

# **CESSNA SUPPLIER GUIDELINES and REQUIREMENTS for ENGINEERING CERTIFICATION PROJECTS**

**Revision -**

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# CESSNA QUALITY POLICY

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

## **PURPOSE**

To define conformity tasks, documentation, engineering requirements and processes that must be adhered to for certification of Cessna articles that are manufactured by suppliers and conformed by the supplier, Cessna, or the Cessna ODA quality unit members for Cessna certification projects.

## **REFERENCES**

- Cessna ODA Manual, ODA-100129-CE
- CFR 14 Part 21, Certification Procedures for Products and Parts
- FAA Form 8100-1, Conformity Report
- FAA Form 8100-9, Statement of Compliance with Airworthiness Standards
- FAA Form 8110-3, Statement of Compliance with the Federal Aviation Regulations
- FAA Form 8120-10, Request for Conformity
- FAA Form 8130-13, Designee Geographic Expansion Authorization
- FAA Form 8130-3, Authorized Release Certificate
- FAA Form 8130-9, Statement of Conformity
- FAA Order 8110.4, Type Certification

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## **1.0 SCOPE AND INTRODUCTION**

This document describes specific activities for limited manufacturing of articles and testing for engineering certification purposes by suppliers for Cessna. It covers activities whereby articles, Acceptance Test Procedures (ATP), and Qualification Test Procedures (QTP) are accomplished to engineering design definition for eventual certification purposes. The requirements herein adhere to FAA Order 8110.4, Type Certification Chapter 5.

FAA Order 8110.4 provides guidelines for engineering type design and inspection for conformity and is intended to provide a means for the acceptable inspection and FAA delegate verification methods to conform articles and test set ups for certification.

## **2.0 Definitions and Forms**

ACO: FAA Aircraft Certification Office

Applicant Representative: Cessna individual or representative from a Cessna authorized supplier (per FAA Order 8110.4 (current revision), this does not have to be name specific) that performs conformity inspections and documents findings on FAA Form 8130-9.

ATP (Acceptance Test Procedure): Approved procedure for testing an article's performance to determine compliance to engineering requirements.

Cessna Authorized Supplier: Functional supplier that is issued a purchase order to perform conformity inspection (FAA Form 8130-9) on Cessna's behalf. For engineering programs this can be the name and address described on the FAA Form 8120-10, Request for Conformity.

Cessna TC ODA Inspection Administrator: Acts on behalf of the FAA and is responsible for coordination and performance of conformity inspection activity with Cessna and supplier delegates and representatives.

DO-160, Environmental Conditions and Test Procedures for Airborne Equipment: Basis for standard procedures and environmental test criteria for testing airborne equipment.

ECM (Engineering Coordination Memo): Defines specific understanding between Cessna engineering and supplier for engineering certification efforts.

FAA Form 8100-1, Conformity Inspection Record: FAA form that indicates the results of a conformity inspection. Form must include dispositions of deviations by a Cessna TC ODA Engineering UM.

FAA Form 8100-9, Statement of Compliance with Airworthiness Standards: FAA form to be completed by a designated FAA representative. This form indicates that the defined engineering data has been examined in accordance with established procedures and found to comply with applicable Airworthiness Standards. It is used as FAA approval of configuration data and in support of certification compliance reports.

FAA Form 8110-3, Statement of Compliance with the Federal Aviation Regulations: FAA form to be completed by a designated FAA representative. This form is to be used when approving data associated with a certification activity. This form can function the same as FAA Form 8100-9.

FAA Form 8120-10, Request for Conformity: FAA form used to request that an FAA conformity inspection be performed. Requests are made by an FAA engineering representative (Cessna ODA TC Engineering UM).

FAA Form 8130-13 Designee Geographic Expansion Authorization: FAA form used to apply for approval if a representative is to be performing conformity activities for certification functions outside of the managing MIDO's geographical area.

FAA Form 8130-3, Authorized Release Certificate: FAA form used to identify items that meet applicable regulatory requirements and are approved for its intended purpose. This form is completed after the FAA Form 8100-1 inspection is completed and any unsatisfactory conditions have been cleared. The FAA Form 8130-3 must accompany a conformed component if it is shipped from one facility to another (originals are to be mailed the Cessna TC ODA Inspection Administrator).

FAA Form 8130-9, Statement of Conformity: FAA form stating that the article has been inspected and corresponds to the design data. This form is to be completed by Cessna inspection as the applicant or a supplier representative. The need for this form is established via a PO quality note or a letter from Cessna's experimental quality department.

MIDO: FAA Manufacturing Inspection District Office

Nonconformance: Any findings identified during a conformity inspection whereby the article does not meet engineering definition. These nonconformance findings are also referred to as "unsats" when documented on FAA Form 8100-1, Conformity Inspection Record.

QTP (Qualification Test Procedure): Approved procedure for testing an article's performance in extreme conditions to determine compliance to engineering and FAA requirements.

SRDR (Supplier Rejection Disposition Report): Web Based application for suppliers to report nonconformances and request engineering dispositions (accessible through [www.supplier.cessna.com](http://www.supplier.cessna.com)).

TC ODA (Type Certificate Organization Designation Authorization): Engineering certification projects are certified under ODA granted to Cessna by the FAA. In this capacity, Cessna performs the design approval of all technical data, including supplier technical data.

TC ODA Engineering UM (Unit Member): Cessna authorized delegate that approve engineering technical data within the limits of their authority. They may also witness FAA compliance tests and perform compliance inspections.

TC ODA Quality UM (Unit Member): Cessna authorized delegate that performs FAA conformity inspections.



### **3.0 Requirements for Supplier Designed Components**

#### **3.1 Type Design Data**

Type design data is applicable to supplier designed components which are certified in accordance with the aircraft type certification process outlined in CFR 14 Part 21 Sub-Section 21.305, Approval of Material, Parts, Processes, and Appliances. All drawings and other data which constitute type design are subject to inspection by Cessna personnel and shall be subject, on request, for submittal to the FAA in accordance with current FAA regulations and policies.

