new added) supplier Notification of Nonconforming Products 8) Delivered to Parker Aerospace. 9) Q036 added "Only applicable to CSO Associate facilities" 10) Q075, Q085 revised to include EASA 11) Q091 Revised to require AS9100 current revision	2006/03/01

Rev:	Change Detail	Date
	12) Q105 revised to define requirements per SAE ARP9013 13) Q185 Third Party Source Inspection …quality performance rating over the 14) most current three (3) month period. (was four month period) 15) Q231 added EASA 16) Q320 – supplier Furnished Raw Material – revised 2nd paragraph –Caution. 17) Raw Material from Foreign Sources. (Removed Parker Aerospace approved 18) sources in Canada and United Kingdom) 19) Q342 Nadcap was NADCAP 20) Q450 Revised to reflect current practice and reference specification 21) Q465 New – added packaging requirements 22) Q550, Q560 and Q565 revised to require current revision of SAE AS9102 23) Q565 Removed SAE document sources 24) Q677 – Alcohol and Drug Prevention Program – new added 25) Typos – corrected typos and sentence structure throughout. No change in requirements.	
B	1) Reformatted and revised as follows: 2) In Clauses Q030, Q040, Q050, Q055 replaced Parker Aerospace 3) document numbers with SAE Standards; Q145 to ANSI/NCSL Standard 4) Added clauses Q057, Q185, Q270, Q365, Q585, Q645 and Q800; 5) Revised Q450 to add example of certification statement; 6) Revised Q540, Q550 to reference SAE AS9102 requirement; 7) Revised Q710 to add examples of typical traceability documents;	2005/03/07
A	1) Added Section 3.1.4 Access to supplier's Facilities 2) Revised clauses Q245, Q300 and Q330 3) Revised Q450. Old Q450 is now Q451 and old Q451 is now Q452 4) Corrected spelling and other typographical errors	2003/06/23
NC	1) New. Replaces Parker Aerospace document D112, Rev. 'J'	2003/01/06

8 Approval History

Rev.	Approval History:	Date:
L	Bill Schmiege	2021/06/07
K	Bill Schmiege	2018/02/05
J	Bill Schmiege	2016/11/02
H	Bill Schmiege	2016/06/11
G	Bill Schmiege	2016/04/01
F	Bill Schmiege	2014/10/24
E	Bill Schmiege	2014/06/30
D	Bill Schmiege	2008/10/15
C	George Udris	2006/03/01
B	George Udris	2005/03/07
A	George Udris	2003/06/23
NC	George Udris	2003/01/06