



Parker Hannifin Corporation

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Quality Assurance
Purchase Order Clauses
For
Parker Aerospace Suppliers

Approved:

George Udris

Director Product Integrity

Approved:

Richard W. Hall

Vice President Supplier Management & Integrity



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REVISION RECORD

| Rev. | Date | Description | Approval |
|-------------|--------------|---|-----------------|
| N/C | 06 Jan 2003 | New. Replaces Parker document D112, Rev. 'J' | G. Udris |
| A | 23 June 2003 | Added Section 3.1.4 Access to Supplier's Facilities Revised clauses Q245, Q300 and Q330 Revised Q450. Old Q450 is now Q451 and old Q451 is now Q452 Corrected spelling and other typographical errors | G. Udris |
| B | 7 Mar 2005 | Reformatted and revised as follows: In Clauses Q030, Q040, Q050, Q055 replaced Parker document numbers with SAE Standards; Q145 to ANSI/NCSL Standard Added clauses Q057, Q185, Q270, Q365, Q585, Q645 and Q800; Revised Q450 to add example of certification statement; Revised Q540, Q550 to reference SAE AS9102 requirement; Revised Q710 to add examples of typical traceability documents; | G. Udris |
| C | 1 Mar 2006 | Section 2. Last sentence added representatives of Parker Section 3.2.3 added sources for documents Section 3.2.4 - Second paragraph, second sentence - deleted "when specified by Contract" (It now requires the supplier to return all Parker furnished proprietary documents at the end of Contract performance) Section 3.6 revised to include types of records minimum request time Section 3.7.4 (new added) Supplier Notification of Nonconforming Products Delivered to Parker. Q036 added "Only applicable to CSO Associate facilities" Q075, Q085 revised to include EASA Q091 Revised to require AS9100 current revision Q105 revised to define requirements per SAE ARP9013 Q185 Third Party Source Inspectionquality performance rating over the most current three (3) month period. (was four month period) Q231 added EASA Q320 - Supplier Furnished Raw Material - revised second paragraph -Caution. Raw Material from Foreign Sources. (Removed Parker approved sources in Canada and United Kingdom) Q342 Nadcap was NADCAP Q450 Revised to reflect current practice and reference specification Q465 New - added packaging requirements Q550, Q560 and Q565 revised to require current revision of SAE AS9102 Q565 Removed SAE document sources Q677 - Alcohol and Drug Prevention Program - new added Typos - corrected typos and sentence structure throughout. No change in requirements. | G. Udris |

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Q010 GENERAL REQUIREMENTS CLAUSE

1. PURPOSE

This document describes the general and special product assurance requirements (clauses) that will be used by Parker on the Purchase Order, Contract or other formal agreement (hereafter referred to as the Contract) between a Supplier and a Parker Division. The purpose of this document is to clearly define for each purchase of products or services, all of the necessary and applicable technical and quality requirements with which the Supplier is required to comply to meet Parker, Parker's customer and/or regulatory requirements.

2. APPLICATION

This document was developed and has been issued for use by the divisions of the Parker Aerospace Group, however, when deemed appropriate, other Parker divisions and facilities may use it by referencing this P9112 document in the Contract to the Supplier.

Unless expressly excluded by the Contract, Clause **Q010**, which includes Sections 1, 2 & 3 herein applies to all Contracts. The "Q" clauses listed in Section 4. apply only when the specific clause number is included on the Contract. NOTE: When electronic documents are used to transmit requirements to the Supplier, 'Q' clauses may be flowed-down to the Supplier electronically, in attachments that are part of the Contract, such as the Manufacturing Quality Instruction (MQI) or Manufacturing Work Instruction (MWI) or other designated method. Compliance by the Supplier to all Contract requirements is subject to on-site verification by Parker, representatives of Parker, or, Parker may request the Supplier to provide objective evidence of compliance with all Contract requirements.

3. REQUIREMENTS

3.1 Supplier Responsibilities

3.1.1 Delivery Certification

By delivering products or services on the Contract, the Supplier certifies that such products or services are in compliance with all applicable requirements of the Contract, and objective evidence of compliance is available and will be furnished to Parker for review upon request.

3.1.2 Compliance to Contract Requirements

The Supplier is responsible to verify and demonstrate compliance to all Contract requirements. Neither audit, surveillance, inspection and/or tests made by Parker, representatives of Parker, or representatives of Parker's customers, at Supplier's facilities or at the facilities of the Supplier's sub-tier sources, or upon receipt at Parker, relieves the Supplier of the responsibility to furnish acceptable products or services that conform to all Contract requirements, nor does it preclude subsequent rejection by Parker or Parker's customers.

3.1.3 Control of Sub-tier Sources

The Supplier, as the recipient of the Contract, is responsible for meeting all Contract specified technical and quality requirements, whether the Supplier performs the work, or the work is performed by the Supplier's sub-tier sources. When the Supplier uses sub-tier sources to perform work on products and/or services scheduled for delivery to Parker, the Supplier shall include (flow-down) on Purchase Orders or Contracts, to his sub-tier sources, all of the applicable technical and quality requirements of the Parker Contract, including when applicable the requirement to document and control 'key characteristics' and/or 'key processes', and to furnish certifications and test reports required by the applicable 'Q' Clauses.

3.1.4 Access to Suppliers Facilities

During Contract performance, the Supplier shall grant reasonable access to Supplier's facilities to representatives of Parker, Parker customers, US government and/or regulatory agencies for the purpose of evaluating Suppliers conformance to all Contract requirements. When applicable, the access requirement shall be flowed-down by Supplier to Suppliers' sub-tier sources.

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3.2 Document Control

3.2.1 Applicability of Documents

All documents, including drawings and specifications, Parker, Industry, National, International, Federal, US Government and others, are applicable to and considered part of the Contract requirements when such documents are specified directly in the Contract or in documents referenced by the Contract. Unless otherwise specified by the Contract, all of the lower tier documents referenced in Contract specified documents are applicable to the Contract.

3.2.2 Document Revision Status

Unless otherwise specified by the Contract, the document revision in effect on the date of issue of the Contract, applies to the Contract.

3.2.3 Document Sources

Copies of Parker proprietary documents, or Parker customer proprietary documents, required by the Supplier to comply with Contract requirements will be furnished to the Supplier by Parker with the Contract. Copies of Industry, National, International or US Government documents and Standards are generally available on the internet or from commercial sources. The Supplier is responsible for obtaining such documents, including current revision of such documents. Any problems experienced by the Supplier in obtaining required documents should be brought to attention of the Parker Buyer. The following sources may be used:

SAE: Copies **AS** and **ARP** standards may be ordered from: SAE International, 400Commonwealth Drive, Warrendale, PA 15096-0001 (724) 776-4970 or on the Internet at <http://www.sae.org>

ANSI/NCSL: Copies of **Z540-1** document may be obtained from: National Conference of Standards Laboratories (NCSL), 1800 30th Street, suite 305B, Boulder, Colorado 80301

RTCA/DO - 178/254 may be obtained from: **RTCA** (Radio Technical Commission for Aeronautics) 1828 'L' Street NW, Suite 805 Washington, DC 20036. Telephone 202-833-9339. E-Mail: info@rtca.org

3.2.4 Control & Release of Parker Furnished Documents

Proprietary documents furnished by Parker to the Supplier are furnished solely for Supplier to use during performance of work on the Parker Contract. Proprietary documents are Parker or Parker customer documents and may be furnished to the Supplier in hard copy, electronic or other format. The Supplier is responsible for controlling and maintaining such documents to preclude loss, damage, alteration and/or deterioration.