Some documentation requirements may be defined by Cessna engineering in an Engineering Coordination Memo (see process map in Figure V for guidance). The supplier has a responsibility to provide all data that Cessna deems necessary for FAA certification or to support continued airworthiness. The supplier may flow this requirement to sub-tier suppliers.

Cessna TC ODA Engineering UM will define the article to be conformed for certification. This definition will be documented on FAA Form 8120-10.

When accepted by Cessna engineering, the supplier's design data will be established in the Cessna engineering information system as recognized data. The supplier data, and/or Cessna data will be archived by Cessna and will be secured as proprietary information. Cessna engineering design data that is generated as shared certification programs will have data available both for Cessna and supplier personnel (this is subject to supplier's request).

#### **3.2 Configuration Control**

All revisions, including deviations from supplier's drawings, must be approved in writing by Cessna engineering prior to their incorporation. The supplier shall notify Cessna engineering of the request for change or deviation by submitting recommendations to Cessna's certification TC ODA Engineering UM. Performance changes to ATPs and QTPs shall also be approved by Cessna engineering.

### **4.0 Supplier Quality System Requirements**

#### **4.1 Criteria for Engineering Projects**

Suppliers for engineering projects shall meet the following criteria:

- Be an established business with an address
- Have a responsible associate in charge
- Understand industry and marketing requirements in their field

- Have effective procedures and process controls with historical documentation
- Be able to provide appropriate documentation during shipment
- Provide supporting documentation on request
- Understand and be able to consistently perform to this guideline

Cessna Quality may conduct audits at any time to confirm conformance to the above criteria.

#### **4.2 Manufacturing Process Controls and Compliance**

The supplier's manufacturing processes and procedures are the basis for achieving compliance. The supplier's quality systems and documentation substantiates compliance to assure that products manufactured and delivered are in compliance to engineering type design data.

#### **4.3 Product Inspection**

A product inspection can involve the final product (gate inspection) or in-process inspection (inspection points or stations) to determine compliance. Some articles may require documentation of specific inspection techniques (e.g. penetrant, magnetic particle, x-ray). Documentation of a product inspection must indicate product compliance and must be maintained as part of the product record.

The inspection of an article is deemed complete when the inspection activities for all purchase order and drawing requirements have been considered. The details of such an inspection shall be determined by the supplier.

#### **4.4 Special Processors**

Special process suppliers for engineering certification program shall be Cessna approved. 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](http://www.supplier.cessna.com/cgi-bin/quality/capability_view.pl).

Any suppliers performing work to the specifications at the website above will require approval by Cessna Supply Chain Quality prior to conducting any processing. A listing of all Cessna approved special processors is available on [www.supplier.cessna.com](http://www.supplier.cessna.com).

Requests can be made at the above website to add suppliers to Cessna's approved special processor list. Addition will be made at the discretion of Cessna.

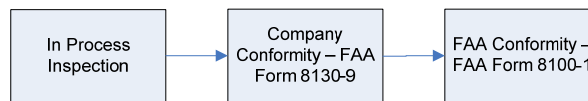
#### **4.5 Software Quality Control**

Engineering programs for certification will have suppliers maintain configuration control of components containing software throughout the development of an article towards certification. Articles delivered to Cessna will be tracked by the supplier and Cessna to maintain compliance to engineering. All software and firmware will be approved by the supplier and/or Cessna prior to conformity for certification.

Articles manufactured with software/firmware instructions will be clearly identified by the supplier’s manufacturing and verification processes to ensure all software/firmware “loads” can be readily traced. Field loaded software in the form of a physical media (e.g. tape, chip, disk) will be manufactured, validated, approved (with FAA Form 8100-9) and released in the same manner as any other aircraft article.

## 5.0 Nonconformances

Nonconformances may be identified in various phases of the build and conformity cycle. Where the nonconformance is identified will determine how it will be documented and dispositioned.



### Nonconformance Sequence

Note: The nonconformance sequence is independent of compliance inspection activities. Specific nonconformances are to flow to the next compliance inspection task. However, specific nonconformances do not have to be reflected on previous documentation.

## 5.1 In Process

In process nonconformances shall be submitted to Cessna certification engineering for review and disposition. All dispositions shall be approved by a TC ODA Engineering UM. Suppliers shall request dispositions using Cessna’s SRDR process or the supplier’s MRB documentation. SRDRs can be submitted via [www.supplier.cessna.com](http://www.supplier.cessna.com).

Note: Cessna delegated MRB authority does not apply to engineering certification projects.

## 5.2 Company Conformity - FAA Form 8130-9 Issues

Once completed, the article is submitted to the supplier’s quality representative and conformity activities are initiated in accordance with FAA Form 8120-10 requirements. Any nonconformances, “issues,” identified are forwarded to a Cessna TC ODA Engineering UM for review and disposition. The supplier is responsible to comply with all disposition instructions. All nonconformances shall be listed by SRDR number on FAA Form 8130-9. The form is then forwarded to Cessna or supplier delegate with all supporting documentation.

### **5.3 FAA Conformity - FAA Form 8100-1 Unsats**

Nonconformances, “unsats,” are documented on FAA Form 8100-1. To obtain a disposition on an unsat prior to shipment of the article, the supplier shall e-mail or fax a copy of the 8100-1 (documenting the unsat) to a Cessna TC ODA Quality UM for processing. Once reviewed and dispositioned, the FAA Form 8100-1 copy is returned to the supplier’s delegate. The original FAA Form 8100-1, as well as the copies documenting the disposition, are to be forwarded to the Cessna TC ODA Quality UM.

### **5.4 Failure Reporting**

All failures shall be analyzed and reported following the first part produced for Cessna. During the aircraft certification period, a thorough root cause analysis shall be performed for each failure. The root cause analysis shall be maintained for a minimum of two years. Subsequent failure reporting shall be in accordance with the purchase order or the supplier’s normal procedures. Repeated failures or trends where the cause is not apparent from normal test, inspection, and repair procedures may be subject to a Cessna quality and engineering investigation.

