

CESSNA QUALITY REQUIREMENTS

For SUPPLIERS

(CQRS)

Revision G

Approved By:

Teresa O’Leary

Director, Supply Chain Quality

		<u>Rev. Level</u>	<u>Effectivity Date</u>	<u>Description</u>
-	July 1, 1996			Replaces Procurement Document (PD) 100. Revisions clarify supplier requirements, parallel ISO-9000 by reorganizing sections, and cancel Military Specification references by updating to comparable industry standards.
A	June 25, 2001			Replaces CQRS Revision -. Updates reflect Quality System requirements in conjunction with AS9 100, AS7 103 and NADCAP accreditation for special process suppliers. Also included are updated supplier ratings and performance expectations.
B	January 15, 2002			Replaces CQRS Revision A. Updates to stamp control requirements and First Article Inspection Reporting are included. The list of processes requiring Cessna Engineering qualification has been revised. Provisions for identifying preferred special process suppliers and for account debiting to compensate for missed inspections are also included.
C	March 1, 2002			Replaces CQRS Revision B. Updates include changes to NDT reporting requirements for Cessna Design Controlled Castings and wording changes to improve alignment with other Cessna command media.
D	May 3, 2004			Replaces CQRS Revision C. Updates include adding Nadcap, AS9 100 and AS9 120 requirements with additional information links and updating Quality Policy, supplier ratings and performance expectations.
E	March 7, 2005			Replaces CQRS Revision D. Updates include adding Ion Nitriding and Water Jet Cutting as Processes requiring Cessna Engineering Qualification, adding Supplier Tooling Inspection, updates to Raw Material Procurement Requirements, Quality Records, First Article Inspection, Delivery Documentation, Supplier Delegated Inspection Authority and Cessna Material Review Board Disposition.
F	February 1, 2006			Replaces CQRS Revision E. Updates include removing Sealant Manufacturing as a special process, updates to Special Processors, Supplier Tooling Inspection, Cessna Material Review Board Disposition, Delivery Documents, Casting Requirements and added Quality Note and Other Quality Forms requirements.

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June 23, 2006

Replaces CQRS Revision F. Update includes addition of
Advanced Process Planning (APP) to section 5.0 sub-section 5.8.

CESSNA QUALITY POLICY

I am responsible for the quality of my work.
Through continuous improvement of our processes,
we will consistently delight our customers.

CESSNA SUPPLY CHAIN QUALITY'S MISSION STATEMENT

Supply Chain Quality will develop a world class supply chain, by fostering supplier relationships built on trust, partnership and continuous improvement, ensuring products and services delivered to Cessna and Cessna's Customers conform to requirements.

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1.0 SCOPE

This document contractually applies when referenced on Purchase Orders or contracts issued by Cessna Aircraft Company. The Purchase Order flows down applicable Cessna Aircraft Company Engineering drawings and specifications.

The Director of Cessna Aircraft Company Supply Chain Quality must approve deviations to the requirements included herein. Requests for deviation shall be documented and submitted to Supply Chain Quality.

In the event that the purchase order or contract conflicts with the requirements of this document, the purchase order/contract requirement will supersede this document.

2.0 INTRODUCTION

This document establishes Cessna quality system requirements for suppliers who design, manufacture and control respective parts and assemblies as well as suppliers who manufacture products and perform services in accordance with Cessna's designs and requirements. These Cessna quality requirements apply to Manufacturers, Distributors, and Special Processors providing parts/services for Cessna Aircraft Company when this document is specified by inclusion on Purchase Order or contract issued by Cessna Aircraft Company.

2.1 Cessna Supplier Approval

Documented evidence of compliance to the appropriate Quality System Standard along with a successful onsite Cessna Aircraft or Textron Aerospace Company (TAC) Supplier Quality Audit to evaluate the prospective suppliers' documented quality system is required prior to production. This documented evidence may be in the form of registration by an accredited registrar, which is approved for registrations to the required aerospace standard and listed in the OASIS database or an affidavit confirming compliance based on an internal audit or second party audit. Cessna approval is required for all Manufacturers, Distributors, Special Processors, and Inspection Service Providers who supply aircraft parts or services that are part of the FAA-approved design. Interior Fabric/Textile suppliers, or suppliers providing commercial product, (not specifically designed for the aerospace industry), are exempt unless they provide structural, flight critical or restraining system items.

Suppliers' Quality systems will comply with the appropriate Quality Systems Standard along with the Cessna specific quality requirements for Manufacturers, Distributors and Special Processors as applicable.

All written and oral communications with the supplier, as well as, the supplier's specifications, procedures, and reports shall be in English.