Unless authorized by Parker Buyer in writing, the Supplier may not transmit or furnish any proprietary documents, or copies of such documents, to anyone outside the Supplier's business organization except to a sub-tier source used by the Supplier for performance of work on the Parker Contract. The Supplier shall return to Parker all proprietary documents with the last delivery of products or services on the Contract. In those cases where proprietary documents were furnished to the Supplier in electronic format or media, the Supplier shall purge such documents from the Supplier's electronic database immediately after the last delivery of products on the Contract. Parker may request the Supplier to furnish objective evidence that proprietary documents have been purged from the Supplier's electronic database. The Supplier shall invoke a similar 'document control' clause or statement on the Supplier's Purchase Orders or Contracts to his sub-tier sources, when such sources will be in receipt of Parker proprietary documents during performance of work for the Supplier.

3.3 Prohibited Practices

The following acts and practices are prohibited, unless approved by Parker in writing. Any violation by the Supplier may result in disqualification of the Supplier for future business with Parker. In addition, the Supplier shall invoke (flow-down) the requirements of sections 3.3.1 through 3.3.5 to all of the Supplier's sub-tier sources performing work for the Supplier that is scheduled for delivery to Parker on the Contract.

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3.3.1 Unauthorized Facility Changes

During performance on the Contract, the Supplier shall give Parker 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; or, making any other changes which may affect product quality, reliability or integrity. Such changes are subject to approval/disapproval by Parker.

A change in ownership or a change in the individual designated as the management representative with respect to the Suppliers quality/inspection system shall be construed as a facility change and requires the Supplier to notify Parker.

3.3.2 Unauthorized Product Repairs & Salvage

The Supplier may not perform any repairs such as welding, brazing, soldering, plugging, peening, bushing, or, use of paints, adhesives or plating, or use any standard or other repair practice or method, 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 specifically authorized by Parker in writing for each occurrence. Unless specifically authorized by Parker, this prohibition also applies to reworking products by removing plating (stripping) and re-plating. In those cases, where Parker 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 approved repair, salvage or stripping, and the method used.

3.3.3 Unauthorized Product Changes or Substitutions

The Supplier may 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. Authorization may be contingent on Parker 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.

3.3.4 Use of Non-Conventional Manufacturing Methods

Unless required by the drawing, specification, or Contract, the Supplier may 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 without prior written authorization by Parker. This prohibition also applies to the use of such processes by the Supplier's sub-tier sources. Authorization by Parker may be contingent on Parker 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 approved sources.

3.3.5 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 inspection reports such as FAIR's, 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, 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.

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3.4 Contract Changes & Their Effectivity

3.4.1 Parker Initiated Changes

The Supplier shall incorporate, at the specified and agreed upon effectivity points, all changes initiated by Parker 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 at the Supplier's facilities or the facilities of the Supplier's sub-tier sources.

3.4.2 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 MIL-STD-973) without specific approval by Parker 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 MIL-STD-973) and that do not affect the above criteria. The Supplier shall furnish a copy of the change prior to the initial delivery of products to Parker, so that Parker can verify that the change does not violate the above requirements.

3.5 Certifications

3.5.1 Certification Requirements

The Supplier shall furnish with the initial 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 specific "Q" Clauses listed on 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 reserves the right to return all products to the Supplier at Supplier's expense when the certifications that support the products are not properly executed.

When the Parker Contract includes provisions for incremental product deliveries, after the initial delivery of products and certifications, the Supplier may on subsequent deliveries, provide additional copies of the certifications, or note on the packing list/shipper and the CoC, the date that the initial certifications were delivered to Parker.

3.5.2 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 (company),
- b. part number and revision (including Parker part number when applicable)
- c. quantity processed and/or delivered
- d. Parker contract number, and if applicable the Line Item & Release Number
- e. name and signature that meets the requirements of 3.5.3, of the authorized official of the issuing organization.

3.5.3 Acceptable & Authorized Signatures

All certifications and test reports shall include the typed or printed name and an acceptable signature of the authorizing company official. The following methods are the only Parker 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.

When quality or inspection stamps are used in lieu of 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.

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3.5.4 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 Suppliers 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

3.6 Maintenance of Records

Unless otherwise required by the Contract, the Supplier shall maintain all records that provide objective evidence of compliance to the Contract requirements for a minimum of fifteen (15) years after the last delivery of products and/or services on the Contract. Such records include drawings, specifications, work instructions, certifications and test reports and any other records generated in the course of procurement, manufacturing, testing, processing, inspecting, preserving, packaging and shipping products to Parker, and when applicable include records generated by the Supplier's sub-tier sources. Such records may be in any form including, electronic, hard copy or microfilm and shall be handled and stored in a manner to preclude deterioration or loss during the time period specified. Upon request, the Supplier shall be capable of retrieving & delivering required records to Parker within ten (10) working days or sooner from date of request by Parker. Prior to discarding, transferring to another facility, or destruction of such records, the Supplier shall notify Parker in writing and allow Parker the opportunity to gain possession of such records including applicable records at the Supplier's sub-tier sources.

3.7 Nonconforming Products & Material Review

3.7.1 Identification, Segregation & Control

Any products found to be nonconforming to Parker 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. Parker reserves the right to reject and return any nonconforming products to the Supplier at the Supplier's expense.

3.7.2 Supplier Material Review Authority

Unless the Supplier is granted Material Review authority by inclusion of Clause **Q155** or **Q160** on the Contract, all nonconforming material shall be submitted to Parker for disposition in accordance with 3.7.3.

3.7.3 Submittal to Parker MRB for Disposition

Unless otherwise specified in the Contract, in order for the Supplier to submit nonconforming products to Parker Material Review Board (MRB) for disposition, the Supplier shall submit a request to the Parker Buyer. When authorized by the Buyer, the Supplier shall complete the required MRB forms that will be furnished, along with instructions for their completion, to the Supplier by the Buyer. Parker 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 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 any nonconforming products that have not been dispositioned by Parker MRB unless authorized by Parker in writing. When Parker MRB dispositioned products are delivered to Parker, the Supplier shall reference on the packing list/shipper the serial number of the MRB document which describes the Parker MRB disposition. When the Supplier's shipment includes products dispositioned by Parker MRB along with conforming products, the products dispositioned by Parker MRB shall be segregated and marked or tagged so as to permit easy identification upon receipt at Parker.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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3.7.4 Supplier Notification of Nonconforming Products Delivered to Parker

When the Supplier has determined that nonconforming product(s) have been delivered to Parker, the Supplier shall notify the Parker 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:

- Supplier name
- Parker Purchase Order or Contract number
- part number and description
- affected quantity and serial numbers (if known)
- dates delivered (if known)
- brief description of the nonconforming condition

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

- complete description of the nonconforming condition(s)
- the affected quantity of products (including serial numbers when applicable) and dates delivered to Parker
- potential effect of the nonconformance on the performance, reliability, safety and/or usability of the product(s)
- recommendations for Parker action including for products that Parker may have already delivered to its customers
- immediate action taken by Supplier to contain the nonconforming products
- root cause analysis of the nonconforming condition
- root cause corrective action plan and schedule
- the plan and schedule for verifying the effectiveness of the corrective action

In those cases where data (a) through (h) above is under investigation and incomplete, the Supplier may request, from the Parker 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 (a) through (h) data will be submitted to Parker. Parker reserves the right to participate in the nonconforming product investigation at the facilities of the Supplier or its sub-tier sources.

