U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

National Policy

ORDER 8110.37G

Effective date:
XX/XX/XXXX

SUBJ: Designated Engineering Representative (DER) Handbook

This order is a handbook of procedures, technical guidelines, limitations of authority, and tools and resources for designated engineering representatives (DERs). It was written for all DERs and the Federal Aviation Administration (FAA) staff who manage them. This handbook is designed to give FAA managing offices and DERs a better understanding of their individual and mutual responsibilities.

While information in this order is intended for DERs, it may also be useful to organization designation authorization (ODA) engineering unit members when performing compliance-finding functions.

All users of this order will familiarize themselves with its contents and comply with the instructions and guidance it contains.

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Chapter 1. General Information

1. Purpose of This Order. This order prescribes the working procedures to be used by certification branches and the designated engineering representatives (DERs) they appoint to represent the FAA Administrator. Guidance on selecting, appointing, training, and managing DERs is contained in FAA Order 8000.95, *Designee Management Policy.*

2. Audience. This order is written for DERs and division levels of the Aircraft Certification Service (AIR). It is also written for AIR certification branches and the FAA Academy Regulatory Standards Training Division (AMA-200).

3. Where to Find This Order. You can find this order, and other FAA documents referenced in this order, on the FAA employee website, on the FAA public website, and in the FAA Dynamic Regulatory System (DRS) website.

4. What This Order Cancels. This order cancels FAA Order 8110.37F, *Designated Engineering Representative (DER) Handbook,* dated August 31, 2017.

5. Explanation of Major Changes. The following is a list of changes made in this revision, along with the applicable section references:

a. Updated "Project Office" to "Project Certification Branch."

b. Deleted the previous content of appendix A, as DER charts have been revised and relocated. The new DER charts have been moved to the online Designee Management System (DMS). Sample DER charts are available on the Information for DERs website.

c. Deleted previous content of appendix B. FAA Form 8110-3, *Determination of Compliance with Airworthiness Standards,* has been revised. Former figure B-8 (Sample Letter Authorizing Data Approval for Repairs and Alterations) is no longer required. Former figure B-9 (Sample Repair Specification Title/Signature Page) has been moved to appendix D.

d. Deleted the radio engineering technical field. Reference chapter 2, paragraph 1.b.

e. Deleted chapter 2, paragraph 5.d, as FAA Order 8000.95, Volume 9, does not allow deviations to minimum qualifications.

f. Deleted paragraphs defining special authorizations/special functions in chapter 2, paragraph 7, by referring to applicable portions of FAA Order 8000.95.

g. Revised chapter 2, paragraph 8.c(3), to include fuel efficiency.

h. Revised reference to the location and types of training in chapter 3, paragraph 1.

i. Deleted chapter 3, paragraph 1.g(3), as the original FAA Form 8110-3 is now collected digitally in DMS.

j. Removed note in chapter 3, paragraph 1.k, as FAA Order 8000.95 contains this information.

k. Revised chapter 3, paragraph 2, to provide instructions that FAA Form 8110-3 is now located in DMS and to align with new DER charts located in DMS.

l. Revised chapter 3, paragraph 3, to clarify instructions for DERs with special delegation for project management.

m. Revised chapter 3, paragraph 4, to reference FAA Order 8000.95 for repair specification DER (RS-DER) functions.

n. Removed chapter 4, paragraph 1.g, as FAA Order 8110.4, *Type Certification,* defines this concept.

o. Revised chapter 4, paragraph 6.a, to indicate that DERs should not approve data for minor design changes.

p. Revised chapter 4, paragraph 6.b, to include fuel efficiency.

q. Revised chapter 4, paragraph 10, to add DER International Operating Procedures.

r. Clarified DER responsibilities with Instructions for Continued Airworthiness (ICA) airworthiness limitations in chapter 4, paragraph 12.m.

s. Incorporated Deviation Policy Memorandum AIR600-FY22-630-DM02, Deviation from FAA Order 8110.37F, *DER Handbook,* in chapter 4, paragraph 13.

t. Clarified the special delegation of RS-DER with multiple major repair authority in chapter 4, paragraph 13.

u. Revised chapter 4, paragraph 13.g, to include influencing parts.

v. Added Appendix C, Related Material.

6. Effective Date. This order is effective when signed. The compliance date of this order is 30 days after the signing date.