Suppliers of multiple part components (assemblies) and parts requiring special processing may be required to present to Cessna Aircraft Supply Chain Quality a documented plan prior to production. The plan must include how the Cessna Quality requirements will be flowed down during the production process. Additionally, a Special Process Pre-Audit may be required for new suppliers prior to production.

CQRS flows down the quality system requirements of Code of Federal Regulation, Federal Aviation Regulation (FAR) 21.143 and defines additional inspection requirements. In addition, it advises suppliers that their quality system, facilities, and those of any sub-tier supplier are subject to site evaluation/audits by Cessna, and regulatory agencies.

2.2 Cessna Supplier Re-Approval

Supplier approval shall be re-evaluated at least every three years by Cessna Supply Chain Quality. Re-approval will be subject to Cessna Supply Chain Quality analysis regarding the supplier's quality performance history and/or any significant changes in the supplier's Quality system.

It is the responsibility of the supplier to provide to Cessna a written statement of any changes in the supplier's management, ownership, location/address, and/or quality system. Any of these changes may require Cessna Quality re-approval. This notification shall be sent to the Cessna Supply Chain Management department with a copy provided to Cessna Supply Chain Quality. Upon receipt of this written notification, Cessna will determine what type of re-approval activities is required.

2.3 Supplier Performance Monitoring

The Cessna Aircraft Company evaluates supplier performance in the areas of Quality, Reliability, Schedule and Cost as applicable in accordance with Supplier Tracking And Rating System (STARS) criteria.

These criteria, along with supplier-specific Quality data may be reviewed at www.supplier.cessna.com. Follow instructions at that location for accessing information as applicable. Proper completion and submittal of a Supplier Corrective Action Notice (SCAN) (Form X-359) is required when Quality performance reaches a quality rating of 5. SCAN forms and instructions are also included at www.supplier.cessna.com. The STARS Quality Acceptance Rating is based on a parts per million defective (PPM) calculation. Nonconformances indicated on Rejection Disposition Reports-Supplier (SRDR), submitted and approved prior to shipment or source inspection will not be included in the PPM calculations.

2.4 Quality Systems Audit and Source Inspection Responsibility

Cessna is responsible for monitoring supplier performance to ensure compliance to Quality requirements. The supplier is responsible for complying with Quality System requirements noted herein and for meeting Quality performance expectations. Failure to comply with Quality System requirements or to achieve an acceptable Quality performance level may result in an on-site audit or additional source inspection oversight being required by Cessna, at the supplier's expense. Cessna reserves the right to debit or invoice supplier accounts to compensate for inspection or related activities that take place as a result of Cessna-directed inspections, including source inspections, being bypassed by the supplier.

3.0 QUALITY SYSTEM REQUIREMENTS

3.1 Manufacturers:

Cessna requires new suppliers to have a quality management system that complies with the (AS/EN/JISQ) 9100 Quality Management Systems – Aerospace – Requirements. Copies of AS standards can be purchased from SAE International at www.sae.org.

Suppliers who hold design authority and who also manufacture materials, components, or assemblies must employ a documented quality system that is compliant with the requirements outlined in this document, the current requirements of (AS/EN/JISQ) 9100 as applicable, applicable Cessna Purchase Order Quality notes, and Cessna Supplemental Quality requirements (Reference CQRS 4.0).

Suppliers who do not hold design authority but who only manufacture materials, components, or assemblies in accordance with Cessna Aircraft Company design documents must employ a documented quality system that is compliant with the requirements outlined in this document, the current requirements of (AS/EN/JISQ) 9100 as applicable, applicable Cessna Purchase Order Quality notes, and Cessna Supplemental Quality requirements, except the design control requirements will not apply.

Suppliers shall identify the company and/or location that a special process is performed either on the packing slip, other shipping documentation (e.g. certification), or supply documentation from the company / facility properly identifying itself as the special processor. This shall include sub tier suppliers and facilities within the contracted supplier's own organization that are at locations other than where parts / material are shipped from.

3.2 Special Processors:

A list of all processes requiring Cessna Supply Chain Quality approval can be found at the following website: www.supplier.cessna.com/cgi-bin/quality/capability_view.pl

Any special processor completing processing on a Cessna design controlled product, to the specifications at the above mentioned website, will require an approval by Cessna Supply Chain Quality prior to completion of any of the processes.