3.8 Re-Submittal of Products Previously Rejected by Parker

Products returned to the Supplier by Parker and re-worked or replaced by the Supplier and re-submitted to Parker shall be clearly identified as re-submitted products. The Supplier's packing list/shipper shall include a statement that the products delivered are:

- replacement, or
- reworked to meet all applicable requirements, and
- include reference to the Parker rejection document serial number.

3.9 Product Identification

The Supplier shall identify all products delivered to Parker in accordance with the drawing, specification and/or Contract requirements. Unless permitted by drawing and/or specification, steel stamping and vibro-engraving identification methods are prohibited, except on product identification nameplates or decals and on attached metal tags.

3.10 Preservation, Packaging and Shipment

Unless otherwise required by the Contract, the Supplier shall incorporate good commercial standard practices for the preservation, packaging and shipment to preclude damage to products during shipment to Parker or deterioration while in storage at Parker. Identification on packages shall include the contract number to which they apply.

CAUTION: Due to the acid nature of ink, the use of newspapers for packaging, storage or shipment of any products is prohibited. In addition, the use of brown wrapping paper for packaging or storing of cadmium plated parts is prohibited.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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4. QUALITY ASSURANCE PURCHASE ORDER CLAUSES

("Q" Clauses from Section 4. apply only when included on the Contract)

4.1 Supplier Inspection & Quality System Requirements

Q020 Quality Management System – General Requirements per Parker P9000 – Parker document P9000 establishes the general requirements for Quality Management Systems applicable to Parker Aerospace Group Suppliers. Q020 will be included on all production Contracts

Q030 Quality Management System – Stockist Distributors per SAE AS9120 – The Supplier shall establish and maintain a Quality Management System in compliance with the current requirements of SAE AS9120 - "Quality Management Systems - Aerospace - Requirements for Stockist Distributors." Supplier's Quality Management System is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).

Q035 Inspection System - 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 and/or disapproval by Parker designated representative(s). A copy of the current FAA PMA approval letter or "Certificate" shall be furnished to Parker with the initial delivery of products on the Contract.

Q036 Parker Document D113 - The division shall establish and maintain compliance to the current revision of Parker Document D113 – "Product Assurance Requirements, FAA Parts Manufacturer Approval (PMA) Program is only applicable to CSO associate facilities.

Q037 Inspection System - Production Certificate (PC) Holder - When the Contract is for products for which the Supplier holds a Federal Aviation Administration (FAA) issued "Production Certificate" (PC), the Supplier shall establish and maintain an Inspection/Quality System in compliance with the requirements of 14 CFR 21 (Title 14, Code of Federal Regulations, Part 21), Subpart G & FAA Advisory Circular (AC) 21-1. The Supplier's Inspection System is subject to audit, verification and approval and/or disapproval by Parker designated representative(s). A copy of the current FAA approval letter or "Certificate" shall be furnished to Parker with the initial delivery of products on the Contract.

Q038 Inspection System - 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 an Inspection/Quality System in compliance with the current Requirements of 14 CFR 21 (Title 14, Code of Federal Regulations, Part 21) Subpart G & FAA Advisory Circular (AC) 21-1. The Supplier's Inspection/Quality System is subject to audit, verification and approval and/or disapproval by Parker designated representative(s). A copy of the current FAA approval letter or "Certificate" shall be furnished to Parker concurrent with the initial delivery of products on the Contract.

Q040 Variation Management Program per SAE AS9103 – The Supplier shall establish and maintain a Variation Management Program in compliance with the current requirements of SAE AS9103 - "Variation Management of Key Characteristics." AS9103 requires the use of statistical methods to control manufacturing and processing operations. Supplier's variation management program is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).

Q050 Inspection & Test System per SAE AS9003 – The Supplier shall establish and maintain an Inspection & Test System in compliance with the current requirements of SAE AS9003 - "Inspection and Test Quality System." Supplier's Inspection & Test System is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).

Approved:

George Udris

Director Product Integrity

Approved:

Richard W. Hall

Vice President Supplier Management & Integrity



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- Q055 SQA Program Requirements per ISO 9000 - 3 and RTCA/DO - 178** – The Supplier shall establish and maintain a Software Quality Assurance (SQA) Management and Development Program in compliance with the current requirements of documents ISO 9000-3 and RTCA/DO-178. The Supplier's SQA Management and Development Program is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).
- Q056 Design Assurance Requirements, 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 Suppliers electronic hardware Management and Development Program is subject to audit, verification and approval/disapproval by Parker designated representative(s).
- Q057 Deliverable Aerospace Software Supplement** - This Contract is for deliverable software or products containing deliverable software. Supplier's Software Quality Assurance (SQA) program shall meet the requirements of the current revision of SAE AS9100 - “Quality Management Systems - Aerospace - Requirements”, and SAE AS9006 - “Deliverable Aerospace Software Supplement for AS9100.” Supplier's SQA Management and Development Program are subject to audit, verification and approval and/or disapproval by Parker designated representative(s).
- 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 in compliance 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 and/or disapproval by Parker designated representative(s).
- Q075 Quality System per EASA Part 21** – The Supplier shall establish and maintain a Quality System that is in compliance 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 concurrent with the initial delivery of products on the Contract.
- Q080 Inspection System per US 14 CFR 145** - The Supplier shall establish and maintain an Inspection System that is in compliance 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 Contract. A copy of the current FAA issued approval letter or “Certificate” shall be furnished to Parker concurrent with the initial delivery of products on the Contract.
- Q085 Inspection System for Maintenance Organization per EASA Part 145** – The Supplier shall establish and maintain an Inspection System in the Suppliers Maintenance Organization that is in compliance 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 Contract. A copy of the current approval letter or “Certificate” shall be furnished to Parker concurrent with the initial delivery of products on the Contract.
- Q090 Quality Management System per SAE AS9100:1994** – The Supplier shall establish and maintain a Quality Management System that is in compliance with all of the requirements of SAE AS9100:1994 revisions. The Suppliers Quality Management System is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).