Chapter 2. DER Authority and Limitations

1. DER Establishment.

a. Title 49, United States Code, Section 44704 (49 U.S.C. Section 44704) empowers the Administrator to issue type certificates (TC) for aircraft, aircraft engines, and propellers, and specify regulations as applicable to the type certification function. Section 44702(d) authorizes designation by the Administrator of a qualified private person or an employee under the supervision of that person, matters related to examination, testing, and inspection necessary to the issuance of such certificates. Delegations are limited in scope: all requirements, policy, direction, and interpretations remain with the Administrator.

b. Title 14 of the Code of Federal Regulations (14 CFR) part 183, *Representatives of the Administrator,* prescribes the requirements for designating private persons to act as representatives of the Administrator in examining, inspecting, and testing of persons and aircraft for the purpose of issuing airman and aircraft certificates. The manager of a certification branch or the manager's designee is empowered by part 183 to select DERs from qualified persons who apply. Designation of a private person as a DER is a privilege granted by the Administrator. It is not the right of every qualified applicant to receive a DER designation. An individual may be appointed in one or more of the following disciplines:

(1) Structural engineering;

(2) Powerplant engineering;

(3) Electrical systems and equipment engineering;

(4) Mechanical systems and equipment engineering;

(5) Engine engineering;

(6) Propeller engineering;

(7) Flight analyst;

(8) Flight test pilot; and

(9) Acoustical engineering.

2. **DER System.** The DER system enables the FAA to use qualified technical people to examine data, witness tests, and perform inspections necessary to determine that the data shows compliance with applicable airworthiness requirements. A DER must follow the same procedures that an FAA engineer must follow when performing compliance-finding functions, such as those appearing in FAA Order 8110.4, *Type Certification;* FAA Order 8110.42, *Parts Manufacturer Approval Procedures;* and FAA Order 8300.16, *Major Repair and Alteration Data Approval.*

a. A DER offers technical expertise and can often be involved in projects including state-of-the-art development for future technologies. DERs can, therefore, be in a good position to explain program requirements to applicants based on their technical capability. An FAA specialist understands the framework of critical regulations that allow technology to be applied safely. The DER and the FAA are both responsible for ensuring that the DER system is properly administered. The FAA must authorize and delegate responsibly and perform appropriate oversight.

b. The FAA will decide its level of project involvement and the nature of that involvement. A determination that data is compliant by a DER means the applicant has shown compliance. The DER has to actually review the data to confirm that the applicant has shown compliance. The FAA may choose to be involved, or not. The FAA has the discretion to review any data and use available resources (i.e., peers, designees, technical specialists, Chief Scientist and Technical Advisors (CSTAs), Senior Technical Specialists (STS), policy staff, and management) to make sound and timely technical decisions.

c. The FAA has discretion to identify what to review and the amount of review necessary. FAA review can vary from a cursory review of the submittal to a complete evaluation. These level of review options are not available to designees. A DER must completely review all pertinent data when recommending or making a determination of compliance. Factors the FAA considers when exercising their discretion include the FAA's confidence in the applicant, the applicant's experience and internal processes, and confidence in the designees. None of these factors are available for consideration by the designee.

d. The FAA expects that DERs will have the ability to explain compliance expectations to applicants and be involved with issue resolution and explanations of what does or does not comply with requirements. The FAA's interaction with DERs is highly interdependent, building on mutual interests in achieving the highest level of safety. The FAA recognizes that DERs may be involved with presenting applicant positions, questions, and issues to the FAA. In fact, the FAA may work through DERs to obtain applicant resolution.

e. DER participation can play a significant role in reducing the FAA workload and easing the overall approval process to the mutual benefit of applicants and the FAA. Involving the DERs enables the FAA to use its limited resources more effectively.

f. DERs can also be used on projects for special classes of aircraft under 14 CFR 21.17(b), which may include airworthiness criteria when airworthiness standards (parts 23, 25, 27, 29, 31, 33, etc.) have not been issued. This requires the FAA to specifically identify these airworthiness criteria in the DER's Certificate Letter of Authority (CLOA) in order for a DER to approve data that meets those requirements.

