CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

National Policy

ORDER
8110.42D
CHG 1

09/15/2017

SUBJ: Part Manufacturer Approval Procedures

1. Purpose. This change revises the applicant responsibilities for submitting part marking data.

2. Who this change affects. The Washington headquarters branch level of the Aircraft Certification Service, branch levels of the aircraft certification divisions, and all certification field offices.

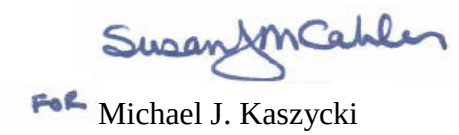
3. Effective Date. The provisions of this change for this directive become effective on the date of signature.

4. Where to Find This Order. You can find this order at the MYFAA Employee website (https://employees.faa.gov/tools_resources/orders_notices) and at the Regulatory and Guidance Library (RGL) website (http://rgl.faa.gov).

5. Disposition of Transmittal. Retain this transmittal sheet until this directive is cancelled by a new directive.

PAGE CHANGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated
2-9	03/21/2014	2-9	09/15/2017



FOR Michael J. Kaszycki
Acting Director, Policy & Innovation Division
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Distribution: Electronic

Initiated By: AIR-600

U.S. DEPARTMENT OF TRANSPORTATION
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SUBJ: Parts Manufacturer Approval Procedures

This order describes the procedures for evaluating an application for a parts manufacturer approval (PMA) for replacement and modification articles on type-certificated products. These procedures apply to engineering personnel at Aircraft Certification Offices (ACO) in the Federal Aviation Administration (FAA). The associated procedures for manufacturing personnel are now in FAA Order 8120.22, *Production Approval Procedures.* This revision removes applicant guidance, updates the regulatory citations from the latest Title 14 of the Code of Federal Regulations (14 CFR), part 21 rule changes, incorporates directive feedback and clarifies certification office responsibilities under our quality management system. The applicant guidance is now in AC 21.303-2.

For Dave W. Hempe
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Distribution: Electronic

Initiated By: AIR-100

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Chapter 1. Purpose, Administrative Information and Background

1-1 Purpose. We, the Federal Aviation Administration, or FAA, wrote this order to prescribe the responsibilities and procedures for approving replacement and modification articles for installation on type-certificated products. It implements an approval process required by Title 14 of the Code of Federal Regulations (14 CFR), part 21, subpart K for issuing a parts manufacturer approval (PMA). We also explain the role of a designated engineering representative (DER) and organization designation authorization (ODA) along with their organization management office (OMT) in the PMA process. FAA Order 8120.22, *Production Approval Procedures*, contains the procedures for evaluation, approval, and management of the production activities of manufacturers who produce articles under PMA.

1-2 Audience. All FAA aircraft certification office personnel, ODAs, OMT's and DERs who use the approval process for issuing a PMA.

1-3 Where Can I find This Order? You can find this order on the FAA Orders and Notices website at *http://www.faa.gov/regulations_policies/orders_notices/*and the Regulatory and Guidance Library website: *www.rgl.faa.gov*.

1-4 Cancellation. FAA Order 8110.42C, *Parts Manufacturer Approval Procedures*, dated June 23, 2008 is canceled.

1-5 Acronyms. See appendix J, List of Acronyms.

1-6 Definitions. See appendix K, Definitions and Terms.

1-7 Deviations. Engineering and manufacturing personnel in the FAA must follow the procedures in this order and FAA Order 8120.22 to ensure a standard process for PMA. The Aircraft Engineering Division (AIR-100) coordinates and dispositions any deviations from this order. If a deviation becomes necessary, the involved FAA employee substantiates and documents the need, gets concurrence from the appropriate supervisor, then sends a deviation request with concurrences for review to AIR-100.

1-8 The Roles of the FAA and Applicant. Table 1, in this chapter, summarizes the respective roles of the FAA and an applicant. Applicants show and state that their articles' designs comply with applicable regulations using the guidance in advisory circular (AC) 21.303-2. The ACO approves these designs, and the manufacturing inspection district office (MIDO) approves the associated production facility(s) and quality system(s). See appendix A, PMA Process Flowcharts. The ACO adjusts its level of review and approval through the exercise of management options based on project risk. Coordination between the ACO and MIDO ensures that the applicant's processes produce replacement and modification articles that conform to the approved design.

Table 1. Summary of FAA and Applicant Roles in PMA

Applicants:	ACOs:	MIDOs:
• Show that the design meets the applicable airworthiness standards by either of the following two ways: (1) Show that the PMA article's design is identical to the design of an article that is covered under a type certificate (TC), or (2) Use test and computation that shows the PMA article's design meets the airworthiness requirements that apply to the affected products. • Identify installation eligibility. • Ensure the article performs its intended function(s) via a compliance checklist. • Provide a plan for continued operational safety (COS). • Perform a safety assessment by assessing the consequences of PMA article failure on the next higher assembly and associated product(s). • Provide statement that existing instructions for continued airworthiness (ICA) are applicable to the PMA article or provide draft supplemental ICAs for the PMA article or product as necessary. • Set up and maintain a quality system that meets the requirements of 14 CFR 21.307. Document this system in a quality manual. • Monitor, report, and investigate service difficulties. • Draft a PartSCP if applicable. • Make a statement of compliance per 14 CFR 21.303(a)(5). **See AC 21-303.XX for further details.**	• Assess application for required items including geographical location. • Assess risk of the PMA project. Determine Composite Risk Value (CRV) and select corresponding management options to set the level of FAA involvement. • Find compliance with agency regulations and standards through programs and procedures to approve articles. • Review and complete PartSCP if needed. • Review installation eligibility. • Review and monitor service difficulties. • Witness or delegate various functions. • Review COS plan. • Coordinate with aircraft evaluation group (AEG) for ICA review as needed. • Notify applicant of a design's compliance with airworthiness requirements. • Forward supplement package to the MIDO after design approval. • Investigate and submit enforcement reports when PMA holders and non-PMA holders do not comply with 14 CFR. **See chapter 2 for more details.**	• Process PMA applications based on license agreements and supplemental type certificates (STC). • Make assessment for Undue Burden per FAA Order 8100.11, *Developing Undue Burden and No Undue Burden Decision Papers Under 14 CFR Part 21*. • Verify conformity to the approved design. • Issue PMA supplements after approval of the article's design and establishment of the applicant's production quality system. • Approve the holder's quality manual. • Review and monitor service difficulties • Issue the FAA-PMA production approval letter. • Submit copies of supplement information to AIR-140 for publishing on RGL. • Conduct surveillance at the PMA holder's and supplier's facilities, both foreign and domestic. • Investigate and submit enforcement reports when PMA holders and non-PMA holders do not comply with 14 CFR. **See FAA Order 8120.22, Production Approval Procedures for more details.**

Chapter 2. Aircraft Certification Office (ACO) Responsibilities

2-1 General Responsibilities. The geographic ACO, as specified in FAA Order 8100.5, *Aircraft Certification Service Mission, Responsibilities, Relationships, and Programs*, has several responsibilities for PMA applications. The project engineers at these offices make findings of compliance with applicable regulations. ODA units have nearly the same responsibilities and authorities for finding compliance of replacement articles via tests and computations as ACO personnel. Both the ACO and ODA unit use the same criteria to find prospective articles meet the airworthiness requirements of their respective products. However, ODA holders must develop their own procedures that follow our design approval process in PMA. The ODA responsibilities, authorities and limitations are in FAA Order 8100.15, *Organization Designation Authorization Procedures*. Additionally, when determined to be appropriate the use of FAA Order 8110.119, *Streamline Process for Parts Manufacturer Approval (PMA)* is encouraged. The ACO has the following administrative and technical responsibilities:

a. Accepts Application. The ACO in the applicant's geographical area accepts the application for a PMA based on identicality without a licensing agreement or test and computation. Acknowledgement of receipt of an application is optional, but encouraged. Use any manner acceptable to the ACO to include letters, email or phone calls. If the PMA basis is identicality with evidence of a licensing agreement or a supplemental type certificate (STC), return the application and direct the applicant to the geographical MIDO per FAA Order 8120.22. If project delays are expected due to current FAA workload issues and/or project prioritization concerns, the ACO must notify the applicant accordingly via an email or letter.

b. Confirms Location of Manufacturer. If the quality system is outside the United States, the FAA may issue or extend a PMA to foreign facilities if regulatory oversight places no undue burden on us as determined by the geographical MIDO. The ACO, under the guidance of the MIDO, must work with headquarters, the Production and Airworthiness Certification Division (AIR-200), to determine if the oversight poses an undue burden. See FAA Order 8100.11, *Developing Undue Burden and No Undue Burden Decision Papers Under 14 CFR Part 21*, for more details.

c. Determines Need for a Part Specific Certification Plan (PartSCP). PartSCPs are appropriate for PMA projects that need extensive and time-consuming showings of compliance through analyses, testing or involve sophisticated manufacturing processes. These projects usually involve critical parts, life-limited parts, influencing parts (only applicable for engine life-limited parts) or articles with complex designs. The PartSCP is an agreement between the PMA applicant and the FAA on applicable documents, project schedule, certification basis, testing, conformity inspections, communication/coordination, and delegation involved in the project. See appendix B, Part Specific Certification Plan, for an example of a PartSCP. Use of the PartSCP is at the discretion of the reviewing ACO.

d. Assess PMA Risk. Perform a risk assessment of the prospective PMA project. Utilize relevant guidance to obtain a level of project involvement determination. This

assessment weighs organizational and technical indicators to gauge the probability of non-compliance.