Approved:

George Udris

Director Product Integrity

Approved:

Richard W. Hall

Vice President Supplier Management & Integrity



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- Q091 Quality Management System per SAE AS9100** – The Supplier shall establish and maintain a Quality Management System that is in compliance with the current revision of the requirements of SAE AS9100. The Suppliers Quality Management System is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).
- Q105 Statistical Product Acceptance Requirements per SAE ARP9013** – When the Supplier elects to use a statistical methods for product acceptance, unless otherwise specified by the Contract, the Suppliers statistical acceptance method(s) shall be in compliance with the requirements established by ARP9013, ARP9013/1, ARP9013/2, ARP9013/3 or ARP9013/4. When this clause is included on the Contract, Supplier shall submit Supplier's proposed statistical product acceptance method to Parker for review and concurrence.
- Q145 Requirements for Calibration Laboratories per ANSI/NCCL Z540-1** - The Supplier shall establish, document and maintain a system that is in compliance with the current revision of Parker document ANS/NCCL Z540-1. The Supplier's calibration system is subject to audit, verification and approval and/or disapproval by Parker designated representative(s).
- Q155 Limited Material Review Authority** – The Supplier is authorized to conduct limited Material Review and disposition nonconforming products identified by the Supplier using the following disposition alternatives:
- rework to applicable requirements,
 - scrap, or
 - 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 engineering drawing, specification, Contract or other approved product description, including products (such as 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 by submitting the appropriate request to the Parker Buyer in accordance with the requirements defined in section 3.7 herein. 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 to ensure that the Supplier is in compliance with the requirements of this clause.
- Q160 Full Material Review Authority** - The Supplier is authorized to conduct Material Review and disposition all 'Minor' nonconformance's found on products that are under the Supplier's proprietary engineering design authority and control. 'Minor' nonconformance's are defined as nonconformance's 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 completely eliminated by rework or reduced to a 'Minor' by repair. All Parker specified requirements are defined as 'Major' and disposition of products with 'Major' nonconformances is the sole prerogative of the Parker Material Review Board (MRB). The Supplier's authority to disposition products with 'Minor' nonconformance's 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:
- feedback of product nonconformance information to the Supplier's product design function;
 - analysis to determine 'root cause' of individual product nonconformance's;
 - implementation of positive corrective action;
 - verification of corrective action to ensure effectiveness in eliminating recurrence of nonconforming products;
 - evaluation and reporting of nonconformance trends to management.
- Q175 Supplemental Purchase Order Conditions per PD1000** – The Supplier shall comply with the requirements of the current revision of Parker Gas Turbine Fuel Systems Division (GTFSD) document PD1000.

4.2 Source Inspection Requirements

- Q180 In-Process Source Inspection** - Products to be delivered on this Contract, require in-process source inspection, tests or both by a Parker 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 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 representative any measuring and test equipment, facilities, records and personnel to facilitate the in-process source inspection.

Approved:

George Udris

Director Product Integrity

Approved:

Richard W. Hall

Vice President Supplier Management & Integrity



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Q185 Third Party Source Inspection at Supplier's Expense - This clause may be invoked by Parker at any time during Contract performance when the Supplier fails to meet the minimum quality performance rating over the most current three (3) month period. The Supplier will be notified by Parker in writing. Prior to delivering products to Parker, source inspection by a Parker approved third party source inspection contractor is required. The third party source inspection shall be at the expense of the Supplier and include all necessary and reasonable costs of the contractor such as travel, lodging, expenses and labor costs. Parker will define the specific source inspection requirements for the third party contractor which may include all drawing or specification characteristics, performance characteristics and any other requirements deemed necessary by Parker. The Supplier shall notify Parker and third party source inspection contractor at least seventy two (72) hours prior to the scheduled delivery of product to Parker to allow the third party contractor time to accomplish the inspection.

Q190 Final Source Inspection - Products to be delivered on this Contract require final source inspection, tests or both by a Parker Quality Assurance representative, prior to delivery to Parker. The Supplier shall notify Parker 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 representative any measuring and test equipment, facilities, records and personnel to facilitate the final source inspection.

Q195 Delegated Source Inspection – Products or services to be delivered on this Contract require inspection, tests or both, by a representative(s) in your quality organization delegated and authorized by Parker to perform inspection and/or tests on behalf of Parker. Such inspection and/or tests shall be accomplished prior to delivery of products to Parker, and may be accomplished at your facilities and/or the facilities of your sub-tier sources. The delegated representative(s) is responsible for assuring that products delivered to Parker conform to all Contract requirements. Upon receipt of this Contract, notify the Parker 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. Upon request, the Supplier shall make available to the Parker representative any measuring and test equipment, facilities, records and personnel to facilitate the delegated source inspection.

Q196 Supplier Self Release Authority – Under the Parker Supplier Self-Release Program, the Supplier has been delegated authority to perform final inspection on behalf of Parker and release product(s) for delivery to Parker. Parker Quality Assurance reserves the right to conduct product integrity audits, quality system assessments, verify Supplier's conformance to the Parker self-release program requirements and to revoke delegation authorization. Inability to maintain an acceptable level of performance by the Supplier may result in cancellation of self-release authority by specific part number exception or 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 3.5 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 Supplier Self-Release Program and comply with all requirements of the Contract. Objective evidence to support this certification will be made available for review upon request"

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

Q200 Government Source Inspection (GSI) - US Government Source Inspection (GSI) is required prior to delivery to Parker. 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 Parker 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.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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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 included in the Contract.

4.3 Supplier Statements of Quality (Certifications & Test Reports)

Q230 FAA Form 8130-3 "Airworthiness Approval Tag." - Authorization by Federal Aviation Administration (FAA), or by an authorized representative of the FAA, is required prior to delivery of products to Parker. A completed FAA Form 8130-3, signed by the FAA, or a duly authorized representative of the FAA, and attached to the products, is required with each delivery and upon receipt at Parker. 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 immediately.

Q231 EASA Authorized Release Certificate - EASA FORM 1 - Authorization by European Aviation Safety Agency, or by an authorized representative of EASA is required prior to delivery to Parker. 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. If the Supplier is unable to furnish the EASA FORM 1, the Supplier shall notify Parker immediately.

Q233 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 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. 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.

Q235 Contract Line Item & Release Number - Parker may issue Contracts that contain more than one 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 Contract Line Item & Release Number against which the delivery of products or services is made.

Q240 Certificate of Conformance (CoC) – With each delivery of products on this Contract, 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 section 3.5 herein and is worded substantially as follows:

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

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

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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Q245 Material & Process Summary Report – After 1st article approval, the Supplier may, in lieu of providing Parker the originals or true copies of the original certifications and test reports, issued by the Supplier or the Supplier's sub-tier sources, instead, furnish a Material & Process Summary Report with each delivery of products on the Contract. Unless otherwise specified, the Summary Report (example last page) 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 heat/lot or report number;
- h. name and location of the source that supplied the material
- i. name of the Parker approved source (Ref. Q340) that performed the process;
- j. a 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 and signature or stamp (per 3.5.3) of the authorized individual who issued the Summary Report.