To achieve approval by Cessna Supply Chain Quality, an on-site audit is required of the suppliers QMS (Quality Management System) and processes to be approved is required. The QMS audit may be waived for suppliers accredited to (AS/EN/JISQ) 9100 performed by registrars that are approved and listed in the IAQG Oasis database. (www.iaqg.org/oasis) or Laboratories accredited to (AS/EN/JISQ) 9100 or ISO17025. The ISO 17025 scope of accreditation must cover the Nadcap scope of accreditation and be from an approved NACLA / ILAC accreditation body. In addition, special processors shall achieve and maintain Nadcap/NUCAP accreditation in order to be listed as a Cessna preferred special processor. Nadcap/NUCAP accreditation is required in the following disciplines:

- Non-Destruction Testing (RT, UT, PT, and MT)
- Chemical Processing (painting, plating, anodize, etch and various other wet processing)
- Heat Treating (including furnace brazing)
- Welding and Brazing
- Non-conventional Machining and Surface Enhancements - Surface Enhancement only (shot peening)
- Materials Testing Laboratories (raw material testing)

Information regarding the Nadcap/NUCAP process can be found at <http://www.pri.sae.org/NADCAP/nadcap.htm>.

It is the supplier's responsibility to ensure that Supply Chain Quality is notified regarding any change of Nadcap/NUCAP certification status.

Questions regarding special process approval should be directed to Cessna Supply Chain Quality.

3.3 Pass Through Distributors

A Pass Through Distributor is defined as a supplier that procures parts, materials, and assemblies and sells these products to a customer without affecting product characteristics or conformity. Pass Through Distributors of materials, parts, or assemblies must employ a documented quality system that is compliant to the (AS/EN/JISQ) 9120 quality management system standard, and Cessna Supplemental quality requirements as applicable.

4.0 SUPPLEMENTAL QUALITY REQUIREMENTS 4.1

Deliverable (Airborne) Software Quality Control

The applicable version of RTCA (Requirements Technology and Concepts for Aviation)/DO-178, "Software Consideration in Airborne Systems and Equipment Certification," or its equivalent, shall be used as guidance during development, certification and management of airborne software.

4.2 Stamp Control

An inspection stamp system shall be established and maintained for Cessna design controlled parts in accordance with the following requirements:

- a) Inspection stamps shall be designed to be identifiable to the supplier and the supplier's inspector who affixes the stamp;
- b) Stamps shall be used to verify in-process manufacturing and inspection operations (e.g., heat treat, radiographic, magnetic particle or ultrasonic testing, and MRB);

- c) For all Cessna Aircraft Company design-controlled part numbers, acceptance by the supplier of items to be delivered to Cessna shall be indicated by means of the supplier's final acceptance stamp on all parts;
- d) When direct use of the in-process manufacturing, inspection, or final acceptance stamp is impractical due to size, construction, oil or finish-paint, the stamp shall be applied to an attached tag, label, plate, or bag containing the part;
- e) For all Supplier-controlled part numbers, acceptance by the supplier of items to be delivered to Cessna shall be indicated by means of the supplier's Quality representative certifying compliance with approved engineering requirements. Documentation of this certification shall be included with each shipment. Individual parts will be final acceptance stamped in accordance with the supplier's approved quality system;
- f) Non-issued stamps shall be kept secure to prevent unauthorized use.

4.3 Required Tooling

To aid in the manufacture of Cessna designed parts, Cessna has established a tool hierarchy. The following is Cessna's tool hierarchy and a tool code acronyms listing of the most commonly specified tools. For manufacturing and inspection purposes drawing tolerances are to be applied to nominal features of this required tooling.

Master Tool – A tool that is used as the controlling media for all applicable tools (assembly jigs, control tools, etc.) and their critical features (major aircraft sections mating attach points, tool holes, lofted surfaces, etc.).

Control Tool - A pattern or model (either hard physical or electronic formatted tool) depicting part configuration and used as the controlling media for part fabrication and acceptance. Control Tool is a compilation of engineering design data and tolerances, manufacturing requirements and inspection criteria.

Master Tools

<u>EMM</u> Electronic Master Model	<u>EMTT</u> Electronic Master Tooling Template
<u>FCG</u> Facility Control Gauge	<u>FG</u> Facility Gauge
<u>MCG</u> Master Control Gauge	<u>MG</u> Master Gauge
<u>MHLT</u> Master Hole Loc. Template	<u>MM</u> Master Model
<u>MTT</u> Master Tooling Template	<u>MTTC</u> Master Tooling Template Cad
<u>TRG</u> Transfer Gauge	

Control Tools

<u>ASP</u> Assembly Sample Part	<u>BSP</u> Bond Sample Part
<u>CDG</u> Cad Geometry	<u>CDLT</u> Cad Developed Layout Template
<u>CDPT</u> Cad Developed Ply Template	<u>CF</u> Check Fixture
<u>CG</u> Cad Geometry	<u>CGNT</u> Cad Geometry Non-Physical Template
<u>CGPL</u> Cad Geometry Ply Layout	<u>DLT</u> Developed Layout Template
<u>MDM</u> Manufacturing Detail Model	<u>PM</u> Physical Model
<u>SP</u> Sample Part	

Suppliers furnishing an initial order of parts from newly manufactured, modified or reworked tooling must submit an Advance Notification via supplier.cessna.com Tooling Quote System. A copy of this notification and the first article documentation need to accompany the first article parts. The Advanced Notification is required prior to payment for the tool.