3. Terms Used in This Order.

a. Emissions. Throughout this order, wherever the word "emissions" is referenced, it is intended to refer to the requirements of 14 CFR part 34, *Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes.*

b. Airworthiness Requirements vs. Airworthiness Standards. Throughout this order, the term "airworthiness requirements" refers to all the requirements to which a DER finds compliance, such as airworthiness standards set forth in 14 CFR parts 23, 25, 27, 29, 33, etc., and also regulatory requirements that are not airworthiness standards, such as the requirements for noise, emissions, etc. Though FAA Form 8110-3 is titled "Determination of Compliance with Airworthiness Standards," it is used to document a finding of compliance with airworthiness requirements.

4. DER Authorities.

a. DER approval. It is the applicant's responsibility to show that engineering data will demonstrate their design complies with applicable airworthiness requirements. When a DER finds the engineering data compliant with those requirements, it is referred to as a DER approval. For certification projects, this approval is an approval of substantiating data or descriptive data but is not a design approval as recognized in 14 CFR part 21. A specially delegated DER can approve some or all of the technical data intended to be used for a major repair or major alteration.

b. Approval or Recommended Approval. DERs may approve or recommend approval of engineering technical data within the limits of their authority by means of FAA Form 8110-3 where delegated. A recommendation for approval of technical data for a finding of compliance with airworthiness requirements can only be made by an authorized DER. When recommending approval, the DER must make the same determination of compliance as if full approval were authorized. A project certification branch may also authorize a DER to witness FAA compliance tests and perform compliance inspections. DER authority is documented on the CLOA and listed in the form of technical discipline-specific charts in the online DMS. Refer to Order 8000.95 for more information.

5. DER Types.

a. Company DER (DER-Y). An individual may be appointed to act as a company DER for the individual's employer and may only approve, or recommend approval to the FAA of, technical data for their company. If a company DER is assigned to work in a consortium, business arrangement (e.g., using other companies' DERs), partnership, licensing agreement, etc., the company representative should coordinate with the managing office and obtain their acceptance before the designee approves or recommends approval of technical data for another company.

b. Consultant DER (DER-T). An individual may be appointed to act as an independent consultant DER to approve or recommend approval of technical data to the FAA for a client.

c. Dual Appointments. A managing office may appoint an individual to act both as a company DER (DER-Y) and consultant DER (DER-T). In such cases, the managing office makes separate appointments and issues separate CLOAs. The managing office will advise the DER that the FAA recommends to inform the employer of the dual appointment. The managing office may authorize the consultant DER designation for delegated areas different from the company DER's designation, depending on the individual's experience, the particular authorities

requested by the applicant, and limitations the managing office places on the DER. There are benefits to having both of these appointments managed by the same managing office, but it is not a requirement. If the company DER designation and the consulting DER designation are the responsibility of two different managing offices, the two managing offices will work together to determine the best method of managing a dual appointment.

6. DER Delegations.

a. Structural Engineering DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Engineering reports;

(2) Drawings;

(3) Material and process specifications used in structural applications; and

(4) Other data relating to structural considerations.

b. Powerplant Engineering DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Engineering reports;

(2) Drawings; and

(3) Other data relating to powerplant installations, including all systems, parts, and equipment necessary for the proper operation of a powerplant.

c. Electrical Systems and Equipment Engineering DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Engineering reports;

(2) Drawings; and

(3) Other data relating to aircraft systems, parts, and equipment design not covered by structural, mechanical systems, or powerplant representatives.

Note: Radio engineering has been absorbed into the electrical systems engineering chart. Radio-related approvals will use the "Communication Systems" area of expertise.

d. Mechanical Systems and Equipment Engineering DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Engineering reports;

(2) Drawings; and

(3) Other data relating to aircraft systems, parts, and equipment design not covered by structural, electrical systems, or powerplant representatives.

e. Engine Engineering DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Engineering reports;

(2) Drawings; and

(3) Other data relating to durability, materials, and processes employed in engine design, operation, and maintenance.

f. Propeller Engineering DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Engineering reports;

(2) Drawings; and

(3) Other data relating to propeller blade and hub design, pitch control, propeller governing, and maintenance, provided these items comply with the applicable regulation(s).

g. Flight Analyst DERs may approve, within the limits of their appointment, the following items that comply with pertinent regulation(s):

(1) Aircraft performance flight test data;

(2) Aircraft quantitative operating data; and

(3) Flight characteristics data.

h. Flight Test Pilot DERs may conduct flight tests and prepare and approve flight test information, within the limits of their appointment. See chapter 4, paragraph 5, of this order for more information.

i. Acoustical Engineering DERs may witness and approve within the limits of their appointment:

(1) Noise certification tests conducted in accordance with an FAA-approved test plan;

(2) Noise data;

(3) Noise analyses, and

(4) Test results that were measured and evaluated as prescribed in 14 CFR part 36, or by an equivalent procedure previously approved by the FAA Office of Environment and Energy.