## **6.0 Purchase Orders and Quality Notes**

### **6.1 Purchase Order**

For engineering certification articles, a purchase order shall be issued for all deliverable components. Quality notes are used to identify the level of conformity inspections that are required. The purchase order does not authorize a conformity inspection, it only identifies the requirement. With the exception of MRB level of conformity, only an FAA Form 8120-10, Request for Conformity, can authorize the conformity inspection to take place.

### **6.2 PO Quality Notes**

PO Quality Notes and guidelines for meeting quality note requirements can be found at the following website: [www.supplier.cessna.com/business/quality-notes.html](http://www.supplier.cessna.com/business/quality-notes.html).

## **7.0 Conformity (General)**

Parts to be used for certification testing will require a conformity inspection prior to testing. The type of conformity inspection required will be communicated to the supplier through quality notes on the purchase order and/or a letter authorizing the supplier to perform a conformity inspection on Cessna’s behalf.

The following paragraphs provide clarification regarding conformity requirements and are intended to provide guidance to our suppliers for certification programs. A supplier article used for certification will be in accordance with a specific conformity request (FAA 8120-10) defined by the Cessna TC ODA Engineering UM.

## **7.1 MRB Level of Conformity Purpose**

Cessna may request the supplier to provide a Material Review Board (MRB) research level of conformity inspection on articles that have been, or will be, provided by a supplier. For an article already delivered to Cessna, the request will be by memo to the supplier defining the article that Cessna's TC ODA Quality UM has on hold for use in conformity efforts. The request will have the appropriate information and should include; part number, serial number, description, quantity and other pertinent traceable data that is retrievable from the supplier's manufacturing inspection system. Refer to the process map in Figure I for guidance.

## **7.2 FAA (Foreign Suppliers)**

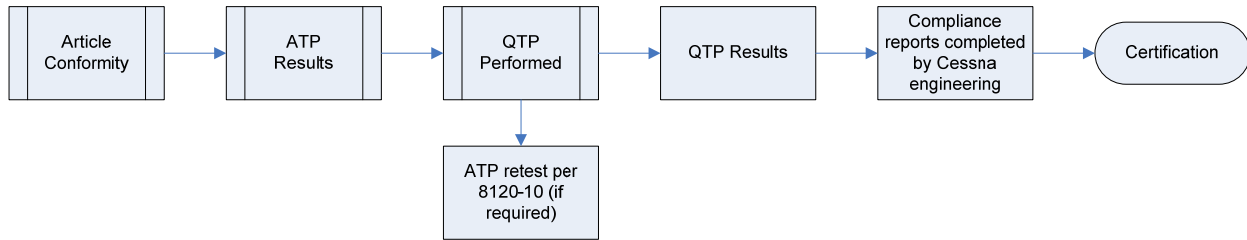
When permitted by the FAA, articles and test set-ups requiring conformity outside of the United States will use the FAA/foreign conformity process. The FAA 8120-10, Request for Conformity, will be presented to the FAA office and they will forward it to the foreign aviation agency. The TC ODA Inspection Administrator will coordinate the conformity activity as required.

Note: All references to FAA documentation can be replaced by documents of similar purpose by foreign organizations (e.g. EASA Form One for the FAA 8130-3, Authorized Release Certificate).

If the FAA does not allow the use of an FAA/foreign conformity process, the Cessna TC ODA Inspection Administrator will facilitate conformity inspections in the same manner as for domestic suppliers.

### 7.3 Conformity Sequence / Article / ATP / QTP

The sequence of events is as follows; article conformity, article performance described as Acceptance Test Procedure (ATP), and qualification testing described as Qualification Test Procedure (QTP).



#### Conformity Sequence

Not all articles require this sequence of conformity events. At times, it is article only, or article and ATP only, or article ATP and QTP. This is dictated by the appropriate Cessna TC ODA Engineering UM. Reference the process maps in Figures I, II, III, IV and V for guidance.

### 7.4 Conformity Request / Cessna Engineering

Cessna's TC ODA Engineering UM will use FAA Form 8120-10 to request conformity inspections. All conformity requests that are issued for certification are processed through the Cessna TC OD Inspection Administrator and forwarded to the Cessna TC ODA Quality UM at the supplier with a copy to the supplier. The conformity request (FAA Form 8120-10) will list the forms that are required to support the conformity activity.

The Cessna ODA Engineering UM Member will generate FAA Forms 8100-9 and 8120-10 and submit the documents for approval to the Cessna TC ODA Inspection Administrator.

At times, there may be quantity differences between the released FAA Form 8120-10 and the purchase order. In such cases, the FAA Form 8120-10 will take precedence.

Quantities requested on the FAA Form 8120-10 may be separated from the purchase order quantity and conformed when the articles are ready for shipment. Therefore, the PO quantity and the quantity of conformed articles may not match. The FAA Form 8120-10 may need to be revised; this must be coordinated through Cessna engineering.

### 7.5 Completion of Statement of Conformity

Upon approval of the technical data, Cessna or the supplier as the applicant will complete an FAA Form 8130-9 for the article. This responsibility may be delegated to the supplier through a purchase order using the appropriate quality note and/or with a letter from Cessna's TC ODA

Inspection Administrator.

Cessna or supplier personnel will examine the article and technical definitions (drawings and specifications) as necessary to verify the article conforms to the FAA 8120-10 requirements.

Cessna or supplier personnel will provide the FAA Form 8130-9 with any nonconformances and supporting documents (routings, 100% inspection verification document, ATP results, etc.) to the Cessna TC ODA Quality UM. A copy of the quality note listed on the purchase order or Cessna's letter delegating responsibility for the completion of the conformity on behalf of Cessna needs to be included with the conformity package.

Completion of an FAA Form 8130-9 by Cessna or the supplier is required prior to obtaining an FAA Forms 8100-1 or 8130-3 from a Cessna TC ODA Quality UM. All documentation should include any nonconformances resulting from the conformity inspection.

## **7.6 Conformity Inspection Nonconformances (Unsat)**

Nonconformances are documented on FAA Form 8130-9 and forwarded to Cessna TC ODA Quality UM. The UM will transfer the nonconformance information to an FAA Form 8100-1 as an "unsat." The Cessna TC ODA Engineering UM will disposition the "unsat." The Cessna TC ODA Quality UM may be on-site at the supplier or at Cessna.