(1) Consider organizational indicators like the applicant's relationship with the FAA, safety culture, organizational stability, quality system, and use of suppliers and outside service providers. Also, consider technical indicators like the significance of the article and its design, use of new or sophisticated technologies for its manufacture and the service history of the article. Assess the applicant's experience and capabilities to design articles that meet applicable airworthiness requirements.

(2) The article's impact on the safety of its product indicates the severity of non-compliance with applicable airworthiness requirements. Use the applicant's safety assessment of the article as the initial basis for this indicator. Adjust the indicator based on FAA experience and knowledge of the corresponding article from the eligible product's type certificate (TC).

e. Engineering and Test Data. As established at the beginning of the process, the ACO may review/verify or accept the following applicant submittals through the exercise of the above management options. The project ACO may seek FAA expertise from other ACOs, directorates, and chief scientific and technical advisors (CSTA) as needed. Depending on the safety significance of the article, the project risk, and management options, the ACO may:

(1) Verify if the safety assessment properly characterizes the significance of the proposed article to the safety of its product.

(2) Verify if the applicant reported an acceptable service history for the original article.

(3) Verify if the applicant identified the eligibility for installation on type-certificated products.

(4) Verify the PMA application identifies airworthiness requirements applicable to the type-certificated product on which the PMA article is installed. Verify the design data is adequate to produce and conform the article.

(5) Review the differences between the proposed and original articles. Assess the applicant's technical justification for these differences and associated impacts on the next higher assembly and product. For example, weight and other mass properties can influence vibratory response and performance of rotating components. Also, assess the applicant's analysis of these differences on an assembly and associated product(s). Coordinate with the accountable directorate for product specific related guidance.

(6) Assess requests by applicants for conformity inspections and engage the MIDO when these inspections are necessary.

(7) Review reports and approve test plans.

(8) Verify if the applicant's substantiating data show compliance with applicable airworthiness standards.

(9) Assess the suitability of the applicant's COS plan.

2-2 Applicant Approaches. Applicants rely on three strategies to show compliance with airworthiness standards through test reports and computations. The most common strategy combines elements of comparative analysis and direct showings of compliance to specific airworthiness requirements. See paragraph 2-8. Evaluate whether the applicant's approach is viable and provides the needed showings of compliance for associated replacement article.

2-3 Coordination with Certificate Management ACO (CMACO). Coordinate with the CMACO and the accountable directorate on all critical parts, life-limited parts and influencing parts (in the case of engine life-limited parts). Coordination on other articles is at the discretion of each ACO. When coordination is needed, send the CMACO a copy of the certification project notification (CPN) after notifying the accountable directorate. See FAA Order 8110.115 for the CPN form or utilize the CPN database. The CMACO sets the level of its involvement depending on the article's attributes, safety significance, service history and other indicators. If the article basis is identicality, confirm with the CMACO (and MIDO when appropriate) that the applicant's submitted manufacturing processes are identical to those for the critical, life-limited or influencing part (in the case of engine life-limited parts) produced under the TC or STC. Consult with the product directorate for specific guidance on the coordination method and scope.

2-4 Verification of Installation Eligibility. Review the applicant's evidence of eligibility. Verify assertions and consult other information at your discretion. Illustrated parts catalogs (IPC) from TC holders provide credible information about installation eligibility for the original article, but the IPCs are not FAA-approved. Accept the use of the IPC as the sole means for showing installation eligibility only on non-critical articles (see appendix K for the definition of "critical part"). In this case, confirm the authenticity and currency of that IPC and its applicability to the PMA article. Otherwise, consider a combination of IPC and other evidence that supports eligibility**.**

NOTE: The records of PMA database in RGL have some inaccurate eligibility listings. If suspect, confirm these eligibility listings with the issuing MIDOs or holders of the respective PMAs.

2-5 Service History Considerations. Review the applicant's report or evidence on the service history of the original article. Identify that the article is not subject to an airworthiness directive (AD) and free of systemic continued airworthiness problems. If the original article from a type certificate has a potential unsafe condition and the replacement article has a similar design, perform the following:

a. Reject the PMA application if an existing AD removes the associated DAH's article from service immediately or in the future, unless the applicant shows that installing the article does not produce the same unsafe condition. Consult the CMACO for this determination. Inform the applicant that installation of the PMA replacement article on eligible products will require an alternative means of compliance (AMOC). Record this AMOC requirement in the Notification Letter of Design Approval and the approval basis column on the relevant supplement.

b. Consider delaying the processing or rejecting the PMA application if we are discussing or developing an AD to remove the DAH's article from service, unless the applicant shows that the article does not have the same unsafe condition.

c. Terminating corrective action by redesign and replacement is preferable, but not always feasible. Some ADs mandate repetitive inspections of an article to prevent a condition from compromising safety. The ACO has the discretion to consider replacement articles that retain the need for these repetitive inspections to attain an equivalent level of safety. Coordinate with the responsible CMACO for concurrence. Inform the applicant that installation of the PMA replacement article on eligible products will require an AMOC. Record this AMOC requirement in the Letter of Design and the approval basis column on the relevant supplement.

d. If an article is not identical or substantially identical to the TC holder's article, confirm the applicant shows that installing their article does not create an unsafe condition. Review relevant test reports or witness product-level and assembly-level tests. Do not encourage flight testing outside the FAA approved process.

e. If the original article has a service bulletin to remove it from service, PMA for a replacement article is still feasible. A service bulletin alone is not enough to reject a PMA application unless that service bulletin resolves functional or installation disparities that the PMA does not.

f. If the article is having service difficulties and the FAA is **ACTIVELY** pursuing corrective action (that is, a design change per 14 CFR 21.99) with the TC holder, reject the application for PMA, unless the applicant shows that installing the article does not produce the same unsafe condition.

> NOTE: Coordinate with the CMACO in all cases where in-service issues exist to resolve their specific concerns prior to PMA issuance. Also, consult the FAA Service Difficulty Reporting (SDR) system, Manage Safety Manage Data (MSAD) system and the TC product support database for service difficulties.

2-6 Life-Limited Parts. Review the applicant's substantiation of any life-limited parts. Confirm these data include analyses and tests that establish a part's life limit using a life system accepted by the FAA. Fatigue tests of these parts by applicants are typically essential to setting life limits. Prior to PMA issuance and/or ICA acceptance, ensure applicants have noted material,

manufacturing, testing and process controls that preserve the life limits inherent in their designs. Confirm the applicant publishes these life limits in their instructions for continued airworthiness (ICA). For engine articles, review the applicant's substantiation of any influencing parts. 14 CFR 33.70 introduces the concept of influencing parts (ref. AC 33.70-1) which are engine parts that affect the environment and operating conditions of a life-limited part in that engine. If the influencing part is determined to fit the definition of a critical part then it must be processed according to the instructions found in this order for critical parts.

2-7 Special Considerations—Identicality without a License Agreement. Make a finding of identicality if an applicant shows a PMA article's design is the same in every respect to an article's design from a TC, STC or TSO. Applicants must sufficiently define their designs to allow comparison of dimensions, tolerances, materials, processes, and specifications. This is typically only possible when the applicant possesses and submits, as part of their application, the original design drawing and related production specifications referenced within that drawing. After PMA approval, any major changes to the processes and/or specifications controlling the manufacture of the article (or the use of industry standards over OEM processes/specifications) should be assessed by the applicant and reviewed by the ACO and CMACO as needed. For the purposes of establishing identicality, the FAA may exclude cosmetic attributes like color. Additionally, a finding of identicality typically infers that the existing product ICA(s) remain valid with respect to the PMA unless otherwise noted. In the event this is not the case, the ACO must be wary of making a finding of identicality without sound engineering review and compliance determinations. It is the applicant's responsibility to provide all necessary information and explanation regarding this issue.

> NOTE: The applicant's design need not conform to the latest revision level of the TC, STC or technical standard order (TSO) authorization drawing when the applicant shows that the previously approved articles are still eligible for installation on the listed product models.

a. Limitations of Reverse Engineering. Take special care in evaluating identicality based on reverse engineering. Reverse engineering is one way to develop the article's design. However, reverse engineering will not normally produce an identical design. The applicant is unlikely to show that tolerances, processes, and manufacturing specifications are identical. Reject and return applications for identicality that rely solely on reverse engineering or use analyses in their comparisons. Redirect the applicant to the test and computation method.

b. Identicality Not Found. If the design data (including the manufacturing processes) do not show that the article is identical to an article covered under a TC, reject and return the application to the applicant. Notify the applicant that the design was not identical to that of an article covered under a TC. See appendix E, Sample Design Rejection Letter. The applicant may submit a new application package under the test and computation method.

c. Design Changes. Limit design changes on PMA articles based on identicality without a license agreement. Limit these changes to article marking, updated

specifications, and so on. Changes to nominal dimensions, tolerances, or manufacturing process alter the basis of the PMA and require prior approval via test reports and computations method.