In addition, all materials and processes listed on the Summary Report shall be performed by Parker approved sources and comply with the applicable requirements of Clauses Q320 and Q340. The Supplier shall maintain the original certifications and test reports in a manner so that upon Parker's request, they can be retrieved and furnished to Parker within twenty-four (24) hours. In addition, the Supplier shall notify Parker in writing prior to disposal or destruction of the original certifications and test reports listed on the Summary Report and give Parker an opportunity to obtain possession of the original certifications and test reports.

Q250 Certificate of Traceability (CoT) – With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled "Certificate of Traceability" which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

"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, re-worked, re-processed, or modified in any manner except as specified by the Contract. Objective evidence to support this certification will be made available for review upon request."

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

Q255 Supplier Proprietary Design Products – The Supplier shall certify that the product are of Supplier's proprietary design and are available as standard off-the-shelf or catalog products, and comply with all of the Supplier's engineering drawing or specification requirements. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

"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 for review upon request"

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

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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Q260 FAA Form 8130-9 "Statement of Conformity." – 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. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written "Statement of Conformity" which complies with the requirements of section 3.5 herein, is worded substantially as follows, and signed by an authorized FAA inspector, FAA Designated Manufacturing Inspection Representative (DMIR) or other authorized FAA representative

"This is to certify that all products delivered on this Contract (number) and packing list/shipper (number) have been inspected in accordance with applicable Federal Aviation Administration (FAA) Regulations, and are: (a) authorized for installation and use on FAA certified aircraft systems produced by Parker; (b) are new and in unused condition; and (c) are in compliance with all requirements of the Contract. Objective evidence to support this certification will be made available to Parker for review upon request."

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

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. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled "Production Certificate" which complies with the requirements of section 3.5 herein and is worded substantially as follows:

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

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

Q270 Source Control Drawing (SCD) Certification - The Supplier shall certify that the products have been designed and manufactured and are in compliance with all of the requirements of the current revision of Parker SCD, or, that the product is an existing Commercial-Off-The-Shelf (COTS) item, whose configuration is controlled by the Supplier and the item is in compliance with all of the construction, performance, installation and interchangeability characteristics specified by the Parker SCD. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled "Production Certificate" which complies with the requirements of section 3.5 herein and is worded substantially as follows:

"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 SCD. Objective evidence to support this certification will be made available for review upon request."

Company Name: _____
 Address: _____
 Parker SCD N.: _____ Rev.: _____
 Supplier P/N: _____ Rev.: _____
 Printed Name of Authorized Individual: _____ Date: _____
 Title: _____ Signature/Stamp _____

Q280 Fasteners – Manufacturer & Lot Identification – The Supplier shall provide on the packing list/shipper or on separate attached document information that identifies the fastener manufacturer and the manufacturer's production lot or batch number. 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). **For additional information and resolution of eligibility questions, contact the Parker Buyer.**

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Q285 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”. With each delivery of fasteners on this Contract, the Supplier shall furnish copies of the original certifications and test reports, and 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 section 3.5 herein and is worded substantially as follows:

“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 for review upon request.”

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

4.4 Control of Raw Material

Q300 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 material received from the Supplier's sub-tier sources meets all applicable technical and quality requirements. The Supplier's verification program shall include provisions for monitoring and periodic testing of raw material upon receipt to ensure that such material meets all applicable requirements, and implement appropriate storage and controls to preclude commingling of different heat/lots or batches of material. Raw material testing shall be in accordance with specification requirements and may be performed by the Supplier or a recognized testing laboratory. Supplier's verification program shall document the frequency of such tests and the test results. Records showing the results of the Supplier's material verification program and its effectiveness shall be available to Parker for review upon request.

Q310 Parker Furnished Material – Parker may furnish raw material (bar stock, castings, forgings, etc.) and/or components (fittings, connectors, etc.) to the Supplier for use in or on products to be delivered on this Contract. In such cases the Supplier shall establish and maintain strict accountability for all Parker furnished material to ensure that it is properly used and accounted for. When raw material is furnished, 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. 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 on the Contract. Unless otherwise specified by the Contract, the Supplier shall return any unused Parker furnished material to Parker with the last delivery of products on the Contract. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement which complies with requirements of section 3.5 and is worded substantially as follows:

“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; (b) the material identified on the material and/or the Parker shipper, and (c) no material substitution was made. Objective evidence to support this certification will be made available for review upon request.”

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

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Q320 Supplier Furnished Raw Material - With each lot of raw material delivered or used to fabricate products on this Contract, the Supplier shall furnish a "Certification/Material Test Report." When more than one heat/lot of raw material is delivered at the same time, each heat/lot of material shall be identified and provide traceability to its Certification/Material Test Report. In the event that 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.

CAUTION. Raw Material from Foreign Sources - Prior to delivery or use of any raw material produced outside the United States, the Supplier shall submit a request to the Parker Buyer for approval to use the raw material. Parker 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 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 outside the United States.

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, name or designation, including, as applicable, size or weight, alloy, type, class, grade or condition,
- b. lot, batch or heat number, and
- c. the applicable specification and revision to which the material complies.

With each delivery of raw material/products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document, a written statement which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

"This is to certify that all (material) (products) delivered on this Contract (number) and packing list/shipper (number), (complies with) (were fabricated from material represented by) the attached Certifications/Material Test Reports. Objective evidence to support this certification will be made available for review upon request."

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

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:

A. FERROUS 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

B. NON-FERROUS MATERIALS. Unless otherwise required by the material specification or Contract, the Certification/Material Test Report shall show:

- a. the typical or range of values of the chemical composition of the material,
- b. the range of physical properties of the material, and
- c. include a statement that the material conforms to the applicable material specification.

C. 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.

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Q330 Traceability of Products to Raw Material - For each lot of products delivered to Parker, 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. Traceability may be provided by identifying the raw material heat, lot, batch or melt number from the certification/test report on tags attached to each product and/or on packaging (when used). Heat/lot identification required by applicable specifications, such as for castings and forgings is acceptable for traceability purposes provided it is clearly marked and not obliterated by subsequent operations.

Q335 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 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 review. No changes are permitted in the raw material, manufacturing, processing or inspection operations on critical parts unless prior review and written approval is obtained from Parker. Any certifications and test reports issued by the Supplier or his 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.

4.5 Control of Special Processes

Q340 Qualified Process Sources & Certifications

CAUTION: All special processes must be performed by sources approved by Parker. Use of processes and/or process sources that have not been approved by Parker may result in return of all products to the Supplier at the Supplier's expense. Unless otherwise directed by the Contract or the procuring Parker division, the Supplier shall select process sources from the list of Parker approved process sources that can be found on the 'Internet' on Parker's home page (www.parker.com) under the heading Parker Aerospace Group and sub-heading "Our Suppliers", or by contacting the Buyer. The following requirements apply:

A. **SPECIAL PROCESS** – Is the application of chemical, metallurgical, nondestructive or any other special manufacturing, joining or inspection processes, controlled by Federal, Military, US Government, Industry (i.e. Parker, Boeing, General Electric, etc.), National, International, or other specifications. All special processes shall be performed only by those sources currently approved for the specific process by Parker. In addition, when required by a Parker customer, the Supplier may be required to use customer approved special process sources. Upon request, Parker will provide the Supplier with a list of the approved process sources.