Note: "Unsat" must be dispositioned or worked to drawing configuration prior to issuance of the FAA Form 8130-3.

## **7.7 Cessna TC ODA Quality UM Responsibilities**

- Submit (as applicable) FAA Form 8130-13, Designee Geographic Expansion Authorization, to the Cessna TC ODA Inspection Administrator
- Ensure the applicant has met the FAA Form 8120-10 requirements and any special instructions requested
- Ensure the applicant has completed FAA Form 8130-9 (including any nonconformances noted) with all supporting documents
- Perform a physical inspection as necessary to complete FAA Forms 8100-1 and 8130-3 (as applicable)
- Ensure all unsatisfactory conditions have been dispositioned or worked back to drawing configuration prior to part shipping or certification testing
- Move the unsatisfactory condition to the satisfactory column and enter an ending date on the FAA Form 8100-1
- After all unsatisfactory conditions have been dispositioned or worked to drawing configuration, generate an FAA Form 8130-3 (if requested per the FAA Form 8120-10)

Note: Any FAA Form 8130-3 issued by a Cessna TC ODA Quality UM must use the left half of the form. The right half, "Return to Service,"

should not be used.

- Mail the original FAA Form 8130-3 to Cessna - a copy of the form must be included with the shipment of the parts

Note: The 8130-3 is only required if part or parts are to be shipped and if it is required by the FAA Form 8120-10.

- Complete the conformity package once the FAA Forms 8100-1 and 8130-3 have been completed

## **7.8 Required Content for Conformity Packages**

### Conformity package required content

- FAA Form 8120-10, Request For Conformity
- FAA Form 8100-9, Statement of Compliance with Airworthiness Standards
- Inspection documentation
- ATP Results Page (if applicable)
- FAA Form 8130-9, Statement of Conformity (original document required)
- FAA Form 8100-1, Conformity Inspection Record (original document required)
- FAA Form 8130-3, Authorized Approval Certificate (copy if required, the original is to be mailed)
- FAA Form 8130-13, Designee Geographic Expansion Authorization (if applicable)

### Test setup conformity package required content

- FAA Form 8120-10, Request for Conformity
- FAA Form 8100-9, Statement of Compliance with Airworthiness Standards
- FAA Form 8110-3, Statement of Compliance with the Federal Aviation Regulations
- Applicable sections of QTP
- FAA Form 8130-9, Statement of Conformity (original document required)
- FAA Form 8100-1, Conformity Inspection Record (original document required)
- FAA Form 8130-13, Designee Geographic Expansion Authorization (if applicable)

Originals will be mailed to Cessna experimental quality. The documents must identify the part by serial number or other appropriate means (work order number, lot number, etc.) and identify the drawing (including revision level) to which the components were inspected and conformed. Copies of the conformity documentation will be held on file at the supplier's facility and made available upon request.



The supplier is to forward documents to:

Attn: Dept 172, QA  
Cessna Aircraft Company  
Five Cessna Boulevard  
Wichita, Kansas 67277

### **7.9 TC ODA Inspection Administrator or Coordinator Responsibilities**

- Ensure a letter of delegation has been issued to the supplier or the purchase order has the applicable quality note (if supplier will be completing FAA Form 8130-9).
- Coordinate with supplier and/or test facility if conformity inspection is accomplished offsite.

### **7.10 Conformed Article Returns**

The conformity process must be repeated when any conformed parts are returned to the supplier for repair, upgrade or modification. A return purchase order will be issued to track the specific parts being returned. Repair conformities may be accomplished with FAA Forms 8130-9, 8100-1 and 8130-3. Modification and upgrades will require FAA Forms 8120-10 and 8100-9 to be issued.

### **7.11 Returned Supplier Components**

Components utilized by Cessna for certification and then returned to the supplier will be considered “unapproved” until aircraft certification is completed and the FAA has issued its approval (FAA Form 8130-3).

## **8.0 Article Conformity**

In order to assure compliance with the requirements of 14 CFR Part 21 Subparts 21.33 (inspection and test) and 21.53 (statement of conformity) all test articles shall be inspected to show compliance with type design definition (i.e. supplier drawings, material certification, process specifications, markings and freedom from damage). Test article conformity is required to allow Cessna to obtain approval of the aircraft with the part installed. Refer to the process maps in Figures II and III for guidance.

## **9.0 Acceptance Test Procedure (ATP)**

### **9.1 Test Procedure**

Acceptance Test Procedures are considered a functional requirement of an article. Therefore, it is considered part of the conformity of the article. In most cases, the ATP will have defined performance criteria that must be met and documented. The acceptance test procedure shall be submitted to Cessna engineering for approval.

### **9.2 Responsibility for Test**

The supplier shall be responsible to perform functional tests per the Cessna approved ATP on each article prior to delivery to Cessna. All quality and performance requirements specified by engineering shall be verified in the ATP. A copy of the results on all prototype and test articles must be provided to Cessna.

### **9.3 ATP - Performance History**

Component function must be performed by a supplier on an article for functional performance. This performance infers either mechanical and/or electrical input/output verification.

This can be, but is not limited to article and/or component function results.

The basic ATP outline includes:

- Part number, serial number, date, operator, criteria and results - accept/reject

Note: An ATP document shall be controlled and released with a revision level and date. Any changes to the ATP procedure shall be documented and coordinated with Cessna engineering for FAA approval (8100-9).

- The identification of expected function, allowable range acceptance, and actual function (results) must be documented.

Note: The ATP should be performed prior to and after any QTP performance in order to assure that the article has not been compromised by being exposed to QTP extreme conditions.

The outline of the ATP is subject to review and acceptance by Cessna engineering.

## **10.0 Qualification Test Procedure (QTP) and Test Setups**

### **10.1 General**

Qualification tests may be conducted by the supplier to show compliance with FAA design requirements. The QTP witnessed/conformed by the Cessna TC ODA does not relieve the supplier of the responsibility for full compliance to the QTP.