2-8 Special Considerations—Test Reports and Computations. The applicant shows that the proposed design complies with the applicable regulations. Many applicants will use the comparative analysis approach to compare a PMA article to a TC holder's or licensee's article to identify design differences and their effects on associated compliance with regulations. The comparative analysis approach must still tie back to the product's certification basis per 14 CFR 21.303 (a) and (b). This can often be accomplished by basic engineering analysis for most PMA articles, however, some designs have a greater level of complexity which requires the development of certification level testing in order to perform side-by-side comparisons with the original article in the actual (or adequately replicated) operating environment(s). ACO engineers must always involve the appropriate directorate experts or CSTAs whenever necessary to ensure compliance is found. Another approach is general analysis which simply shows direct compliance with applicable regulations. Most applicants use a combination of comparative and general analyses. Review the applicant's design and associated showings of compliance with the applicable airworthiness requirements. Also, consult with other FAA organizations such as directorates, CSTAs, and designees as needed to aid the design and compliance reviews.

a. Statement of Compliance. Verify the applicant's compliance checklist for completeness. Confirm if the applicant listed the appropriate airworthiness standards, their associated means of compliance and documentation. Verify the applicant made a statement of compliance per 14 CFR 21.303(a)(5).

b. Safety Assessment. Review the applicant's assessment of the article's safety significance and its determination as critical, non-critical, life-limited, not life-limited, influencing (for engine parts per 14 CFR 35.70) or non-influencing. The basis for this determination lies in an associated failure modes effects analysis. This analysis is at least qualitative and considers the effect of article failure on the next higher assembly and its performance. Additionally, the analysis describes failure effects of the next higher assembly on the product and its performance given the failure of the embedded article. Remember that if design changes are introduced with the PMA article, the safety assessment of the PMA part must consider all known service problems in assessing the adequacy of the design change. Review relevant criteria in 14 CFR 27.602, 29.602, 33.70 and 33.75. Confirm these critical/non-critical and/or life-limited or influencing determinations as necessary with the CMACO. Use available FAA expertise to aid in evaluating these assessments. See the criteria for critical part determinations in appendix K, Definition and Terms.

c. Reverse Engineering. Applicants typically use this process to duplicate attributes of articles without original design data. The process entails disassembly, measurement of features, and material and functional analyses of an original article. The process may need subsequent testing to confirm the article's intended function with the PMA article installed. Review the applicant's data to confirm it adequately defines the original's design using appropriate sample sizes. This data defines dimensions, material

properties (e.g. microstructure and chemical composition), special processes (e.g. welds, heat treat, coatings), and continued airworthiness requirements of both the original and duplicate article. Confirm use of qualified or accredited laboratories for analyses of materials and processes. Assess the applicant's rationale for use of any other laboratories (such as in-house labs) in establishing the design of the article. Also, confirm that the applicant has adequately captured potential sources of variability in both the original design and the duplicate article. Potential sources of variability include processing characteristics (lots, billets, etc.), material supply vendor, and other such considerations.

NOTE: The FAA does not qualify or accredit any laboratory. However, the ACO must have confidence that the data from all laboratories are adequate to show design compliance to the regulations. To establish the required confidence, the ACO may need to review a laboratory's accreditation certificate(s) and/or employee qualifications along with input from the applicable FAA Chief Scientific Technical Advisor (CSTA).

d. Test Plans and Reports. Review any test plans and test results that show the article is equivalent to the original or complies with applicable airworthiness standards. Also, verify that the results confirm the functionality of the articles in their assemblies/products. Request additional testing as needed to confirm equivalency to the original article.

e. ICA or Maintenance Instructions. Review the applicant's proposed ICA or maintenance instructions. In both instances, coordinate the ACO's assessment and position with the appropriate aircraft evaluation group (AEG) of the Flight Standards Service on the project CPN per FAA Order 8110.54. If the applicant proposes that no new ICA or maintenance instructions are necessary, assess the applicant's rationale for such and denote this on the CPN. Communicate acceptance of this approach in an email or a letter of notification back to the applicant upon project completion.

f. Article Design Changes – Pre PMA Approval.

(1) Review the applicant's assessment of an article's effect on its product. Confirm any changes to a product's type design from installation of the PMA article are minor. Otherwise, direct the applicant to the STC process. Type design changes are classified by 14 CFR 21.93(a) as either major or minor. Minor changes have no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are "major changes. Also if installation of the PMA article affects the acoustical and emissions attributes of a product then the change (article) requires special consideration and attention per 14 CFR 21.93(b).

(2) Scrutinize any change to the design of a critical part. Even minor changes in this part's design may have appreciable effects on its product. Direct the applicant to an STC for such.

2-9 Evaluating the Drawing Package. Confirm the application includes adequate detailed design data to define the characteristics of an article sufficient to conform it. These data include drawings, technical data that confirms structural strength, article marking information, manufacturing and process specifications that define the configuration, and other pertinent data. Confirm the drawing control procedures (e.g.. revision history, or cognizant engineering offices) are commensurate with the safety significance of the article. Consider the following areas when evaluating any data package:

a. Manufacturing and Process Specifications. Manufacturing procedures and process specifications may affect the article's airworthiness. If the applicant's detail drawings refer to a TC holder's process specifications, then the applicant must submit these specifications in a manner determined by the ACO. Consult with the CMACO as necessary to determine if these specifications affect the design's airworthiness.

b. Source Control Drawings. Review source control drawings to determine if the applicant has proper control over the article's configuration and manufacture. Verify the applicant submitted all applicable detail drawings and specifications. These drawings and specifications are needed to evaluate the sources listed on source control drawings. See AC 21-43, *Production Under 14 CFR Part 21, Subparts F, G, K, and O*, for information on supplier control guidance for PAHs. Coordinate with the responsible MIDO, when necessary, using a request for conformity.

c. Drawing Notes.

(1) Pay particular attention to the viability of identicality applications that use TC or Technical Standard Orders Authorization (TSOA) holder drawings or specifications with notes stating:

(a) Articles supplied to this drawing shall be in strict accordance with samples (first articles) approved by (*name of applicant)* engineering department unless prior written approval is given to subsequent change.

(b) Source approval is required for raw stock through total fabrication.

(c) This drawing represents a critical item and must successfully complete substantiation tests and be approved by engineering.

(d) Other similar statements implying special source selection criteria.

(2) If the applicant cannot provide the above information to support identicality, refer the applicant to the test and computation method.

d. Dimensional Toleranc

(1) Variations in the sample measurements and accepted engineering practices determine the tolerances in article dimensions. The resulting tolerances for the PMA article cannot exceed the minimum and maximum dimensions measured on the sampled approved parts. Exceeding these limits requires further substantiation and acceptance by the ACO.

e. Material Analysis.

(1) Semi-quantitative methods of determining material properties are not supported by the FAA as acceptable for standalone processes. For such methods, additional supporting data such as maintenance manuals, service bulletins or secondary analysis methods are needed in order to establish a basis for comparison to the OEM material. Consulting the FAA CSTA is recommended to ensure the most up to date methods and practices are being used.

2-10 Article Marking Requirements. Check the article's marking scheme specified in its design data. The applicant must specify a permanent and legible method of marking. 14 CFR 45.15(a) sets the marking requirements for PMA articles. These markings must identify the article as "FAA-PMA", the article's part number and the name, trademark or symbol of the manufacturer. The detailed marking scheme and methodology can be identified in their quality control document, a controlled process specification, an engineering order, or other acceptable means as long as it has traceability, and is referenced in their PMA application package.

a. Marking Critical Parts. Critical parts also follow the marking requirements in 14 CFR 45.14. This requirement adds a serial number or equivalent to the part markings. The method for marking a critical part is essential design data that the FAA reviews. The applicant ensures and the ACO confirms the marking location and that the process does not degrade airworthiness. To do this, we require applicants to define the marking location and method on their drawings.

b. Marking an Assembly. Applicants apply PMA part markings required by 14 CFR 45.15 to the top-level assembly of the approved replacement or modification part. We do not require applicants to mark subassemblies or individual detail parts. For example, if the top-level assembly is a hydraulic pump, mark this assembly accordingly. Marking the detail parts of the pump is optional unless production of these parts occurs under separate PMAs. When PMA holders separately sell detail parts for installation in their approved assembly, they note the information required by 14 CFR 45.15 on the accompanying shipping documentation. The shipping documentation for individual detail parts of a PMA assembly must contain the information required by 45.15(a)(1) through (3) and must identify the detail parts as a subcomponents of the PMA assembly. The PMA holder's design data may contain the marking information for detail parts of the assembly. This provides a means of tracing the individual detail parts to their related PMA assemblies.

c. Part Numbering. If the PMA part replaces an original part, the applicant assigns a part number that distinguishes the PMA part number from the corresponding TC holder part number. Adding a prefix or suffix to the TC holder's part number is enough as long as the prefix or suffix does not compromise the TC holder's part marking practices. The applicant may also use a prefix or suffix to satisfy 14 CFR 45.15(a)(2) requirements for marking the part with a name, trademark, or symbol. This only applies if the prefix or suffix is consistent across the applicant's product line. Also, each part bears "FAA-PMA" to meet another 14 CFR 45.15 requirement.