Note 1: Although acoustical engineering DERs may witness and approve the items in paragraphs 6.i.(1) through 6.i.(4), they may only recommend approval of test plans and final noise certification compliance reports. Approval of acoustics test plans and compliance reports is reserved for the FAA.

Note 2: See chapter 4, paragraph 2, of this order for more information.

7. DER Special Delegations. Refer to FAA Order 8000.95, Volume 9, for DER Special Delegations.

8. DER Limitations. DERs may only find compliance based on the authority documented in the CLOA. Authorized delegations are generally the technical areas involved in determining compliance with applicable airworthiness requirements. An area of expertise is generally the specific portion or system of an aircraft, the type of engine or propeller, or the specialized area to which an authorized delegation is applicable.

a. Predecessor Regulations and Other Acceptable Airworthiness Requirements.

(1) Predecessor Regulations. Unless otherwise specified, a DER's authority for a 14 CFR part includes authority for the associated predecessor regulations for that part. For example, authority for 14 CFR part 25 includes Civil Air Regulation (CAR) part 4b, authority for 14 CFR part 23 includes CAR part 3, and so forth.

(2) Restricted Category Regulatory Basis. DERs approving data in support of restricted category aircraft must consult the Type Certificate Data Sheet (TCDS) or check with their managing specialist for the best course of action regarding the certification basis.

(3) Other Acceptable Airworthiness Requirements. Airworthiness criteria that the FAA has adopted or accepted for special classes of aircraft must be specifically identified in the DER's CLOA in order for the DER to approve data that meet those criteria. Examples of airworthiness criteria that the FAA recognizes include the airworthiness requirements accepted for primary category airplanes, airship design criteria, powered-lift, and the Joint Aviation Requirements (JAR) and European Union Aviation Safety Agency (EASA) requirements for Very Light Airplanes (VLA).

(4) Light-Sport Aircraft. Since aircraft that are produced under the light-sport category are not produced using approved design data, their repairs do not need approved data. Therefore, a DER is not allowed to issue an FAA Form 8110-3 approving data substantiating or describing a repair or alteration on special and experimental light-sport aircraft.

b. Items Requiring FAA Approval. The FAA does not delegate to DERs the authority and responsibility for establishing the certification basis or issuing any special conditions, exemptions, equivalent level of safety findings, TCs, supplemental type certificates (STCs), parts manufacturer approvals (PMAs), or Technical Standard Order Authorizations (TSOAs). This limits the data that a DER can approve. The following items are not delegated to DERs:

(1) Approving departures from specific policy and guidance.

(2) Approving requirements necessary for an equivalent level of safety finding.

(3) Issuing special conditions.

(4) Granting or denying exemptions.

(5) Establishing a product certification basis.

(6) Issuing TCs, STCs, PMAs, TSOAs, and approvals in accordance with 14 CFR 21.8(d).

(7) Determining an unsafe condition.

(8) Issuing an airworthiness directive (AD).

(9) Representing the FAA to foreign authorities.

Note: Issuing TCs and STCs may be delegated to select organizations in accordance with FAA Order 8100.15, *Organization Designation Authorization Procedures,* but they are never delegated to individual designees.

c. Items Requiring FAA Decisions. In addition to the FAA approvals listed in paragraph 8.b of this chapter, some interpretations and decisions may only be made by the FAA as described below:

(1) Interpreting 14 CFR (including Policy or Guidance). When DERs have questions about the interpretation of a 14 CFR part, including the use of new or unconventional materials and processes, they must consult with the project or managing office. A DER is not authorized to interpret regulations. A DER must be guided by existing policies, procedures, specifications, processes, and standards. A DER must consult with the project or managing office before departing from existing procedures in making findings of compliance, or interpreting policy or guidance, if unclear.