B. **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 (subject to normal proprietary rights consideration and nondisclosure agreement) so that Parker can determine whether adequate process controls exist to ensure that the proprietary process will yield products that meet all Parker technical and quality requirements. In addition, the Supplier shall notify Parker when any changes to the proprietary process are planned so that Parker can evaluate the potential impact on product technical or quality requirements.

C. **PROCESS CERTIFICATIONS** - For all special processes required by the Contract or reference documents, the Supplier shall furnish to Parker, with the delivery of products, the certification/test report issued by company that actually performed the process. All certifications/test reports shall meet the requirements of section 3.5 herein, and as a minimum include a complete description of the special process performed, including:

- a. process name, applicable specification and revision, type, class, grade, etc.,
- b. when applicable, a statement that the process was performed by certified operator(s), and
- c. in the case of priority process (ref. Q341), that the process was performed in accordance with the Parker approved process control document.

D. **REWORK** - In those cases where products have been subjected to Parker approved rework, repair and/or salvage processes (see section 3.3.2), the certifications shall include a description of the process used and the quantity of parts subjected to the process

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- Q341 Priority Process** - Parker Engineering has identified a number of special processes whose application on aerospace products requires strict control of the process steps to ensure that the resultant product meets all technical, quality and reliability requirements. The products on this Contract include one or more priority processes that must be performed by Parker approved priority process sources. The Parker approved priority process sources are listed on the Parker Aerospace home page under the heading "Our Suppliers".
- Q342 Nadcap Accreditation** - Special processes shall only be performed by sources that are accredited and approved by the National Aerospace and Defense Contractors Accreditation Program (Nadcap). This requirement applies whether the process is performed by the Supplier or by the Supplier's sub-tier sources. Use of sources not accredited by Nadcap shall result in return of products to the Supplier at the Supplier's expense. For a list of Nadcap accredited sources contact the Parker Buyer.
- Q350 Heat Treat Certifications** - With each delivery of products on this Contract, the Supplier shall furnish a time/temperature certification that includes the following data: (a) part number and revision; (b) quantity heat treated; and (c) for each heat treatment cycle – the actual temperature range & duration (hrs) of each heat treat cycle.
- Q360 Heat Treat Furnace Charts** - With each delivery of products on this Contract, 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.
- Q365 1st Article Destructive Metallurgical Test Report (DMTR)** - With each delivery of 1st article products on the Contract, the Supplier shall furnish a DMTR. The DMTR shall include the test results for any process that requires control per Parker document BPS 4127 - "Control of Priority Processes" specified on the engineering drawing and/or specification. 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 AS7101 - "General Requirements for Materials Test Laboratory Accreditation Program"; (c) Third party registrar issued certificate indicating the testing organization is in compliance with ISO 17025 - "General Requirements for the Competence of Testing and Calibration Laboratories"; or (d) A laboratory approved by Parker.
- Q370 Test Samples** - With each delivery of products on the Contract, the Supplier shall furnish for verification testing by Parker 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 process that it represents (i.e. material, heat treat, nitriding, plating, etc.), and noted on the packing list/shipper.
- Q375 Process Control Data** – With each delivery of products on the Contract, the Supplier shall furnish for verification testing by Parker one (1) additional product or suitable test sample produced from the same material heat lot and processed simultaneously with the lot of products delivered. When more than one heat lot of material was used, a sample is required from each lot. The sample(s) shall be marked or tagged to identify the heat lot and the process which the sample(s) represent (i.e. material, heat treat, nitriding, plating, etc.) and noted on the packing list/shipper.
- Q380 Nondestructive Test (NDT) Reports** – Unless otherwise specified by the contract, drawing or specification, NDT shall be performed on 100% of the lot of products. With each delivery of products on the Contract, 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 all delivered products. The test report shall be issued by the organization that actually performed the NDT and include:
- a complete description of the test, test name, specification, revision, type, method, etc.
 - the acceptance criteria document number and revision, that applies to the NDT operation
 - the number and revision level of the NDT procedure used, and
 - 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. NDT test reports shall meet the requirements of Section 3.5 herein.

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Q385 Radiographic (x-ray) Inspection - With each delivery of products on the 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 actually performed the radiographic inspection and include: (a) test report showing the accept/reject quantities, and (b) copy of the approved shooting sketch; The shooting sketch or test report shall include the number and revision of the approved radiographic technique. Unless Clause Q386 is included on the Contract, the Supplier is not required to furnish the exposed film with delivery of the products; however, Supplier shall maintain the film as part of the quality records in accordance with requirements of 3.6 herein.

Q386 Radiographic (x-ray) Film - In addition to the test reports and shooting sketches required by Q385, the Supplier shall furnish the exposed x-ray film with each delivery of products.

Q390 Parker Approval of NDT Techniques - Prior to conducting any nondestructive testing (NDT) required by drawing or specification on products scheduled for delivery on this Contract, the Supplier shall prepare and submit to Parker 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 approved NDT techniques shall be submitted to Parker for approval prior to their use in production.

Q400 Parker Weld Schedule Approval - Prior to performing any welding on products scheduled for delivery on this Contract, the Supplier shall prepare and submit to Parker for review and approval a detailed written weld schedule and a weld sample or an actual part that was produced using the submitted weld schedule. The weld schedule shall identify: (a) Part Number and revision; (b) applicable weld specification and revision, and (c) name & signature of the qualified/certified welder who approved the weld schedule.

4.6 Control of Castings

Q410 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, for review and approval the following:

A. 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 be in compliance with the requirements of the applicable casting specification and/or as specified in the Contract. 1st Article castings shall be in addition to the production quantities required by the Contract.

B. 1ST ARTICLE INSPECTION REPORT (FAI) – Showing the results of the FAI of the sample foundry control 1st article castings.

C. MECHANICAL PROPERTIES - The laboratory test report or certified statement of the test bar mechanical properties from the foundry control 1st Article castings. The test bars shall be from the same melt and heat treat lot as the foundry control 1st Article castings.

D. CHEMICAL COMPOSITION - The laboratory test report or certified statement of the chemical analysis of the material (melt) used in the foundry control 1st Article castings. The test specimens shall show the actual percentage of each element contained in the specimen.

E. RADIOGRAPHIC (x-ray) FILM - The shooting sketch, radiographic technique used and the exposed film of the foundry Control 1st Article castings.