4.4.2 Cessna-Furnished Tools

4.4.2.1 Suppliers are obligated to ensure proper care and upkeep of Cessna-furnished tooling and to notify Cessna Aircraft Company immediately if tooling damage, significant wear or loss occurs.

4.4.2.2 Cessna Tooling Inspection will notify the supplier's Quality Assurance Manager by letter, when periodic inspections are due, transmitted by facsimile or by mail. The notification will consist of a listing of the tools and the dates the inspections are due. The supplier's Quality Assurance Inspector will date, stamp and sign the letter certifying the periodic inspections are complete and return the letter to Cessna Tooling Inspection by facsimile or by mail. The data will then be transferred to the Periodic Tool Certification System and Cessna Tooling Inspection will retain the current letter until the next periodic inspections are complete. The supplier's Quality Assurance Manager will facilitate having the tooling and tooling log inspection stamped to note the completion of the periodic inspection.

4.4.3 Inspection of Tools used by Suppliers

4.4.3.1 Production Tooling - Suppliers' tooling control process shall ensure tooling that controls or checks the final configuration of Cessna design controlled production parts and assemblies are inspected to ensure compliance of parts and assemblies to tool design, master control tools and to Cessna engineering requirements, a minimum of once per year.

4.4.3.2 Spares Tooling - Suppliers' tooling control process shall ensure that tooling that controls or checks the final configuration of Cessna design controlled out of production spare parts and assemblies are inspected to ensure compliance of parts and assemblies to tool design, master control tools and to Cessna engineering requirements a minimum of once per year or prior to each use, if the tooling is not used frequently. 100% part inspection in lieu of tooling inspection may be used to determine and ensure compliance to Cessna engineering requirements.

4.5 Processes Requiring Cessna Engineering Qualification

Any supplier contracted to perform any of the processes listed below in accordance with a Cessna specification, on Cessna articles, is required to obtain an additional facilities qualification from Cessna Materials and Process Engineering (M&P).

- Metal Surface Preparation:

CSFS003	Adhesive Primer Application
CSNP008	Chromic Acid Anodizing for Structural Bonding Applications
CSNP057	Phosphoric Acid Anodize for Adhesive Bonding
CSMP001	Ion Nitriding

Note: The facility qualification for CSFS003, CSNP008, and CSNP057 will be in accordance with CSNP015.

- Metal Bond Processes:

CSNP017	Manufacture of Sandwich Structures with Metal Skins
CSNP018	Manufacture of Phosphoric Acid Anodized Adhesive Bonded Structures
CSNP061	Requirements, Metal Bonded Assemblies for Single, Piston Engine Aircraft
CSNP063	Requirements, Bonded Aluminum Assemblies, Room Temperature and Oven Cure
CSNP064	Requirements, Bonded Aluminum Assemblies, Autoclave Cure

Note: The facility qualification for CSNP017, CSNP018, CSNP063 and CSNP064 will be in accordance with CSNP015.

- Composite Processes:

CPAC001	Fab and Insp Procedure for Models S550, 552, and 560 Graphite Composite Flaps and Ailerons
CPAC002	Fab and Insp Procedure for Model 650 Graphite Composite
CPAC003	Manufacture of Model 208 Crew Door
CPAC010	Fabrication and Inspection Procedure for Model 750 Carbon Composite Assys.
CSAC001	Mfg. of Noncritical Fiber-Reinforced Polymer Matrix Composite Assys
CSAC002	Mfg. of Noncritical Fiber-Reinforced Polymer Matrix Composite Ducts
CSAC003	Press Molding of Critical and Noncritical Composite Structures
CSAC005	Manufacture of Critical Fiber Reinforced Polymer Matrix Composite Assemblies
CSAC006	Fabrication of Resin Transfer Molded Composite Assemblies

CSNP001	Manufacture of Low Pressure Fiber Reinforced Plastic Thermosetting Resin Laminates
CSNP007	Manufacture of PVC Foam Sandwich Interior Panels
CSNP014	Manufacture of PVC Foam Sandwich Interior Panels

Note: The facility qualification for the above specifications will be in accordance with CSNP009.