(2) Determining if Type Design Changes are Major or Minor Changes. The design approval holder (DAH) is responsible for determining whether a type design change is major or minor, as defined in § 21.93. Although the DAH may use a DER to assist in the comparative analysis needed to determine if a change is in fact minor, the DER may participate as a representative of the applicant, not the FAA. The FAA has the final responsibility to accept or reject that determination. This authority rests with the FAA and cannot be delegated to a DER.

(3) Determining if Type Design Changes are Acoustic, Emission, or Fuel Efficiency Changes. The DAH is responsible for determining whether a design change is, or is not, an acoustic, emission, or fuel efficiency change. The FAA has the final responsibility to approve or reject that determination when the DAH submits the project. This approval authority rests solely with the FAA and cannot be delegated to a DER. DERs may be delegated authority to approve and recommend approval of the data associated with acoustic changes and emissions changes. There is currently no fuel efficiency (14 CFR part 38) authority available to be granted to a DER.

(4) Use of New/Unproven Technologies. An applicant proposing to use new or unproven technologies must coordinate with the FAA office managing the project to determine if delegation of compliance finding to a DER is appropriate. On such projects, DER participation can play a beneficial role in reducing the FAA's workload and making the overall approval process more efficient for both the applicant and the FAA. DER involvement helps the FAA use its limited resources more effectively.

d. Items Likely to be Retained for FAA Approval. The FAA's decision to delegate is influenced by the extent of the FAA's internal knowledge and expertise, as well as that of the proposed DER. The FAA must also consider the impact of the delegated task on safety and the political sensitivity of the task. Current guidance allows the FAA to delegate these tasks dependent upon the risk level associated with them by using risk-based decision-making. The risk level is based on the task, the proposed designee, and the project as a whole. If the FAA delegates, it must be done carefully and consistently as follows:

(1) Test Plans.

(a) Authorization for test plan approval to appropriately qualified DERs may be documented in the DER's CLOA. Delegation for test plan approvals may be granted by the project certification branch on a case-by-case basis when a qualified DER is proposed for a project.

(b) The FAA will usually retain the authority to approve plans for testing new and novel techniques, materials, and procedures.

(2) Airplane Flight Manual (AFM) and Rotorcraft Flight Manual (RFM) Data. A DER requires specific authorization to examine and approve data on loading schedules or devices, weight and balance reports, equipment lists, flight manual revisions, and related reports.

(3) Service Documents Related to ADs. A properly authorized DER can approve engineering aspects of service documents (e.g., the associated design change) and revisions. However, if the FAA has issued, or intends to issue, an AD that addresses an unsafe condition that is the subject of a service document, the DER must coordinate with the project certification branch and obtain concurrence prior to approving the engineering aspects of the service document. The FAA may reserve the approval of AD-related service documents and revisions.

(4) PMA Design Approvals. A DER may make findings of identicality or findings of compliance with the airworthiness requirements by test and computation that contribute to PMA design approvals. The managing office must grant the DER a special delegation in order for the DER to make a finding of identicality.

(5) TSOAs. The Technical Standard Order (TSO) process, described in part 21, subpart O, is significantly different than the TC processes. For the TSO process, persons who are DERs may not use their DER authority, but may contribute to TSOAs in two ways:

(a) Based on their knowledge and experience, they may be the most appropriate persons to review and submit data or witness tests on behalf of a TSO applicant. They may not use FAA Form 8110-3 to approve data.

(b) When authorized, a DER may find compliance with the appropriate airworthiness requirements for equipment that may eventually get a TSOA. This is common when the equipment is used on prototype aircraft in a TC project concurrent with a TSOA project.

Note: DERs are not authorized to find compliance with any TSO requirement in support of an application for TSOA. The TSO process relies on the applicant's statement of conformance to TSO requirements without specific FAA findings.

(6) Delegating Alternative Method of Compliance (AMOC) Approval. The certification branch initiating an AD may either approve an AMOC related to that AD or, in certain cases, delegate AMOC approval to a DER (see chapter 4, paragraph 8, in this order for details of this process). This delegation is limited only to qualified structural company DERs who work for the affected DAH. The delegation is restricted to deviations to ADs for repairs or alterations to a *single* aircraft, with the following exception: The same AMOC may be approved repeatedly on separate FAA Form 8110-3s for multiple aircraft that are determined eligible. In circumstances when the DER has documented a pattern of identical approvals and it has been demonstrated that the AMOC is applicable to a defined fleet of aircraft, the DER may be authorized to approve a global AMOC if coordinated with the responsible certification branch.