(1) **Supplier Numbers.** Some applicants are suppliers to PAHs. Often these PAHs use the supplier part numbers in their approved designs. When these suppliers later apply for a PMA, they may continue to use their original part numbers with the added marking requirements of 14 CFR 45.15(a)(1) and (2). These added requirements entail permanently marking the part with "FAA-PMA," and the name, trademark, or PMA holder's symbol.

(2) **Parts Manufactured Under License**. When the PMA basis is identicality by showing evidence of a licensing agreement, the PMA part may have the same number as the type-certificated part. However, we require the applicant to meet the requirements of 14 CFR 45.15(a)(1) and (2) by permanently marking the part with "FAA-PMA" and the PMA holder's name, trademark, or symbol.

d. Parts Impractical to Mark. If we find the part too small or impractical to mark all the information on it, then an attaching tag or container label must have the missing information. Often the number of eligible type-certificated products is too long to include with the part. Since the list is likely to change, a tag or label on a container may refer to the applicant's publicly available part eligibility information. 14 CFR 45.15(b) requires making the installation-eligibility information contained in a manual or catalog readily available. Providing a manual or catalog via the Internet meets the intent of "readily available." However, access to the Internet is not universal. The PMA holder must have an alternative means of providing the manual or catalog.

e. Marking a PMA Part on a TSO Article. Markings for a PMA part that goes on a TSO article follows the same protocols previously stated. 14 CFR 45.15 requires the holder to mark parts as prescribed per the approved design. The installation eligibility in these markings notes the name and model of each applicable type-certificated product. To meet the requirements of 14 CFR 45.15, record the PMA installation-eligibility information (that is, A310-200 series, B737-300 series, and so on) on the part. Do not list the TSO identification information (that is, TSO-C149, TSO-C63C, TSO-C85A, and so on). However, if an applicant holds a TSOA on the same part, then mark the part with both PMA and TSO markings.

2-11 Conformity Inspections. Coordinate conformity inspections with the responsible MIDO when the article's attributes, significance to safety, history of the applicant or other indicators warrant. These inspections are at the discretion of the ACO with coordination from the MIDO. Conformity inspections confirm that a modification or replacement article complies with an approved design and that the associated manufacturing facilities have the capabilities to produce this design. FAA certification tests may require these inspections. The ACO may accept inspection reports on non-critical articles from applicants with existing approved quality systems in place of performing conformity inspections. The use of the National Automated Conformity Inspection Process (NACIP) is preferred; however, a hardcopy of FAA Form 8120-10, *Request for Conformity*, is still applicable to request an inspection. For projects that require flight testing, use FAA Form 8110-1, *Type Inspection Authorization.*

2-12 Design Compliance. Perform the following steps after finding that the applicant showed compliance with the applicable airworthiness requirements:

a. Keep the submitted data package for ACO project files or get a written agreement with the applicant for on-demand access. Use the guidance in AC 20-179, *Data Retention Agreements and Government Records.* Return previously FAA-approved design data that the applicant voluntarily submitted to show identicality. In the official ACO files,

list or catalog this previously approved data to facilitate future project review and QMS audits.

b. Notify the applicant of the article's compliance with applicable airworthiness requirements in writing (typically found in the notification letter of design approval, ref. Appendix F). Inform the applicant that the MIDO in the area of the manufacturing facility will assess the associated quality system. Use email or traditional mail to communicate with the applicant. See appendix F for a sample of the notification letter of design approval referred to above. Adjust this sample to comply with office guidelines on format as needed.

c. Coordinate with the MIDO to generate the numbered PMA supplement. Send the ACO signed PMA supplement and a copy of the applicant's notification letter of design approval to the responsible MIDO. At the discretion of the MIDO, send advance electronic copies of these documents to expedite processing of the PMA.

NOTE: In regards to the eligibility information listed on the supplement, all details and description for make/model/series must match the applicable and current TCDS information.

2-13 Revising the PMA Supplement. Often an existing supplement needs correcting for typographical errors or updating contacts. While each ACO or MIDO sets an appropriate method to correct or update the supplement, they must maintain original signatures from each office (ACO and MIDO) on all altered supplements even in the event of a revision. Some offices issue a revised supplement with corrections. Then, they send the revised supplement to the PMA holder and request return of the original incorrect supplement. An applicant may send the ACO an amended supplement request and supporting data to expand installation eligibility, however, while this is acceptable, the preferred method for expanding eligibility is generating a new supplement. The applicant will submit to the ACO updated supplements in Microsoft Word table format with a note stating the specific ACO and/or MIDO action (for example, correction, revision, amendment, superseding, cancellation, or change of address).

2-14 Non-Compliance. If you cannot find compliance, send the applicant a rejection letter and return the applicant's data package in its entirety. Do not divulge any information from other parties used in the course of the design evaluation. See appendix E for a sample of an FAA design rejection letter. Adjust the format of the letter as needed, but keep the basic information from the sample.

2-15 Article Design Changes – Post PMA Approval.

a. PMA holders control their designs and assess the magnitude and impact of later changes. Review later design changes as necessary. 14 CFR 21.319 classifies changes in the designs of PMA articles as either major or minor. Minor changes have no appreciable effect on the approval basis of the PMA. Also any design change that has an

appreciable effect on the product on which the article is installed is a major design change.

b. The responsible ACO sets the manner for approving and the interval for the applicant submitting minor changes to the design of a PMA article. One method of compliance to 14 CFR 21.319 is through a written agreement with the PMA holder to periodically provide a list of applicant approved minor changes to the ACO. The holder provides sufficient information to affirm the change is minor. This information lists the articles by name and number, their latest FAA-approved drawing revision with date of approval, and a brief description of each change. The ACO keeps a record of these approvals and provides documentation of such to the PMA holder. Additionally, the ACO must notify the applicable MIDO of the submission time interval so that they can ensure it is accurately captured in the applicant's Quality System.

c. A change in the approval basis from identicality to tests and computations has an appreciable effect on an article's approval basis and is thus considered a Major change requiring a new PMA application and approval.

d. Scrutinize the supporting data for any change to the design of a critical part. Even minor changes in this part's design may have appreciable effects on its product. Direct the applicant to an STC for such.

2-16 Change of Licensing Agreement Status. Order 8120.22 redirects approval of minor design changes by holders of PMA via license agreement to the responsible ACO after termination (or otherwise non-supported) of the agreement. Approval of these minor changes entails revising the approval basis of the associated PMA as follows:

a. PMA via Identicality w/o Licensing Agreement. The transition to identicality without a license agreement requires a new application and associated supplement. The respective article's P/N needs a suffix or prefix to distinguish it from that from the license agreement or type certificate. Since the descriptive data shows the change is minor, the article's design remains compliant to applicable airworthiness requirements and associated eligibilities remain unchanged from the original approval. This minor change review by the ACO is the same as that done for a PMA via tests and computations.

b. PMA via Test and Computation. The transition from a PMA via identicality w/ a licensing agreement to one via tests and computations will require a full evaluation of the new PMA data the same as any new PMA. The shift in PMA basis negates the finding of identicality and requires new design data, test reports and computations to show compliance with airworthiness requirements. Treat this change of PMA basis as a major design per 14 CFR 21.319.

Chapter 3. Manufacturing Inspection District Office (MIDO) Responsibilities

3-1. PMA Activities. Refer to FAA Order 8120.22, Chapter 4, Parts Manufacturer Approval (Part 21, Subpart K), Section 2, for MIDO responsibilities in PMA.

Chapter 4. Designated Engineering Representatives and Organization Designation Authorization

4-1 ODA Roles in the PMA Process. ODAs operate under the procedures of their FAA approved manuals per FAA Order 8110.15. With respect to PMA guidance, we intend this Order to at least be referenced if not specifically followed by the ODA within their approved manual. It is the purview of the OMT to ensure national policy is followed in all instances.

4-2 DER Roles in the PMA Process. Only the FAA or an ODA can issue PMA. DERs do not issue PMAs, but support the FAA approval process with findings within their limitations. DERs make findings of compliance based on the applicant's showing at the discretion of the FAA and not the applicant. We list DER limitations in FAA Order 8110.37E, Designated Engineering Representative (DER) Handbook, paragraph 2-7.

NOTE: A DER may only recommend approval within the scope of their authority for critical parts.

4-3 Test and Computation. Findings under test and computation are within the normal scope of DER delegation. DERs find compliance with the appropriate airworthiness regulations and record these findings and their approval on FAA Form 8110-3, Statement of Compliance with Federal Aviation Standards. See the following appendices in this order for examples of DER findings:

a. Appendix G, Form 8110-3, *Test Reports and Computation (General Analysis)*. Appendix G shows DER findings of compliance from tests and computations using a general analysis approach.

b. Appendix H, Form 8110-3, *Test Reports and Computation (Comparative Analysis)*. Appendix H shows DER findings of compliance from tests and computations using a comparative analysis approach.