• Other Applicable Qualification Documents:

CSNP009	Engineering Qualification of Facilities and Suppliers for the Mfg. of Composite Assys
CSNP015	Engineering Qualification of Facilities and Suppliers for Metal Bonding
CSNP016	Engineering Qualification of Curing Devices
CSNP035	Sealant Application
CPTI001	Burn Testing
CSMP002	Water Jet Cutting

4.6 Part Number (P/N) Identification

The supplier shall assure that the articles and materials provided are correctly identified per applicable drawings, specifications, or other documents. For example if the articles and materials are Cessna design controlled or defined by a Cessna Specification Control Drawing, then they shall be identified with the applicable Cessna P/N. Parts that are not Cessna design controlled shall have the supplier P/N applied to the part. Part marking shall be accomplished by permanent ink stamping of the parts, when the identification method is not specifically regulated by the drawings, specifications, or other documents. Parts that are too small to be surface marked legibly shall be part number tagged either individually or by the bundle. P/N identification shall be traceable to appropriate supplier quality records.

4.7 Metallic Raw Material

Procurement Requirements for Materials (Qualified Producer Lists - QPLs)

Cessna M&P Engineering approval is required for purchase of all aluminum and titanium wrought material, outlined in a Cessna Procurement Specification QPL, purchased for a Cessna assigned part number.

- Definition of wrought material for the purpose of this note does not include material used to produce forgings and castings.

Qualified producers are listed in the appropriate Cessna Procurement Specification QPL. If a supplier wants to request an additional mill be added to a QPL, the request should be forwarded to Cessna M&P engineering through the supplier's Cessna Supply Chain Management (SCM) representative per the following guidelines:

1. A facility visit, by Cessna team members, may be required.
2. Seventy (70) data points from at least seven (7) lots of materials are required for review by Cessna M&P Engineering.

4.8 Quality Access

The supplier guarantees the right of access to their facilities and quality related data, to the regulatory authorities and Cessna Aircraft Company. This right of access is extended to all sub-tier and raw material suppliers.

4.9 Quality Records

The supplier shall establish and maintain a record system to retain records for a minimum of seven (7) years after product shipment. Suppliers of serialized assemblies under Cessna Design Control (i.e. assemblies with MS27253-1 ID Plates) shall retain assembly inspection records and delivery records, including all bonded assembly inspection records, for the life of the aircraft.

4.10 First Article Inspection

The supplier shall perform a first article inspection, on a part from each first lot shipment of parts, to verify all engineering characteristics. Variable gauging shall be used when possible. If a first article was delivered as part of an experimental order, designated by a PO ending in 18, a copy of the first article inspection report shall be required with parts delivered on the first production PO. Suppliers shall comply with AS9 102 for all first article inspections. The FAIR (First Article Inspection Report) shall be retained as a Quality Record at the supplier's facility and a copy shall be submitted to Cessna Aircraft Company along with the first lot shipment.

A Cessna source inspector at the supplier's facility may verify FAIR's. The verification of the part conformity will be noted on the X-159 Source Inspection Form or by direct data entry into Cessna's electronic IP system. FAIR's verified by Cessna source inspectors, do not need to be forwarded to Cessna. The supplier is required to keep on file the first article inspection reports per CQRS record retention requirements.

4.11 Conformity Requirements

Requirements for conformity will be communicated through Purchase Order Quality notes or direct correspondence from Cessna. Additional information is available within the quality notes text at www.supplier.cessna.com

4.12 Nonconforming Material Control

4.12.1 Cessna Material Review Board Disposition

Cessna's MRB disposition is required when material is found to depart from Purchase Order requirements and cannot be reworked without affecting form, fit, or function. To obtain Cessna MRB disposition the following steps are required:

- a) The Supplier shall initiate a Supplier Rejection Disposition Report for articles under Cessna design control, which are nonconforming using the online Supplier Rejection Disposition Report application on www.supplier.cessna.com

- b) Instructions for the use of the on-line Supplier Rejection Disposition Report application are available on www.supplier.cessna.com.

Upon receipt of the disposition through the online Supplier Rejection Disposition Report application the supplier shall perform the following:

- a) Rework/repair in accordance with instructions documented by Cessna MRB on the dispositioned SRDR form.
- b) Inspect the reworked/repared articles in accordance with documented procedures. The supplier's authorized quality representative must indicate this inspection with the supplier quality representative's inspection stamp on the SRDR form. These articles shall be identified with the SRDR number provided by the online Supplier Rejection Disposition Report application. If this identification is impractical due to product size, identification shall be in accordance with CQRS Section 4.6. For serialized assemblies under Cessna Design Control (i.e. assemblies with MS27253-1 ID Plates) the supplier may tabulate the applicable SRDR numbers on a log and include the log in the assembly delivery document package in lieu of stamping the assembly and associated detail parts with the SRDR number. A copy of the log shall be attached to the assembly.
- c) Copies of all SRDRs will be retained by the supplier as part of the supplier's inspection records.
- d) Ship the acceptable articles and include a copy of the completed SRDR form. The applicable SRDR number(s) shall be referenced on the shipping documentation. Suppliers of serialized assemblies under Cessna Design Control (i.e. assemblies with MS27253-1 ID Plates) are not required to include a copy of the completed SRDR form in the delivery document.