Cessna's TC ODA Inspection Administrator will communicate conformity requests for qualification test units not delivered to Cessna but to another supplier. Cessna quality will provide a delegation letter authorizing the supplier to complete FAA Form 8130-9 on Cessna's behalf. A Cessna TC ODA Quality UM will complete the conformity inspection at the supplier or test lab facility.

Parts used for qualification will require conformity. All conformity documentation shall identify the specific revision level of the supplier documentation to which the part is conformed.

A separate FAA Form 8120-10, Request for Conformity, will be generated for test setups for each test lab facility used. Specific sections of the article to be conformed should be defined in the special instructions section of the form.

All conformities will be completed on the article and set up prior to any qualification test. The QTP conformity documentation will include the part number and serial number of the components tested. Refer to the process map in Figure IV for guidance.

### **10.2 Responsibility for Test**

The supplier shall be responsible to ensure the quality and performance of the article by conducting the examinations and tests specified herein. Examination and testing results are captured on the FAA Form 8130-9 and supporting documents.

### **10.3 Test Procedure**

Detailed test procedures and pass/fail criteria shall be established by the supplier in the Qualification Test Plan. The QTP must be approved by Cessna certification engineering prior to conducting qualification tests. Testing accomplished prior to obtaining approval will not be accepted.

All qualification test articles and test setup used to meet certification requirements must be conformed by a Cessna TC ODA Quality UM. All tests, or portions of, shall be witnessed by a Cessna TC ODA Engineering Unit Member. Determination of the appropriate witness for each test shall be coordinated with Cessna engineering and the supplier prior to the test. The supplier has the responsibility to coordinate the schedule for the onsite witness of testing.

## 10.4 QTP – General

The following items are typical examples of qualification performance tests of an article:

- Visual inspection
- Actuation current
- Structural fatigue
- Reduced volt. ops. rate
- Backlash
- Dimensions
- Limit and load
- Stops
- Rotation
- Environmental
- Weight
- Operating load
- Nominal operating range
- Reversibility
- Reliability data

Note: Each QTP may require specific tests and performances.

## 10.5 Required Qualification Data

All requirements identified on the Qualification Test Procedure must be verified and conformed as noted on the FAA 8120-10, Request for Conformity.

The supplier may submit data supporting qualification by similarity or analysis. Cessna engineering will determine if the submitted data validates compliance of the design. In the event Cessna engineering does not accept the submitted data, it remains the responsibility of the supplier to complete the qualification testing.

## 10.6 Data Recording and Test Report

Examination and test records shall be kept by component and assembly serial numbers. At the completion of the test program, a qualification test report shall be submitted to Cessna certification engineering. The Cessna engineering department will retain this test report as part of the permanent records required for type certification. A copy of this report will be submitted to the FAA for their concurrence or approval.

Copies of all conformity documentation shall be included in the qualification test result and maintained on file by the supplier. This documentation is subject to Cessna and/or FAA review.

## 10.7 Requirements for Qualification by Similarity

For qualification by similarity the following documents are required:

- A copy of the qualification test plan and results shall be provided to Cessna engineering
- A detailed comparison of the two parts shall be provided that identifies the specific differences and the justification for why the differences meet the requirements of the specification and allows for the determination of compliance
- Sufficient evidence to substantiate that the data was in fact previously approved by the FAA

- Documented analysis that establishes that the previously approved data are applicable to the Cessna design to the extent that any design deviations will have no effect on the airworthiness of the design or on showing compliance with applicable regulations as installed in Cessna product
- Sufficient engineering data to provide continued airworthiness information should the alteration be the subject of a service difficulty, Service Bulletin or Airworthiness Directive
- Sufficient engineering data necessary to produce duplicate detail parts and installations if multiple type certification approval is requested

The decision to accept qualifying data by similarity in lieu of full article testing shall be made by Cessna engineering in coordination with the FAA Wichita ACO. Data intended to show qualification by similarity must be presented early in the program to avoid delays in the qualification testing process.

### **10.8 Environmental Stress Screening (ESS)**

Environmental stress screening is a process for identifying manufacturing and workmanship defects in electronic assemblies and components before the product is delivered to Cessna. ESS is required for any electronic assemblies in the components described by engineering specifications. The ESS may be performed on each production component as described in the ESS plan.

Compliance to ESS is the responsibility of the manufacturer. When requested by Cessna engineering, a supplier will submit the proposal to Cessna and implement control procedures once an ESS plan has been accepted.

As necessitated by the design, the supplier is to provide an ESS process plan for each component. The plan shall be approved by Cessna engineering. This plan shall include test time and specific tests to be performed. Since the ESS program is dynamic, the plan shall address the issues of adjusting procedures to maximize efficient discovery of defects. If required, Cessna engineering will approve all ESS plans.

### **11.0 DO-160**

DO-160 environmental tests can involve multiple arrangements and re-arrangements of the article and test equipment. These arrangements may include test input to the article in support of specific test conditions some of which are over a timeline. Therefore, it is expected that there will not be a separate test set-up conformity for every test arrangement; rather significantly different sections or arrangements will be conformed as needed. The initial test setup will be conformed with FAA Forms 8130-9 and 8100-1. Subsequent test setups will be documented on FAA Form 8130-9. The completed 8130-9 shall be forwarded to the Cessna TC ODA Inspection Administrator for addition to conformity package.

Note: The supplier is responsible to ensure that portions of the DO-160 testing not specifically FAA conformed are in compliance.