4-4 Identicality Provisions. Identicality is unique to PMA. A DER requires a special FAA authorization to make this finding. The DER adheres to the provisions in FAA Order 8110.37 when conducting PMA activities for findings of identicality. See appendix I for an example of a completed FAA Form 8110-3 for identicality.

4-5 Findings of Identicality. Designees verify the following for findings of identicality:

a. The TC, STC or TSO authorization data listed on Form 8110-3 is approved type design data for the indicated product models.

b. The stated eligibility of the PMA is appropriate.

c. No mandatory corrective actions are necessary in the article.

d. No unresolved service difficulties will make the article ineligible for installation.

Appendix A. PMA Process Flowcharts

Figure A-1. PMA Process

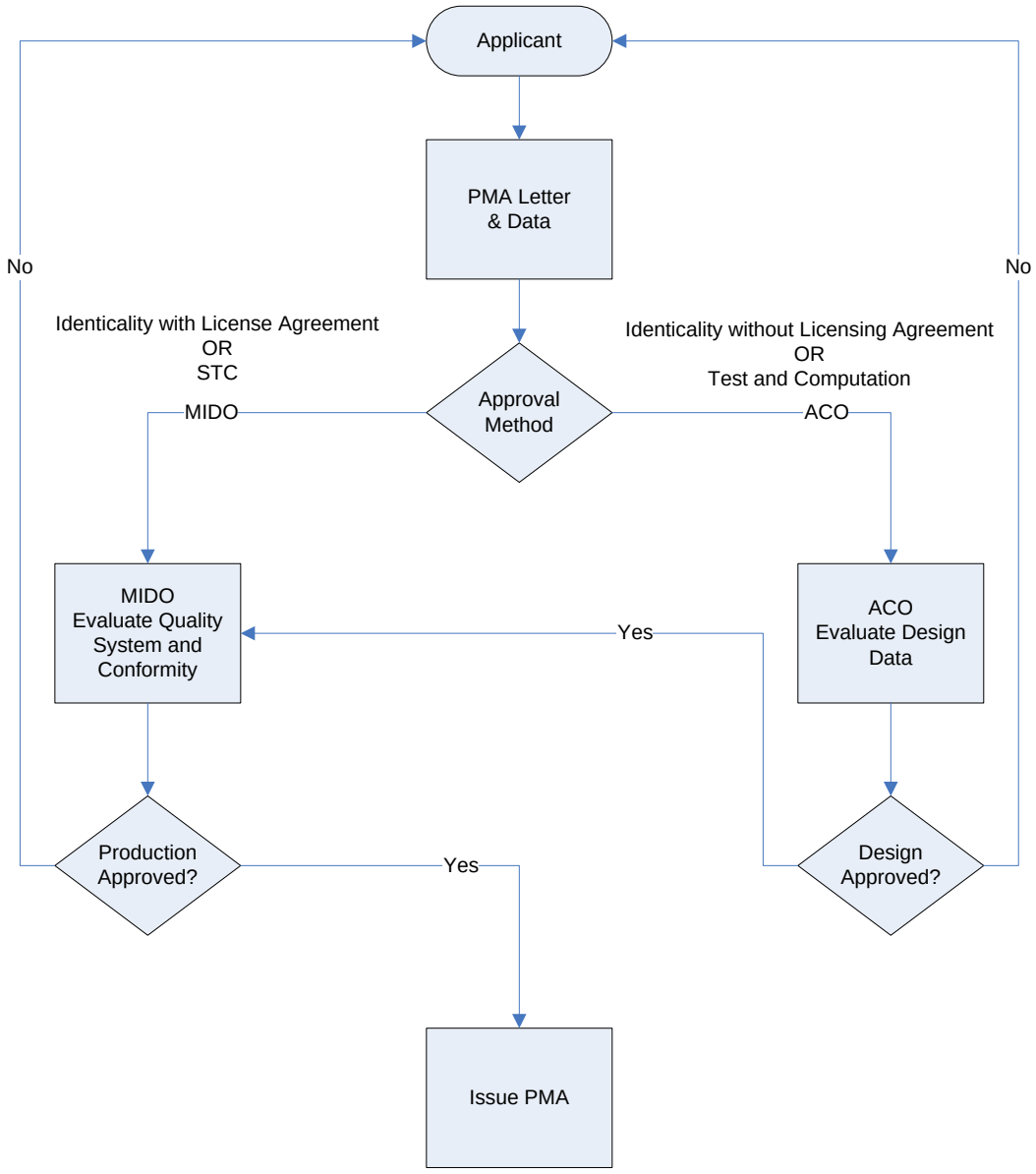


Figure A-2. PMA Process for Tests & Computations

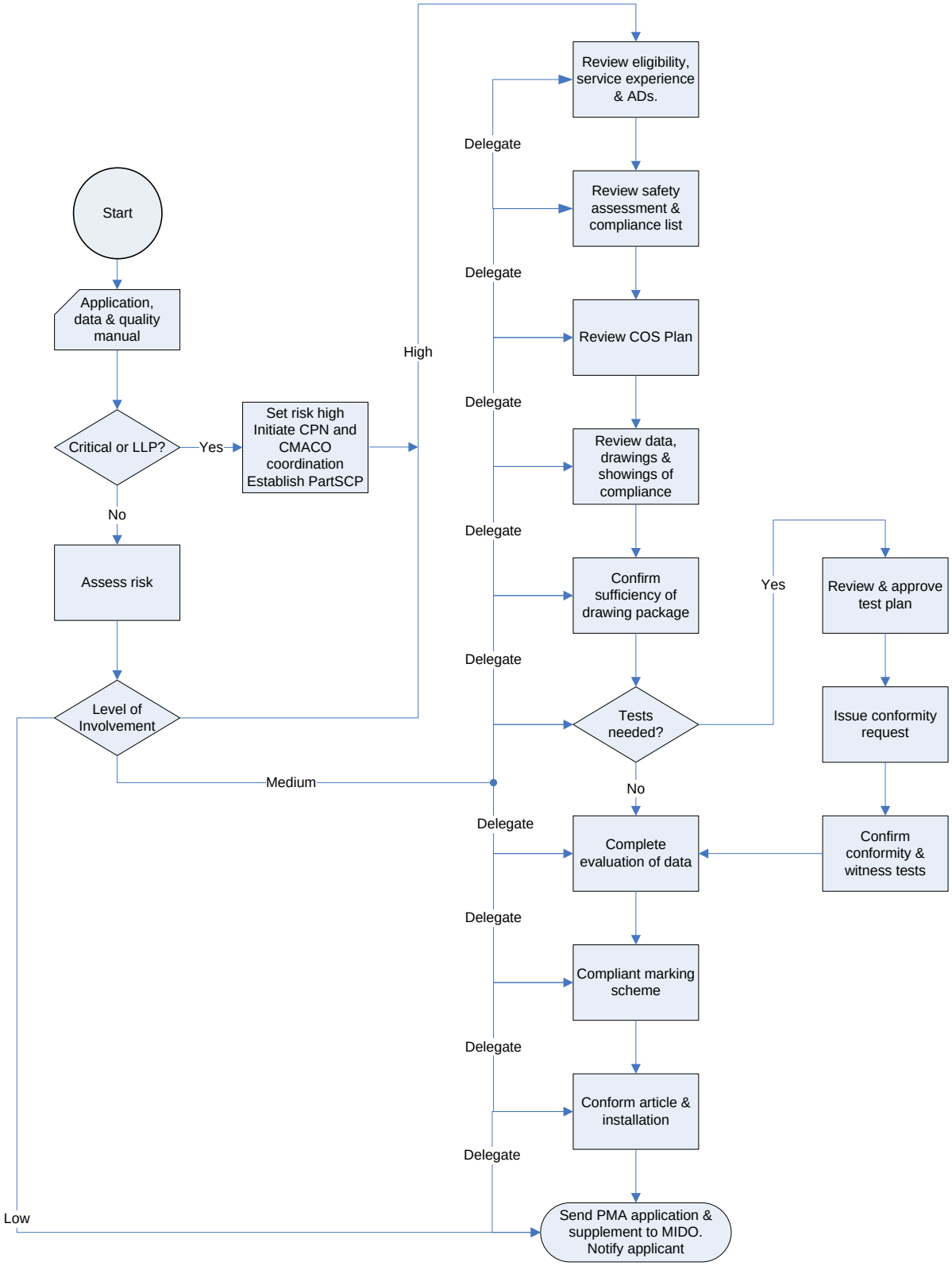
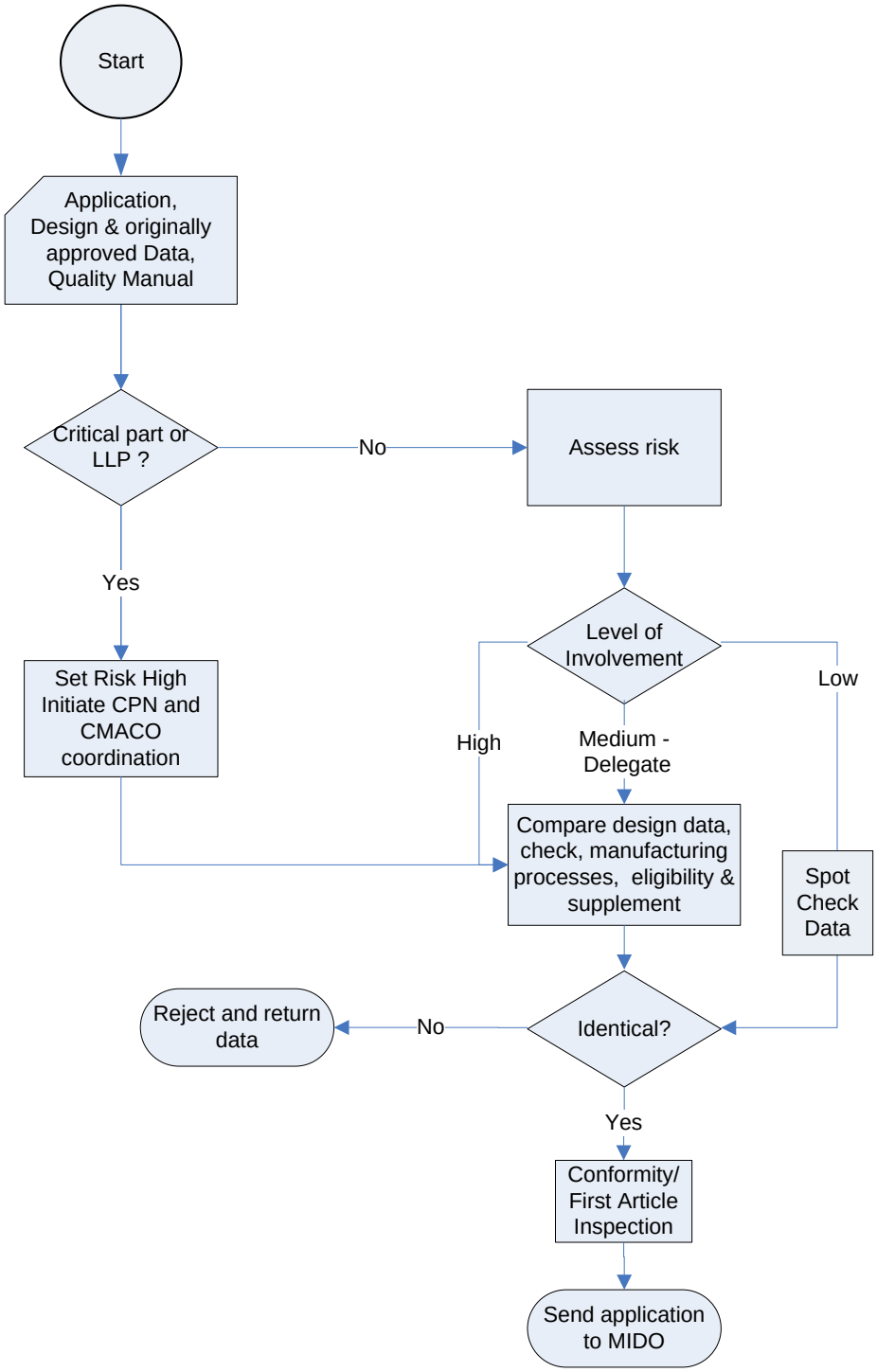