4.12.2 Latent Defect Reporting

In the event a condition is discovered that affects previously delivered product, Cessna shall be notified in a timely manner of the condition. Notification shall be in the form of letters addressed to the attention of Cessna Supply Chain Management and Cessna Supply Chain Quality Departments. These letters must include all pertinent information concerning the condition (i.e. part numbers, serial number, quantities, time frame, description of condition, etc.) and the corrective action taken to prevent recurrence.

4.13 Delivery Documentation

All Cessna suppliers classified as Manufacturers, Special Processors, and Distributors are required to use Aerospace, (a web based software solution) to provide required delivery documents to Cessna. Aerospace contact information is available at www.aerospac.com.

To phase in this new requirement Cessna suppliers are required to subscribe to Aerospace and provide delivery documents through the Aerospace process on the schedule outlined below.

<u>Commodity</u>	<u>Suppliers on Aerospace by:</u>
• Raw Material and Standard Catalog/Hardware	April 28, 2006
• Fabricated Parts and Sub-Assemblies	July 28, 2006
• Major Aircraft Systems	Sept 29, 2006
• Avionics and Propulsion	Dec 1, 2006

The supplier shall provide delivery documentation denoting acceptance for each end-item delivered in accordance with the purchase order/contract. The contents shall include lists of all subcontracted special process suppliers (ref. Section 3.2) and part serial numbers as applicable, material and process certifications, and all other applicable documents such as First Article Inspection reports, Open Work Logs, etc. The format of this documentation should be in accordance with the purchase order/contract and signed by the supplier's authorized representative. The supplier must identify actual manufacturer/ manufacture of origin on the packing sheet, if the end item manufacturer is a company other than themselves. If the items/hardware provided by the supplier are covered under the Fastener Quality Act, then the following information must be provided by the supplier on the packing sheet and as a label on the individual packages: (1) Part number, (2) lot number, (3) name of actual manufacturer, and (4) date of manufacturer.

4.14 Cessna Aircraft Company Granted Authority

4.14.1 Supplier Delegated Inspection Authority (SDIA)

SDIA may be granted to suppliers. Supplier's may request SDIA through their Cessna commodity team quality representative or may be recommended for SDIA by a Cessna commodity team. Cessna Supply Chain Quality is responsible for the final approval of all SDIA candidates. When the supplier and Cessna mutually agree to work towards Supplier Delegated Inspection Authority (SDIA), a timeline for the implementation will be set. If that timeframe is exceeded due to poor quality performance, supplier-funded source inspection may be implemented until the supplier attains SDIA.

4.14.2 Material Review Board (MRB) Authority

Cessna delegated MRB authority is limited to minor deviations and granted on a limited basis to key suppliers. Suppliers may request approval of their MRB through Cessna Supply Chain Quality. Cessna Supply Chain Quality will coordinate the MRB authority approval with Cessna Engineering.

Cessna reserves the right to reject any disposition made by the supplier's MRB.

4.15 Authorized FAA Representatives

Authorized FAA Representatives (e.g. DMIR, ODAR, DOA Inspection, AR) are allowed to conduct inspections. An authorized FAA Representative's function at a supplier, once approved by the FAA, is limited to those inspection activities conducted for Cessna.

In order to qualify for supplier Authorized FAA Representative appointment for Cessna, the representative must:

- a) Be an employee of a Cessna Quality-approved supplier;
- b) Be recommended to the FAA by Cessna and the supplier;
- c) Be approved by the FAA to perform Authorized Representative inspection activity on Cessna products;
- d) Meet qualifications as outlined by the local FAA Manufacturing Inspection District Office.

Supplier Authorized FAA Representative appointment is initiated by issuing a letter of recommendation from the supplier to the FAA Manufacturing Inspection District Office (MIDO) for the geographic area in which the supplier is located. FAA Form 8110-14 in duplicate shall accompany the letter of recommendation. Additionally, a letter of recommendation from Cessna, which can address any special recommendations or limitations, shall accompany the supplier's letter of recommendation and FAA Form 8110-14. Cessna also sends a copy of the recommendation letter to their local MIDO for review and approval.

The supplier's local FAA MIDO will conduct a review of the applicant, and will forward the applicant's qualifications to the cognizant FAA Regional Office. If approved, the cognizant FAA Regional Office will forward a copy of FAA Form 8430-9, and any supplements thereto, to Cessna's local FAA MIDO.