## **12.0 Failure to Comply**

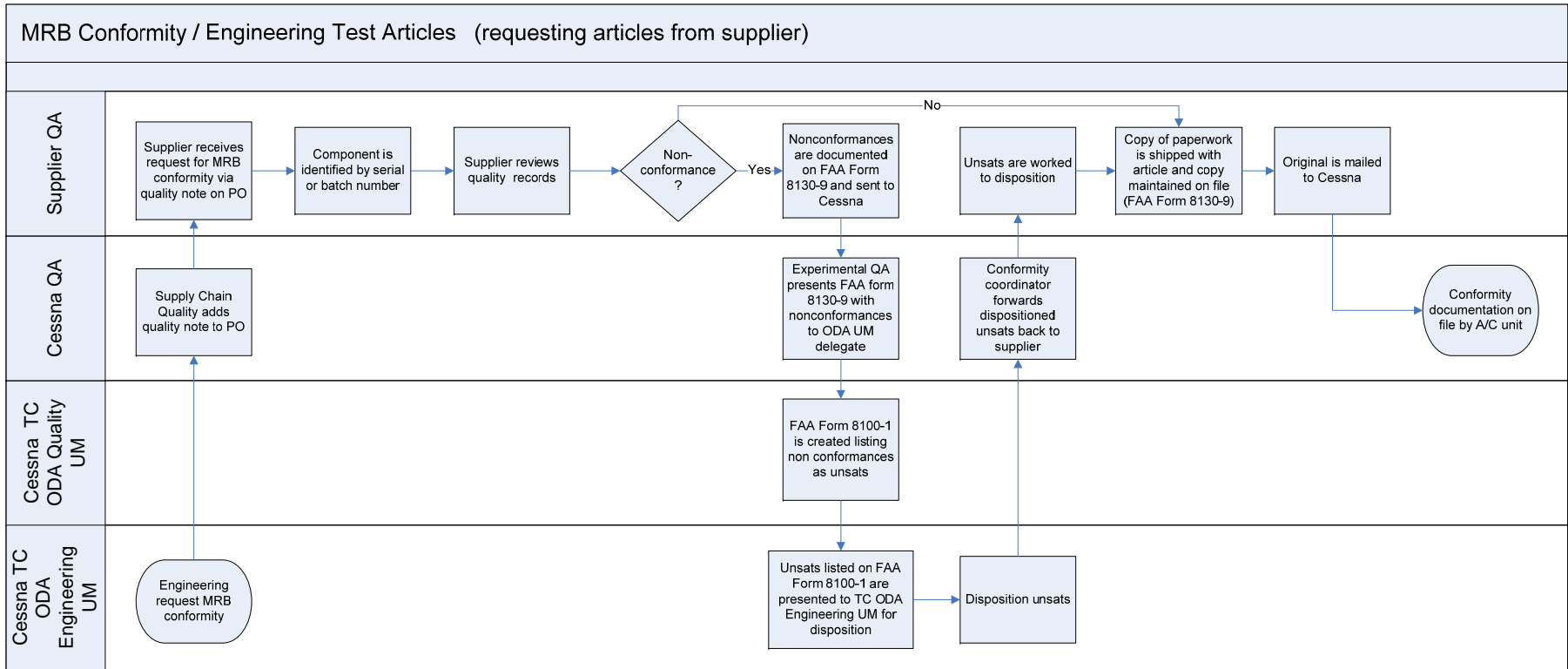
There may be additional requirements for various engineering documents on the purchase order along with accompanying need dates. The supplier must ensure that these documents are completed in a timely manner to support the delivery schedule.

It is of the utmost importance to provide Cessna the correct documentation with the components per the purchase order and the FAA Form 8120-10. It is critical that components with conformity requirements are conformed to Cessna approved design data.

Failure to address these requirements will result in the return of the article to the supplier for re-inspection and completion of the appropriate paperwork at the supplier's expense.

## **13.0 Records**

Supplier work history documentation must be available and provided when requested by Cessna or the FAA. The supplier will retain a copy of all documentation for their files with all original documents mailed to Cessna. This documentation is subject to audit by Cessna or the FAA.