Figure A-3. PMA Process for Identicality without License Agreement



Appendix B. Part Specific Certification Plan

Note: This document is a template and an aid to help define content and format when drafting a PartSCP. All text in italics is instructional for editing or deletion as necessary. Retain all text not in italics in the PartSCP, but edit as necessary for each project.

Part Specific Certification Plan
Between
[Insert the Name of the Applicant/Company]

and the

[Insert the FAA Certification Office]

Project Number (leave blank until number assigned)

List of Revisions

Revision Number	Revision Description	Approved by:	Release Date

Table of Contents

1.0 Introduction

1.1 Scope

The purpose of this Part Specific Certification Plan (PartSCP) is to define and document the requirements and tasks required for FAA evaluation and PMA approval of replacement articles. The *[Insert the applicable FAA Certification Office]* of the Federal Aviation Administration and the applicant will jointly manage and maintain this PartSCP.

1.2 Project Description

This section must contain a brief description of the aircraft, engine, propeller, or TSO article requested for PMA approval including the article name, part number, and make/model eligibility.

1.3 Background (include service history)

1.4 Component Description

1.5 Instructions for Continued Airworthiness Plan

2.0 Applicable Documents

The following documents are required as article of this PartSCP to substantiate the manufacture of the articles and to show compliance to the regulations:

Item	*Document/Drawing*	*Revision*	*Description*
1	*12121212*	*A*	*ABC Aircraft Top Drawing*
2	*IPC*	*IR*	*Illustrated Parts Catalog or other proof of installation eligibility*

3.0 Project Schedule

Milestones as Applicable	Proposed Completion Date
Submittal of PartSCP	
First Article Conformity	
Test Plan submittal to FAA	
Test Plan approval	
Testing completed	
Test Report submittal to FAA	
DER approved 8110-3 reports/drawings	
Final data submittal for PMA completion	
Issuance of engineering design approval	
Addition milestones as appropriate	

4.0 Certification Basis

The certification basis and compliance with the applicable regulations is required, if the substantiation is accomplished by test and computation..

5.0 Tests

The applicant will propose any tests necessary to show compliance with the applicable regulations. These tests support the associated general or comparative analysis.

6.0 Conformity Inspections

Please list any expected conformity inspections necessary for this project.

7.0 Communication and Coordination

The focal points for official communication between the FAA and the applicant are as follows:

FAA Office Branch	Project Manager	*[Insert Name and phone number]*
[Insert Company Name]	Project Manager	*[Insert Name and phone number]*

This does not prevent team members from engaging or communicating with any other team member, however team members must inform the project focal point. Both the FAA and the applicant will provide to each other a listing of their project team members.

The project focal points will manage the project by conducting regularly scheduled status briefings.

8.0 Delegation

Both the FAA and the applicant agree to foster an environment where the designees, the FAA, and the applicant maintain open communications. The FAA supports using designees to the fullest extent possible to help in the successful completion of the project in the identified time frame.

The applicant will propose the use of any suitable designee in specific test plans for FAA concurrence of the test plan, and the designees will complete the task. It is important the applicant keep the designees and the FAA focal point informed of any potential shift in the project schedule.

9.0 Signatures

The FAA and the applicant agree to the provisions of this PartSCP as indicated by the signature of their authorized representatives.

FAA Concurrence:

_____ Date:_____
Project Manager

_____ Date:_____
MIDO
[If applicable]

Applicant Concurrence:

_____ Date:_____
Project Manager

Appendix C. List of FAA Manufacturing Inspection District/Satellite Offices

Go to *http://www.faa.gov/aircraft/air_cert/locate_office/mido/* to locate the appropriate certificate management office (CMO), MIDO, or manufacturing inspection satellite office (MISO).

Appendix D. Sample FAA-PMA Supplement for Identicality (Non-Licensing Agreement) or Test and Computation

Use this MS Word table format where each article name and number occupies a separate row. Do not delete or add extra fields, rows, or columns to separate data. ***Each page of the supplement must contain the PMA header and page number footer to ensure correctness in the event supplement pages are separated. While minor formatting may vary between offices, all information shown below must be present for the supplement to be valid.***

FEDERAL AVIATION ADMINISTRATION - PARTS MANUFACTURER APPROVAL

Smith Engineering Corporation
(Applicant address)

PMA NO._____
SUPPLEMENT NO._____
DATE_____

Article Name	Article Number	Approved Replacement for Article Number	Approval Basis and Approved Design Data	Make/TCH Eligibility	Model /Series Eligibility
Spring	SE24689	24689	Identicality per 14 CFR 21.303 DWG No: SE 25206, Rev: None Date: 3/31/13 or later FAA-approved revisions	Pratt & Whitney Canada Corp	PT6T-3, 3A, -3B, 3BE, -3D, -3DE, 3DF, -6
Pin	SE24695	24695	Test and Computations per 14 CFR 21.303, DWG No: SE 25207, Rev: None Date: 3/31/13 or later FAA-approved revisions	Boeing	737-700 Series, 767-400ER Series
				Boeing (McDonnell Douglas)	DC-10-10, DC-10-30, DC-10-40, MD-11, MD-11F

----------END OF DATA----------

GENERAL NOTES:

Provide minor design changes in a manner as determined by the ACO. Process major design changes to drawings and specifications in the same manner as that for an original FAA-PMA.

The FAA accepted the ICA approach for the above articles with their designs. These ICA may refer to those of the respective articles from the holders of type certificates. Otherwise, provide supplemental ICA for differences in the replacement articles. Make referral statements or supplemental ICA readily available per 14 CFR 21.50.