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Q420 Production Castings – The Supplier shall produce production castings using the same foundry control practices established and approved by Parker as a result of foundry control defined in clause Q410. With each delivery of production castings on this Contract, the Supplier shall furnish for each separate heat/melt of castings in the lot, all certifications and test reports required by the following 'Q' Clauses:

- Q320 - The Supplier Furnished Raw Material
- Q340 - Qualified Process Sources & Certifications
- Q350 - Heat Treat Certifications
- Q380 - Nondestructive Test (NDT) Reports

4.7 Control of Forgings, Extrusions & Pressings

Q430 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 for review and approval the following:

A. 1st ARTICLE – Sample 1st Article forging, extrusion or pressing from the first production run and representative of all manufacturing and processing operations scheduled to be used during production. The quantity of 1st articles shall be in accordance with the requirements of the applicable specification or as specified in the Contract. 1st articles shall be in addition to the quantities required by the Contract.

B. 1st ARTICLE INSPECTION REPORT (FAI) – Showing the results (actual values) of the FAI.

C. MECHANICAL PROPERTIES - The laboratory test report or certified statement of the test bar mechanical properties taken from the 1st Article.

D. CHEMICAL COMPOSITION - The laboratory test report or certified statement of chemical analysis of the material used in the 1st Article, or a specimen taken from the 1st article, showing the actual percentage of each element contained in the 1st article or specimen.

E. ULTRASONIC TECHNIQUE - When required by the drawing or specification, the written technique used to perform the ultrasonic inspection on the 1st Article and to be used during production.

F. NONDESTRUCTIVE TEST (NDT) REPORTS - The laboratory test report of NDT accomplished in accordance with the applicable specification and showing acceptance of the 1st Article.

G. GRAIN FLOW SAMPLE - When required by the applicable drawing or specification, the cross section and pictures of grain flow pattern taken from the 1st Article.

Q440 Production Forgings, Extrusions & Pressings - Production forgings, extrusions or pressings shall be produced using the methods and controls established and approved by Parker during pre-production controls defined in Clause Q430. With each delivery of production forgings, extrusions or pressings on the Contract, the Supplier shall furnish for each separate heat/lot all of the certifications/test reports required by 'Q' Clauses:

- Q320 - The Supplier Furnished Raw Material
- Q340 - Qualified Sources & Process Certifications
- Q350 - Heat Treat Certifications
- Q380 - Nondestructive Test (NDT) Reports

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4.8 Control of Age Sensitive Items

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 is a maximum of forty (40) quarters or ten (10) 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 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. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document, a written statement which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

“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 for review upon request.”

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

Q451 Control of Aerospace Elastomeric Seals and Seal Assemblies - Unless otherwise specified by the Contract, the Supplier shall control elastomeric seals and seal assemblies in accordance with the requirements of SAE document ARP5316 – “Storage of Aerospace Elastomeric Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly”. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document, a written statement which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

“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 requirements of SAE ARP5316 and have not been commingled with like 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 for review upon request.”

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

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.

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. With each delivery of material/products delivered on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document, a written statement which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

“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 for review upon request”.

Company Name: _____
 Address: _____
 Printed Name of Authorized Individual: _____ Date: _____
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Q460 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, shall not exceed one fourth (1/4) of the total shelf life of the material without prior written waiver from Parker.

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 MUL-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 contract number.

4.9 Control of Electronic Devices & Components

Q470 Electrostatic Discharge (ESD) Control Program - Prior to processing production hardware, the Supplier shall establish, implement and submit to Parker for review and approval, including on-site examination when appropriate, an Electrostatic Discharge (ESD) Control Program Plan in compliance with the requirements of MIL-STD-1686. The Supplier shall package all products susceptible to damage from ESD in compliance with MIL-STD-1686, in static shielding conductive containers meeting requirements of MIL-B-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.

Q480 Protection of Electrostatic (ESD) Sensitive Devices - All voltage sensitive devices delivered on this Contract, including subassemblies and assemblies containing such devices shall be protected from static electricity and transient voltages in accordance with the requirements specified on the drawing or specification under which the devices are procured.

Q485 Aerospace 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.

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.

Q490 Certifications & Test Reports – Electronic Devices - With each delivery of electronic devices and/or components on this Contract, the Supplier shall submit to Parker certifications traceable to the manufacturing and/or screening process. Certifications and test reports shall meet the requirements of section 3.5 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.

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. 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, in the event that it is determined that a defective product condition exists in the lot.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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Q510 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 Contract from each 'plating lot', which represents the lot, delivered to Parker; 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.

Q515 Component Obsolescence Management - The supplier 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. Suppliers program shall address the following issues:

- a. In the event that 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 being considered, parts shall be selected from alternate sources, which are form-fit-function replacements and meet the same quality, reliability, and 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 approval.
- d. When end-of-life buys are being considered, the supplier shall formally notify Parker of its intent and the life time buy requirement shall be negotiated and approved by Parker.
- e. When alternate parts cannot meet form-fit-function requirements or when upgraded parts are being considered, the supplier shall formally notify Parker 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 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
 11. New component quality assurance process, e.g. MIL-SPEC, screening, etc.
 12. What is impact of the substitution on equipment reliability and safety? (report analysis results)
 13. 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 shall be notified of the circumstances that caused the unsupportability of the product. Parker and the supplier will work together to provide, timely, accurate, standardized communications to notify customers of an impending product obsolescence and/or discontinuance.

4.10 Control of Contamination & Foreign Object Damage (FOD)

Q520 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 operations. When applicable, the Supplier's FOD control program shall include controls to preclude FOD or contamination at the Supplier's sub-tier sources. MIL-STD-980 may be used as a guide to establish and implement the Supplier's FOD program. The Supplier's FOD program is subject to on-site review and approval by Parker.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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Q530 FOD Certification – With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled “FOD Certification” which complies with the requirements of section 3.5 herein and is worded substantially as follows:

“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 for review upon request.”

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

4.11 Inspection & Test Reports & Documentation

Q540 1st Article Inspection at Source - Inspection and/or testing and acceptance of 1st Article product by Parker is required prior to delivery of any products on this Contract. The 1st Article product shall be complete, documented per SAE AS9102 and ready for delivery to Parker. The Supplier shall notify Parker at least forty-eight (48) hours in advance so that the inspection and/or testing of the 1st Article product as well as review of supporting documentation can be scheduled and completed prior to the required product delivery date. Upon request, the Supplier shall make available to Parker representatives any measuring and test equipment, facilities and/or personnel to facilitate the 1st Article inspection.

Q550 1st Article Inspection at Parker – The Supplier shall submit a 1st Article product and supporting documentation, as required by current revision of SAE AS9102, for inspection and/or testing and acceptance by Parker prior to delivery of products on this Contract. The 1st article shall be completely processed in accordance with Contract requirements. When authorized by the Contract, the 1st Article product may be included as part of the initial quantity delivered on the Contract and included as part of the total Contract order quantity. In such cases, failure of the 1st Article product to meet Contract specified requirements may result in rejection and return of the delivered production quantity to the Supplier at the Supplier’s expense.

Q560 1st Article Inspection Requirements (FAIR) – The Supplier shall perform a First Article Inspection (FAI) in accordance with the requirements of the current revision of SAE AS9102. Excess products, remaining from a previous production lot, may not be used to fulfill the 1st Article requirements. The Supplier shall furnish a copy of the completed 1st Article Inspection results with the initial delivery of products on the Contract.