**Figure I**

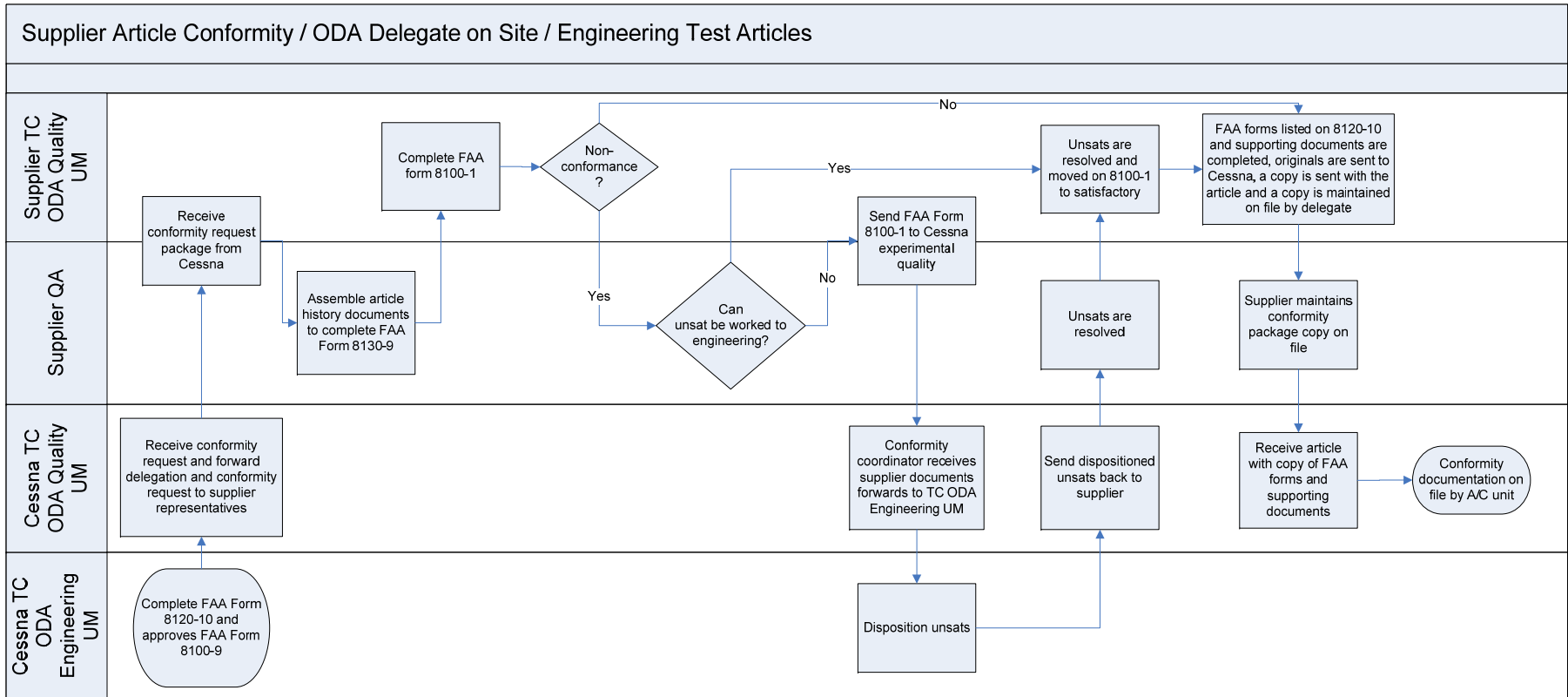
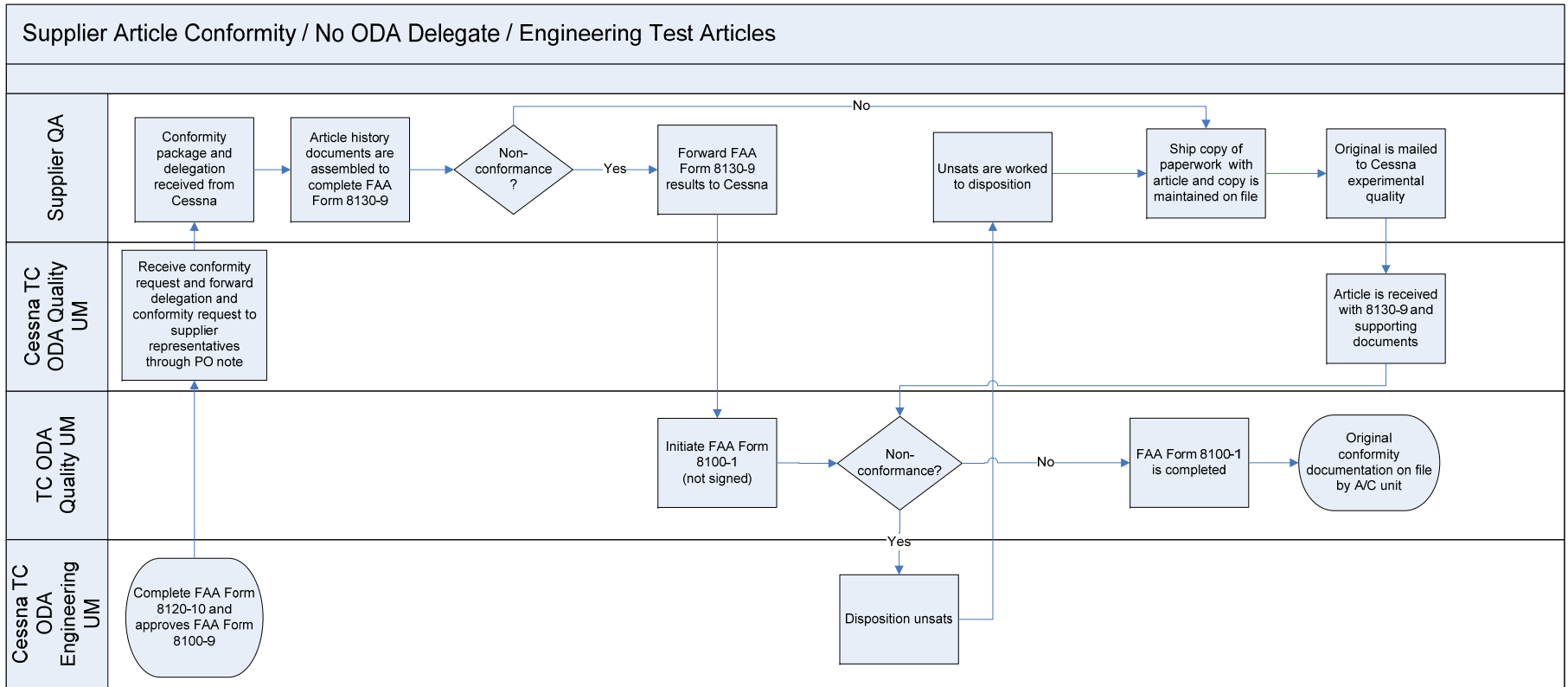
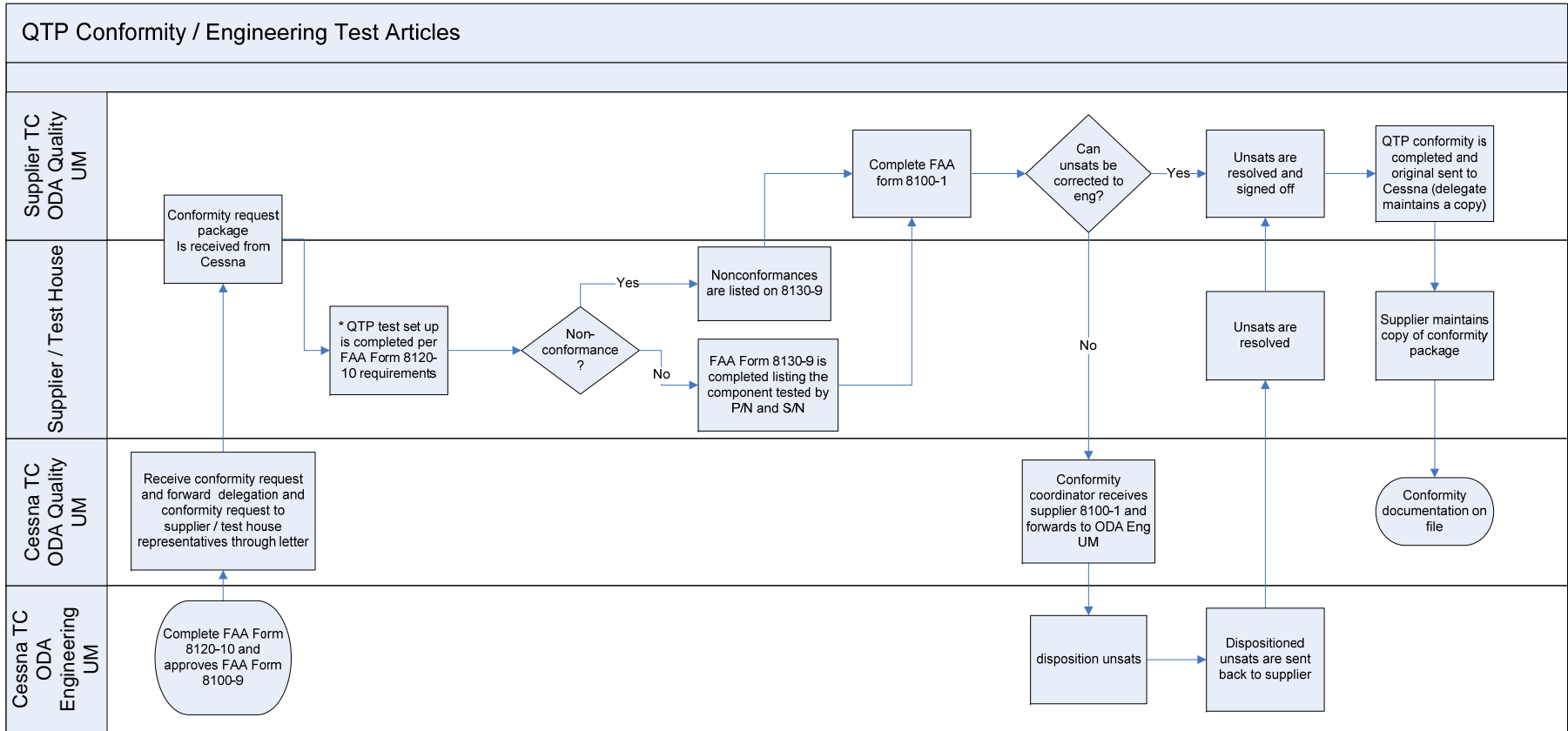