_____
Manager, *(ACO name)* Aircraft Certification Office

_____
Manager, *(MIDO name)* Manufacturing Inspection District Office

Pg. 1 of X

Appendix E. Sample Design Rejection Letter

U.S. Department
of Transportation
Federal Aviation Administration

(*ACO name*)

(*ACO address*)

[Date]

(*Applicant Name*)
(Applicant address)

(Applicant contact):

This is in response to your request for design approval based on identicality. We reviewed your data and did not find it identical to the corresponding approved data. Enclosed are the data you sent to us.

Sincerely,

_____

Manager, *(ACO name)*

Enclosure(s)

Appendix F. Sample Notification Letter of Design Approval

U.S. Department
of Transportation
Federal Aviation Administration

(*ACO name*)

(*ACO address*)

[Date]

(*Applicant name*)
(*Applicant address*)
(*Applicant contact*):

This is in response to your letter, dated (*Application date*), requesting parts manufacturer approval (PMA) on (*Applicant Name*) (*article name*) (*article number*) that is eligible on the (*approved eligibility*).

We have reviewed the data submitted and find they meet the requirements of 14 CFR 21.311. We noted design approval on the PMA supplement. Note that this is a notification letter only and does not constitute design or production approval. We sent the PMA Supplement with your application to:

(MIDO name, address, contact numbers)

The (*MIDO name*) will grant production approval after validating your Quality System. The FAA-PMA letter and PMA supplement from the (*MIDO name*) documents that approval.

Minor Design changes must be submitted to the (*ACO name*) at regular intervals not to exceed (*agreed to time frame*).

----------*Choose the best scenario*----------

We concur with your determination that installation of your PMA'd articles do not require supplemental instructions for continued airworthiness (ICA).

-or-

We concur with your instructions for continued airworthiness (ICA) as required by 14 CFR 21.50(b) for this PMA. The ICAs have been coordinated with the (*Specific* Aircraft Evaluation Group (AEG)) as required by PMA Order 8110.42D. The AEG acceptance for this project is recorded via FAA Memorandum dtd: (*memo date*) from the (*Specific AEG*) to (*ACO Project Engineer*).

If you have any further questions, please contact (*ACO project engineer and phone*)

Sincerely,

_____

Manager, (*ACO name*)
cc: (*MIDO name*)

Appendix G. Example of FAA Form 8110-3, Test and Computation (General Analysis)

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **STATEMENT OF COMPLIANCE WITH THE FEDERAL AVIATION REGULATIONS**	1. DATE **October 20, 2001**

AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE **General Electric**	3. MODEL NO. **CF6-50, CF6-80, CF6-80C2**	4. TYPE *(Aircraft, Engine, Propeller, etc.)* **Engine**	5. NAME OF APPLICANT **Sam's Engine Parts**

LIST OF DATA

6. IDENTIFICATION	7. TITLE
A12345X **Rev. D 04/01/2001**	**Oil Pump Shaft Drawing**
RPT-2468 **Rev. B 04/12/2001**	**Certification and Compliance Report**
- - -END- - -	

8. PURPOSE OF DATA

In Support of PMA Design Approval for the listed article; Test & Computation by General Analysis; FAA Project # XXX

9. APPLICABLE REQUIREMENTS *(List specific sections)*

14 CFR 33.xx, amdt (xx-xx)

10. CERTIFICATION – Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations.

I (We) Therefore
- [ ] Recommend approval of these data
- [X] Approve these data

11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBER(S)	13. CLASSIFICATION(S)
Joe Smith	**DERT-999999-NM**	***Engine/Part 33***
Joe Smith		

FAA Form 8110-3 (03/10) SUPERCEDES PREVIOUS EDITION (REPRESENTATION)

Appendix H. Example of FAA Form 8110-3, Test and Computation (Comparative Analysis)

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **STATEMENT OF COMPLIANCE WITH THE FEDERAL AVIATION REGULATIONS**			1. DATE **October 20, 2002**
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. MAKE **MCDONNELL DOUGLAS**	3. MODEL NO. **DC-9-83, -87 and MD-88**	4. TYPE *(Aircraft, Engine, Propeller, etc.)* **AIRPLANE**	5. NAME OF APPLICANT **SAM'S AIRPLANE PARTS**
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
A12346X **Rev. A 04/01/2002** **RPT-2469** **Rev. A 04/12/2002** **- - -END- - -**	**Tray Table Drawing** **Certification and Compliance Report**		
8. PURPOSE OF DATA **In Support of PMA Design Approval for the listed part; Test & Computation by Comparative Analysis*;*** ***FAA Project # XXX***			
9. APPLICABLE REQUIREMENTS *(List specific sections)* **14 CFR 25.xx. , amdt (xx-xx)**			
10. CERTIFICATION – Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered _____ have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations. I (We) Therefore ☐ Recommend approval of these data ☒ Approve these data			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)	12. DESIGNATION NUMBER(S)	13. CLASSIFICATION(S)	
Joe Smith	**DERT-999999-NM**	**Systems & Equipment**	
Joe Smith			

FAA Form 8110-3 (03/10) SUPERSEDES PREVIOUS EDITION (REPRESENTATION)

Appendix I. Example of FAA Form 8110-3, Identicality

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **STATEMENT OF COMPLIANCE WITH THE FEDERAL AVIATION REGULATIONS**			1. DATE **October 20, 2001**
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
2. Make. **General Electric**	3. MODEL NO. **CF6-50, CF6-80, CF6-80C2**	4. TYPE *(Aircraft, Engine, Propeller, etc.)* **Engine**	5. NAME OF APPLICANT **Sam's Engine Parts**
LIST OF DATA			
6. IDENTIFICATION	7. TITLE		
A12345X **Rev. D 04/01/2001** **RPT-2468** **Rev. B 04/12/2001** **- - -END- - -**	**Oil Pump Shaft Drawing** **Certification and Compliance Report** **FAA approval of the design is contingent upon FAA Engineering verification of the type design data listed.**		
8. PURPOSE OF DATA **In support of FAA PMA Design Approval for the listed part; Identicality w/o a licensing agreement under 14 CFR 21.303(a)(4); FAA Project # XXX**			
9. APPLICABLE REQUIREMENTS *(List specific sections)* **14 CFR 21.303(a)(4), amdt (xx-xx)**			
10. CERTIFICATION – Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered N/A have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations. I (We) Therefore ☐ Recommend approval of these data ☒ Approve these data			
11. SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S)		12. DESIGNATION NUMBER(S)	13.CLASSIFICATION(S)
Joe Smith		**DERT-999999-NM**	***PMA Identicality Findings***
Joe Smith			

FAA Form 8110-3 (03/10) SUPERSEDES PREVIOUS EDITION (REPRESENTATION)

Appendix J. List of Acronyms

Acronym	Definition
14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory circular
ACO	Aircraft certification office
AD	Airworthiness directive
AEG	Aircraft evaluation group
AIR-100	Aircraft Engineering Division
AIR-200	Production and Airworthiness Certification Division
AMOC	Alternative means of compliance
CMACO	Certificate management ACO
COS	Continued operational safety
CPN	Certification project notification
CSTA	Chief scientific and technical advisor
DAH	Design approval holder
DER	Designated engineering representative
FAA	Federal Aviation Administration
ICA	Instructions for continued airworthiness
IPC	Illustrated parts catalog
MIDO	Manufacturing inspection district office
MISO	Manufacturing inspection satellite office
ODA	Organization designation authorization

Acronym	Definition
OMT	Organization management team
PAH	Production approval holder
PartSCP	Part specific certification plan
PMA	Parts manufacturer approval
STC	Supplemental type certificate
TC	Type certificate
TCDS	Type certificate data sheet
TCH	Type Certificate Holder
TSO	Technical standard order

Appendix K. Definitions and Terms

When following procedures in this order, the following definitions and terms apply:

1. Accredited Laboratory is a laboratory which prescribes to a set of national standards and follows at least one of the available industry defined accreditation processes and maintains current certificated documentation as proof. These laboratories also employ qualified individuals with technical degrees in the fields of chemistry, engineering, or metallurgy.

2. Aircraft Certification Office (ACO) is the field branch of the FAA Aircraft Certification Service. The **project ACO** has geographic responsibility for finding the design complies with applicable airworthiness standards. It administers and secures compliance with agency regulations, programs, standards, and procedures governing the design approval of replacement and modification articles.

3. Article means a material, part, component, process or appliance. Articles may include sealants, modified standard parts, brake assemblies etc.

4. Certificate Management ACO (CMACO) is the ACO that issues and has oversight over the original design approval for the product/appliance for which the PMA applicant's article is eligible for installation.

5. Continued Operational Safety (COS) assures the integrity of a product throughout its service life. This involves problem prevention, service monitoring and corrective actions that feedback into a product's design and production**.**

6. Critical part is an article identified as critical by the design approval holder during the product type validation process, or otherwise by the exporting authority. Typically, such components include articles for which a replacement time, inspection interval, or related procedure is specified in the Airworthiness Limitations section or certification maintenance requirements of the manufacturer's maintenance manual or Instructions for Continued Airworthiness.