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 SAE AS9102, accompanied by copies of Supplier’s manufacturing and processing routing sheets to be used during production. Upon Parker 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 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, with the next delivery of products on the Contract. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement which complies with requirements of section 3.5 and is worded substantially as follows:

“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. Objective evidence to support this certification will be made available for review upon request.”

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

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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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.

Q575 Dimensional Inspection Certification (DIC) – When the Contract is for assemblies or sub-assemblies, where the detail component characteristics can not be verified by Parker upon receipt, a DIC is required. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled "Dimensional Inspection Certification" (DIC) which complies with the requirements of section 3.5 herein, and is worded substantially as follows:

"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 for review upon request."

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

Q580 Supplier Inspection Report (SIR) - When this clause is included in the Contract, Parker 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.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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Q585 Supplier Inspection Report of Classified Characteristics - Classification of characteristics on the drawing is a means by which Parker 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 characteristics are as follows:

C Critical Characteristics: (1) Characteristics that judgment and experience indicates 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%.

A 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%.

I 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%.

M 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 approved sampling plan.

F 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%.

Q590 Final Inspection Report (FIR) – Prior to delivery of products to Parker, 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 Suppliers quality records. Upon request, the FIR will be made available to Parker, or Parker customers or regulatory agencies for review.

Q600 Product Serialization Requirements - Serial numbers for all products on this Contract have been assigned by Parker 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. The assigned serial numbers may not be altered or replaced without written authorization from Parker.

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.

Q607 ATA SPEC2000 Serial Number Formatting – The 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.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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Q610 Acceptance Test Procedure (ATP) Approval - Prior to initial delivery of products on this Contract the Supplier shall submit to Parker, 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. 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 approved ATP shall be submitted to Parker for review and approval prior to incorporation into production.

Q620 Functional Test Data Sheets - With each delivery of products on this Contract, the Supplier shall furnish to Parker 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 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 3.5 herein and be signed or stamped (inspection or functional test/acceptance stamp) by the Suppliers authorized representative.

Q630 Functional Test Certificate (FTC) – With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled “Functional Test Certificate” (FTC), which complies with the requirements of section 3.5 herein and is worded substantially as follows:

“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 are in compliance with all requirements of the Contract. Objective evidence to support this certification will be made available for review upon request.”

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

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, 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. 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, and
- g. any other controls required by the Contract.

Subsequent to Parker approval, any changes in the plan shall be submitted to Parker for review prior to implementing them in production. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement which complies with requirements of section 3.5 and is worded substantially as follows:

“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 approved control plan for Registered components. Objective evidence to support this certification will be made available for review upon request.”

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

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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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, 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, 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:

- Detail sequence of manufacturing operations and the product characteristics generated at each step of the manufacturing process.
- Method, type and points during the manufacturing sequence where special processing (heat treatment, plating, etc.) will be performed and the sources to be used.
- Points during (a) and (b) above, where inspections and/or tests will be accomplished and documented.
- Product characteristics that will be inspected and verified during (c) above.
- Methods of identification, preservation and packaging to be used.
- Handling and transportation precautions that will be implemented.
- Any other applicable controls as required by the Contract.

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.

Subsequent to Parker approval, any changes to the PCD shall be submitted to Parker for review prior to implementing them in production. With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement which complies with requirements of section 3.5 and is worded substantially as follows:

"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 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 for review upon request."

Company Name: _____
 Address: _____
 PCD Number: _____ Revision: _____
 Printed Name of Authorized Individual: _____ Date: _____
 Title: _____ Signature/Stamp: _____

Q650 Qualified Parts Certificate (QPC) - With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement titled "Qualified Parts Certificate", which complies with the requirements of section 3.5 herein and is worded substantially as follows:

"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 for review upon request."

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

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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4.12 Miscellaneous Requirements

Q660 Manufacturers Catalogs, Drawings, etc. - With the initial delivery of products on this Contract, the Supplier shall furnish to Parker 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 to verify product conformance to requirements.

Q665 Repaired & Overhauled Products - With each delivery of products on this Contract, the Supplier shall include on the packing list/shipper or on a separate attached document a written statement which complies with the requirements of section 3.5 herein, describes the work accomplished, and is worded substantially as follows:

"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 for review upon request."

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

Q677 Alcohol and Drug Prevention Program - All Employees performing maintenance or inspection of products scheduled for delivery to Parker shall be included and part of a Federal Aviation Administration (FAA) approved Antidrug 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 121, Appendix I and Appendix J. Evidence of compliance with this requirement shall be made available to Parker upon request

Q700 Manufacturing Quality Instruction (MQI) - 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), ore other designation referenced on the Contract.

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 on this Contract.

Q750 Product FMEA Requirements – The Supplier shall implement Failure Mode & Effects Analysis or a similar tool to use for identifying variation in product characteristics, their effects and causes, and to develop solutions that will minimize/eliminate the effects of variation in products delivered on this Contract. The Supplier's product FMEA program shall be submitted to Parker for review and approval prior to start of work on the Contract.

Q755 Process FMEA Requirements - The Supplier shall implement Failure Mode & Effects Analysis or a similar tool to use for identifying variation in production processes, their effects and causes, and to develop solutions that will minimize/eliminate the effects of variation in products delivered on this Contract. The Supplier's process FMEA program shall be submitted to Parker for review and approval prior to start of work on the Contract.

Q765 Alternate Materials and/or Process Specifications - An alternate specification list applies to this order. The list defines the alternate materials 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 alternate specification list may be obtained by contacting the Parker Buyer shown on the Contract.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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- 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 words “STS”.
- 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 at least seven (7) days before start of production so that Parker may schedule and conduct an on-site review and approve Suppliers equipment, methods, processes and controls to be used during production. Subsequent to approval, any changes proposed by Supplier shall be submitted to Parker for review and approval prior to implementation into production.
- 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 for review and approval Suppliers detail UID marking procedures and methods prior to delivery of products to Parker.
- Q999 Internal Parker Quality Instructions** - Parker Procurement Quality Assurance imposed specific Manufacturing Quality Instruction (MQI) for Parker internal use only.

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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CERTIFICATE OF MATERIALS AND PROCESSES – form
(Ref. P9112 clause Q245)

| | |
|-------------------------------|-----------|
| Part Number | Revision |
| Purchase Order Number | Line Item |
| Packing List / Shipper Number | |

| Material and/or Process Description | Specification / Rev. / Type / Grade / Class, Etc. | Name and Location of Source or Processor and Heat, Lot or Report Number |
|-------------------------------------|---|---|
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This is to certify that all the products delivered on this Contract (number listed above) conform to all applicable drawings, specification and Contract requirements. The data listed above is a true summary of the materials and processes used to fabricate the items on this Contract. Certifications and test reports for the materials and processes listed above are on file and will be made available to the Buyer upon request.

| | |
|--|------|
| Company Name & Address | |
| Signature of Company Official | Date |
| Printed Name and Title of Company Official | |

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| Approved: George Udris Director Product Integrity | Approved: Richard W. Hall Vice President Supplier Management & Integrity |
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