Figure II





**Figure III**



\* Article must be conformed prior to QTP test setup

**Figure IV**

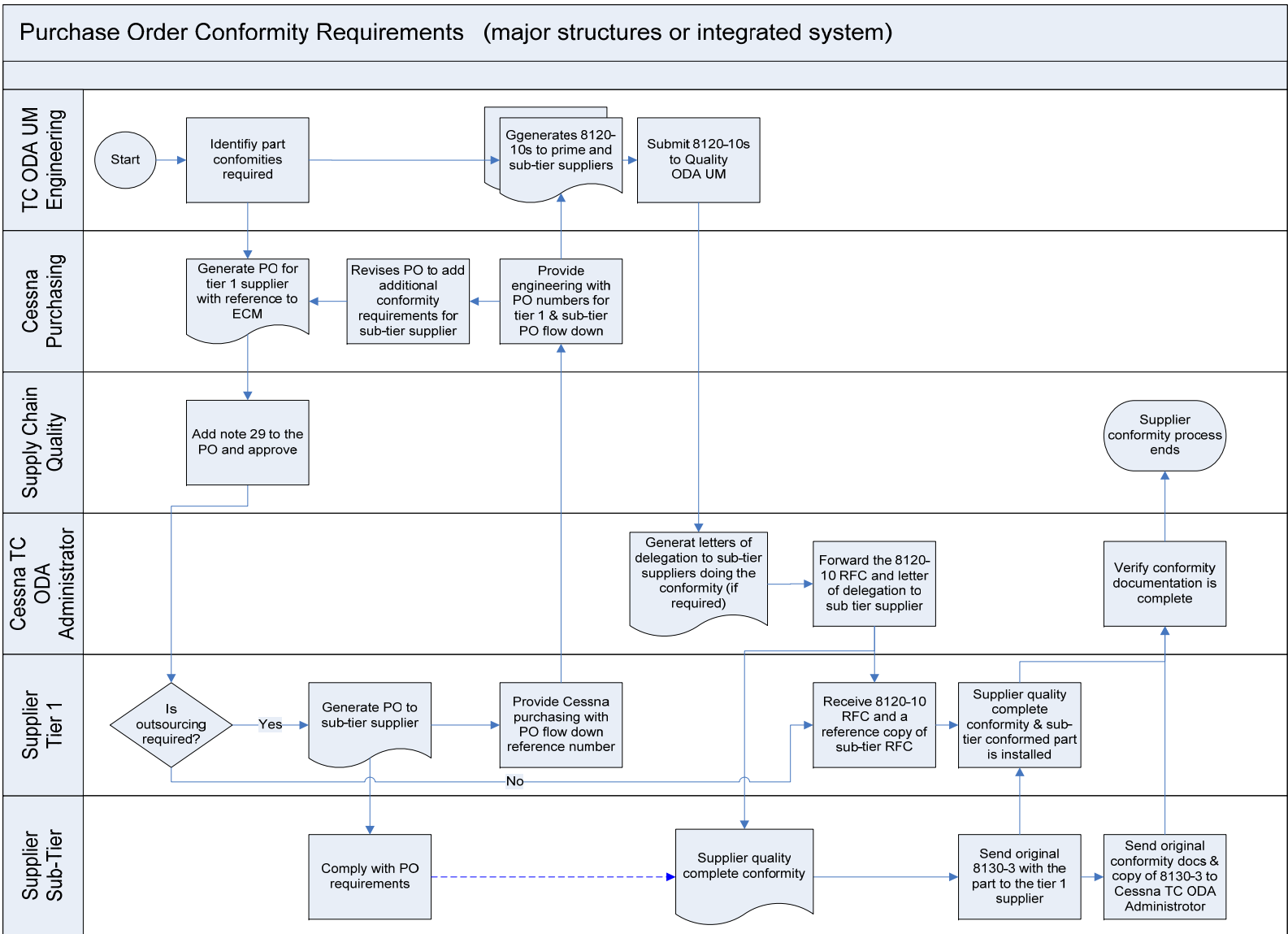


Figure V