7. Design is all drawings, data and specifications that show the article's configuration and all information on dimensions, tolerances, materials, processes, and procedures necessary to define all article characteristics. A master drawing list is the summary of these drawing and specifications. The design can also include the airworthiness limitations section of the instructions for continued airworthiness.

8. Distributor is any person engaged in the sale or transfer of products and articles for installation in type certificated aircraft, aircraft engines or propellers, and that conducts no manufacturing activities.

9. Eligibility relates to the type-certificated products that the PMA articles are approved for installation.

10. FAA-PMA Letter is the initial production approval document issued to the PMA applicant by the appropriate manufacturing inspection district office (MIDO). This letter accompanies a PMA supplement. The supplement is the ACO's record of design approval and the articles that the manufacturer may produce. Later MIDO transmittal letters that references the initial PMA letters may revise eligibilities or add a new article to PMA supplements.

11. Instructions for Continued Airworthiness (ICA) documents directions and requirements to maintain the continued airworthiness of an aircraft, engine, or propeller.

12. Life-limited Part is an article with an established replacement time, inspection interval, or related procedure in the airworthiness limitations section as required by 14 CFR 21.50, 23.1529, 25.1529, 27.1529, 29.1529, 31.82, 33.4, and 35.4. Early type certificate data sheet (TCDS) have mandatory replacements or inspections for some products. These products were certified before 14 CFR had the above airworthiness requirements. Also, a technical standard order (TSO) authorization may note or reference mandatory replacement or inspection for an affected article.

13. Make is the common name associated with the original design of the product

14. Manufacturer is a person (14 CFR Part 1) who causes production of a product or article. PAHs or their suppliers are likely manufacturers.

15. Manufacturing Facility is the location of the approved quality system that produces the article.

16. Manufacturing Inspection District Office (MIDO) is the field branch of the FAA Aircraft Certification Service responsible for certificate management in the geographic area in which the PMA applicant's principle manufacturing facility is located. In some areas, a **manufacturing inspection satellite office (MISO)** will perform these functions. Go to *http://www.faa.gov/aircraft/air_cert/locate_office/mido/* to find the location, addresses, and geographic areas of responsibility of the individual MIDO/MISO. The **certificating MIDO** is the MIDO that issued the initial production approval or has certificate management responsibility for producing the product/appliance on which the PMA applicant's article is eligible for installation.

17. Model is the TCDS designation to classify a product of a particular style of design.

18. Modification article is new to the product and approved under a major or minor change to the type design. An STC is the most common source of modification articles.

19. Owner/Operator Produced Article requires participation in controlling an article's design, manufacture, or quality. Significant participation in one or more of the following actions establishes an owner/operator as the manufacturer of an article:

a. Fabricating or finishing the article, or performing a value-added article inspection.
b. Developing the design or performance data to manufacture the article.
c. Selecting materials to manufacture the article.
d. Developing fabrication processes or assembly methods to manufacture the article.
e. Developing quality control procedures to manufacture the article.
f. Controlling or supervising the manufacture of the article.

20. Product is an aircraft, aircraft engine, or propeller. See 14 CFR 21.1(b).

21. Production Approval Holder (PAH) is the holder of a production certificate, PMA, or TSO authorization. This person controls the design and quality of a product or article.

22. Qualified Laboratory is a laboratory which is not accredited; nonetheless, does follow defined processes along with employing qualified individuals with technical degrees in the fields of chemistry, engineering, or metallurgy.

23. Quality System Quality System is an organizational structure with responsibilities, procedures, processes, and resources that implements a management function to determine and enforce quality principles. The quality system encompasses quality assurance and quality control for replacement and modification articles that conform to the approved design.

24. Replacement article is a direct substitute for an article approved under a type certificate. It is a fit, form and functional replacement for an original article in a product's type design.

25. Revision is a correction of typographical errors or an update of administrative data on existing PMA supplements.

26. Series is a grouping of similar product models identified on the applicable TCDS.

27. Source Control Drawing is a drawing in which specific production and/or process details, typically found in the "Notes", are directly controlled by the PMA DAH and flow down to their suppliers. This control is typically accomplished via additional agreements outside the direct purview of the drawing.

28. Standard Parts conform to established industry-wide or government specifications. These specifications stipulate the design, manufacturing and uniform identification requirements. The specifications are readily available to any persons or organizations who want to produce these articles. Also standard parts may include those that solely meet uniform performance criteria if the Administrator finds complete compliance with industry-wide and government performance specifications. These specifications must include performance, test and acceptance criteria, and uniform identification requirements. The Administrator deemed discrete electrical and electronic components that conform to their applicable performance criteria as standard parts. See Volume 62 *Federal Register* 9923, March 5, 1997.

29. Supplier is any person as defined by 14 CFR Part 1, Definitions and Abbreviations, That furnishes products, articles, or services (at any tier in the supply chain) that are used or consumed in the manufacture of, or installed on aviation products of articles.

30. Technical Standard Order (TSO) Authorization is an FAA design and production authorization issued to a specific manufacturer of an article that we found to meet or exceed a specific TSO's minimum performance standard. The Aircraft Engineering Division (AIR-100) is responsible for TSOs. The geographic ACO is responsible for issuing the TSO authorization to the applicant. The TSO authorization is not an installation approval. We approve the installation of the article as part of the type design of a type-certificated product or subsequently by STC.

31. Type Certificate Holder is an individual or company who has been issued a design approval by the FAA and meets the requirements of 14 CFR part 21.21.

Appendix L. Related Publications and How To Get Them

L-1. Code of Federal Regulations (CFR). If needed, get copies of 14 CFR sections from the Superintendent of Documents, Government Printing Office, P.O. Box 37154, Pittsburgh, PA 15250-7954. Telephone (202) 512-1800; fax (202) 512-2250. You can also get copies on-line at *www.gpoaccess.gov/cfr/*.

L-2. FAA Orders. You can get copies of the following orders from the FAA Order and Notices website at *http://www.faa.gov/regulations_policies/orders_notices/* and the Regulatory and Guidance Library (RGL) website at http://rgl.faa.gov/:

(1) Order 8100.5, *Aircraft Certification Service Mission, Responsibilities, Relationships, and Programs*.

(2) Order 8100.7, *Aircraft Certification Systems Evaluation Program*

(3) Order 8100.8, *Designee Handbook*

(4) Order 8100.11, *Developing Undue Burden and No Undue Burden Decision Papers Under 14 CFR Part 21*

(5) Order 8100.15, *Organization Designation Authorization Procedures*

(6) Order 8110.4, *Type Certification*

(7) Order 8110.37, *Designated Engineering Representative (DER) Guidance Handbook*

(8) Order 8120.22, *Production Approval Procedures*

(9) Order 8150.1, *Technical Standard Order Program*

L-3. U.S. Military Documents. Order copies of MIL-STD-1916, DOD Preferred Methods for Acceptance of Product, dated April 1, 1996, from the Department of Defense Single Stock Point, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5098. Telephone (215) 697-2179, fax (215) 697-1462. You can also order copies online at *http://dodssp.daps.dla.mil/*.

L-4. American National Standards Institute (ANSI) and American Society for Quality (ASQ). Order copies of ANSI/ASQC Z1.9-2003, *Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming*, dated December 18, 2003, from the American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203. Telephone (414) 272-8575, fax (414) 272-1734. You can also order copies online at *www.asq.org*.

Appendix M. Administrative Information

M-1. Distribution. Distribute this order to the branch level in Washington headquarters, branch levels of the Aircraft Certification Service; the branch levels of the regional aircraft certification directorates; all aircraft certification offices (ACO); all manufacturing inspection district offices (MIDO); and all manufacturing inspection satellite offices (MISO).

M-2. Authority to Change This Order. The issuance, revision, or cancellation of the material in this order is the responsibility of the AIR Certifications Procedures Branch (AIR–111,).

M-4. Suggestions for Improvement. If you find deficiencies, need clarification or want to suggest improvements to this order, send FAA form 1320-19, Directive feedback Information, (written or electronically) to the Aircraft Certification, Administrative Services Branch, AIR-510, Attention Directives Management Officer or you can fill out the form online through the FAA Directive feedback system at *http://avsdfs.avs.faa.gov/*. If you urgently need an interpretation, contact AIR-111 at 202-385-6312. Always use Form 1320-19, in appendix N, to follow up each verbal conversation.

M-5. Records Management. Refer to FAA Orders 0000.1, *FAA Standard Subject Classification System*; 1350.14, *Records Management*; and 1350.15, *Records, Organization, Transfer, and Destruction Standards*; or your office records management officer or directives management officer for guidance regarding retention or disposition of records.

Appendix N. FAA Form 1320-19 Directives Feedback Information

Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: FAA Order 8110.42D

To: Directive Management Officer at 9-AWA-AVS-AIR-DMO@faa.gov

(*Please check all appropriate line items)*

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:
(attach separate sheet if necessary)

☐ In a future change to this directive, please include coverage on the following subject:
(briefly describe what you want added)

☐ Other comments:

☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____

FAA Form 1320–19 (8-89)(Representation)