A supplier Authorized FAA Representative conducts inspections to determine that:

- a) Prototype products and parts conform to design data;
- b) Production products and parts conform to the approved design data and are in a condition for safe operation.

All conformity inspections of prototype products and related parts conducted by Authorized FAA Representatives at suppliers will be at the request of the Authorized FAA Representative's managing FAA office. In all instances, the supplier shall complete the inspection of the products and related parts before submitting them for Authorized FAA Representative inspection. The Authorized FAA Representative conducts inspections as a designee of the FAA rather than an employee of the supplier.

5.0 ADDITIONAL REQUIREMENT INFORMATION

5.1 Cessna Design Controlled Castings

Castings shall be produced in accordance with engineering drawings, specifications, and as specified on purchase orders or contracts.

Castings shall be procured from qualified producers specified in CSTI004 and shall be classified and inspected to show compliance to all CSTI004 requirements. Classes govern the frequency of inspection while grades control casting quality.

Castings submitted for foundry control approval shall include an accurately dimensioned layout per CSTI004. Refer to CSTI004 for Prototype and Production lots.

Suppliers shall assure that gating, pouring and other practices are producing castings, which meet drawing, and specification requirements through examination of castings by Cessna approved sources, by nondestructive testing as required.

Castings shall be identified in-accordance-with CSTI004 and CSTI029 with the following exceptions:

- As applicable, castings shall be identified with the part number, heat lot number, date of manufacture (the date after final processing and prior to shipment), processing stamps and x-ray control number.
- At a minimum, heat lot numbers shall be identified on each casting when casting size will not allow complete marking and identification. All other information shall be provided on tags affixed to 100% of the casting lot.

When drawings specify a pressure requirement, suppliers shall conduct “burst” and “leak” tests documenting accomplishment by applying a suitable stamp on each casting.

Casting suppliers furnishing castings to sub-tier suppliers to perform fabrication operations shall ensure foundry control approval by Cessna Material and Process Engineering prior to shipment. Suppliers procuring castings from qualified casting suppliers for subsequent fabrication shall maintain documented casting foundry control approval for each casting part number procured prior to performing any fabrication operations.

Suppliers shall not change casting sources without prior Cessna approval. Machining shall not be performed until required testing is completed in accordance with the requirements of CSTI004 by an approved testing laboratory and/or Cessna Technical Laboratory.

5.2 Cessna Design Controlled Forgings

Forgings shall be procured on the basis of physical and chemical tests documenting compliance to engineering drawings and applicable specifications. Deviation from, or substitution of material specified on engineering drawing is prohibited. Suppliers shall assure proper match of dies, die pressure, metal temperature, and other controls necessary to the production of forgings, which

meet drawing and specification requirements. Controls shall consist of magnetic particle, penetrant, ultrasonic inspection and other approved methods of determining compliance.

The first shipment of forgings shall include an accurately dimensioned layout of one forging from each die. It shall also include grain flow sections per the engineering drawing. If the grain flow sections are not marked on the engineering drawing, please contact Cessna M&P Engineering. Any subsequent major die rework or process change will require first article approval.

Initial shipments may be held in Cessna Receiving Inspection until Cessna Supply Chain Quality and M&P Engineering grant part number-based forging approval. Once part number approval is granted, the manufacturer will not change forging sources without prior Cessna approval. Part number re-qualification will be required for the new source.

When required by purchase order, engineering drawing or specification, upon receipt of forgings, one forging from each lot or heat batch shall be rough machined, heat treated when applicable, and then subjected to complete physical and chemical tests. Copies of these tests shall be forwarded to Cessna Receiving Inspection prior to processing the lot.

Suppliers shall identify all forgings with part numbers, heat number, lot number, and serial number when required by drawing, specification and/or purchase order.

Forgings shall be corrosion proofed and packaged to prevent damage during handling and shipment. When required, test bars and chemical/physical property reports shall be supplied with each lot.

Discrepant forgings considered usable by suppliers shall be processed through the Cessna Material Review Board. Cessna reserves the right to scrap any forging determined to be unusable at the supplier's expense.

Suppliers shall retain records of all inspections, tests, analyses, discrepancies and certifications for a period of time compatible with Cessna requirements.

5.3 Military/Standard Specification Hardware

Suppliers shall deliver military/standard specification hardware (AN, MS, NAS, etc.) compliant with the latest document revision, unless otherwise specified by Cessna.

5.4 Fastener Quality Act

Suppliers shall comply with the latest revision of the Fastener Quality Act (FQA).

5.5 Engineering Data

Suppliers shall notify Cessna purchasing department when engineering data in suppliers' possession does not agree with the latest revision data reflected on the Purchase Order or associated OPSS (Outside Production Specification Sheet), or when additional specifications or drawings not listed on the purchase order are required by controlling engineering data.

5.6 Quality Notes

Suppliers shall obtain and comply with the latest released Quality Note revisions available at www.supplier.cessna.com.

5.7 Other Quality Forms

Suppliers of serialized assemblies under Cessna Design Control (i.e. assemblies with MS27253-1 ID Plates) shall use the following forms as applicable. Forms and form instructions are available on www.supplier.cessna.com.

Form X-3 1 (Class A Bond Assembly Accountability Log)

Form X-126 (Change verification)

Form X-374 (Open standing Work)

Form X-382 (Supplier Open work Log)

5.8 Advanced Process Planning (APP)

If the APP process has been referenced as a requirement for the Request for Purchase / Request for Quote (RFP/RFQ) that you received from Cessna, the following information will help to guide you through the process. Please note that the completed APP must be returned along with the completed RFP/RFQ. If you should have any questions pertaining to the APP process please contact the SCM representative that sent you the RFP/RFQ package. They will direct your questions to the appropriate SCQ representative.

Developing a closer alliance with suppliers

➤ Quality Expectations

Quality is defined as providing products and services that meet customer needs and expectations during the life of a product or service. Meeting engineering requirements must be augmented with the expectation of the supplier implementing a continuous improvement process that will minimize the variables in a process. Cessna's customers have the expectation that Cessna's Quality organizational philosophy holistically encompasses this drive towards continuous improvement both within Cessna and within Cessna suppliers. Cessna Aircraft Company expects 100% quality parts with 100% on-time delivery. To this end, Cessna Aircraft Company is committed to assisting its suppliers in developing and implementing Advanced Process Planning, a quality/company improvement tool.

➤ Advanced Process Planning (APP)

Advanced Process Planning (APP) is essential to enable continuous improvement, prevention of defects and optimization of processes. APP is expected during all phases of product and process development. APP exists in a fluid environment that requires constant maintenance throughout all phases of the product life cycle.

Evidence that procedures exist and are utilized in APP for new and existing components is not only a Cessna Aircraft Company requirement but an expectation. Cross-functional teams are expected to complete these planning processes.

The APP methodology is not limited to but shall include the following as appropriate to products and/or processes:

- Process flow map
- Cause & Effect Matrix (C&E Matrix)
- Failure Mode and Effects Analysis (FMEA- design & process)
- Control Plans
- Action Item List
- Packaging plan
- Pre-production approval
- Purchased part control

Your respective company will be notified of the APP requirement when you receive an RFP/RFQ from Cessna Supply Chain Management. The APP shall be separate from the business proposal but shall be returned along with the business response to the Cessna RFP/RFQ.

□ **Process Flow Map**

Flow maps depict the flow of materials/components during the manufacturing stages. All in-house production inspection/test, quality control inspection/test and manufacturing steps should be depicted. Sub-tier suppliers that are feeding the process by providing material, hardware, manufacturing and special processing shall also be depicted on the flow map including known lead-times.

□ **Cause and Effect Matrix**

The Cause and Effect Matrix (C&E Matrix) should be used to help identify the key inputs (x's) that were identified in the Process Flow Map. The C&E Matrix also lists the customer (Cessna) expectations in a ranked fashion. The C&E Matrix is a tool that will help the supplier identify potential manufacturing process failures and the respective impact to the customer (Cessna). The ranking of the potential failures within the C&E matrix can then be copied into the FMEA.

□ **Failure Mode and Effects Analysis**

Failure Mode and Effects Analysis (FMEA) is utilized to identify all potential failure modes associated with the manufacturing and processing associated with the product. FMEA is utilized in both product, manufacturing and, when applicable to your interaction with Cessna, design process analysis.

Design and Process FMEAs (DFMEA and PFMEA) are to be completed by supplier cross-functional teams.

□ **Control Plans**

A control plan is a document that addresses the potential failure modes [critical inputs (x)] identified in the FMEA. The Control Plan should address the high drivers issues identified in the DFMEA and PFMEA.

□ **Action Item List**

The Action Item list shall be used as the means of communication between the supplier and Cessna of closed items that were identified in the FMEA. Every Action Item must have the

responsible person identified as well as an expected closure date. The Action Item List will be reviewed during a set meeting (as determined by both Cessna and the supplier).

The initial Process Control Plan shall be submitted along with the initial Process Flow Map and FMEA. These documents will be reviewed by Cessna Aircraft Quality Engineers and will be utilized in the source selection process.

The returned RFP/RFQ, which is accompanied by an APP, shall not presume correction of any Cessna Aircraft Company actions identified in the APP process.