(a) An AMOC related to the following items may *not* be delegated:

- Adjustments to compliance times;
- Changes to operating limitations;
- Continued operation with unrepaired damage; and
- Discretionary judgments of acceptability.

(b) For an AMOC that involves a temporary repair, the temporary repair must:

- Meet the certification basis of the aircraft;
- Be designed so that the durability of the most critical detail of the temporary repair is greater than 18 months (based on projected aircraft use); and
- Be replaced by a permanent repair or terminating action within 24 months. Further, the FAA requires the temporary repair to be designed so its inspection threshold is greater than its replacement period. In other words, there must not be a need to inspect the temporary repair while it remains installed.

(c) An authorized DER may approve an alternate inspection method, threshold, or interval where a new repair or alteration results in the inability to accomplish the existing AD-mandated inspection or necessitates a change in the existing AD inspection threshold. The standard for these approvals is the appropriate damage tolerance regulation (e.g., § 25.571, amendment 45 or later).

Note: More information on FAA oversight and delegation can be found in FAA Order 8110.4.

Chapter 3. DER Administration

1. FAA Expectations for DERs.

a. Training. Training requirements for DERs are described in FAA Order 8000.95, Volume 9, and may be supplemented by a managing office.

b. DER Independence. A DER must have the ability to maintain the highest degree of objectivity. A DER must also have adequate time to perform all assigned duties and adequately represent the FAA. For a company DER, the company must afford the DER that independence.

c. DER Indemnification Status. When acting under a DER appointment, a DER represents the FAA. A DER is not an employee of the FAA, or of the United States government, and is not federally protected for the work done or the decisions made as a DER. As a private individual, a DER is subject to general tort law. It is in the company DER's best interest to consult their employer for company policy regarding indemnification. The FAA cannot shelter or protect DERs from the consequences of their findings.

d. Good Practices. DERs need general knowledge of the overall DER system and FAA certification procedures so they and the FAA can work together as a team. The FAA expects a DER to be guided by "good practice" principles. A DER must not sign an FAA Form 8110-3 until all the substantiating data is available, understood, and has been identified on the form. An FAA office detecting DER methods or procedures inconsistent with, or departing from, good practice must bring this to the DER's attention. The managing office will then monitor the DER for compliance with good practice and can consider further deviations as misconduct and grounds for termination of the DER authorization.

e. Use of DER Authority. The FAA expects DERs to exercise their authority to either find compliance or recommend a finding of compliance to airworthiness requirements, using FAA Form 8110-3. A DER may not use FAA Form 8110-3 to recommend a finding by the FAA unless their delegated authority on a specific project is identified as "Recommend Approval." A DER who is fully authorized to find compliance, but chooses to defer a finding to the FAA, must contact the managing office or project certification branch, as appropriate, to discuss the concern with the technical data. If the FAA agrees to review the data and make the finding of compliance, the DER must submit the data to the FAA along with a written explanation of why the finding is being deferred. FAA Form 8110-3 must not be used for this submittal. Discussions with the FAA may conclude that the DER will still make the finding of compliance under the DER's delegated authority.

f. Changes. It is a DER's responsibility to ensure that their personal profile, including designation location, is current and accurate in DMS. The DER may make updates at any time by logging into their DMS account and making the necessary changes. If a company DER is no longer employed by the company that requested the DER appointment, a company representative must notify the DER's managing specialist. The managing specialist will complete a company voluntary surrender in DMS, which will result in the termination of the company designation. If

a DER also holds a separate appointment as a consultant DER, that designation is not terminated when a DER leaves the company.

g. Operating Outside Geographic Area.

(1) A company DER may function in any geographic area in which the company conducts business.

(2) A consultant DER may function in any geographic area.

(3) For DERs working outside the United States, refer to chapter 4, paragraph 10, for international operating procedures.

h. DER Responsibility When Using Other Engineers. The FAA allows DERs to use as many experienced engineers as needed to evaluate engineering technical data completely. However, the DER accepts responsibility for approving the technical data when signing FAA Form 8110-3. A DER may decline to approve any or all portions of the technical data and may send such data to the FAA for approval (refer to paragraph 1.e in this chapter). When this happens, the DER is expected to specify the reasons for not approving the data.

i. Using Department of Transportation (DOT) Seal/FAA Logo. DERs are not authorized to use the DOT seal or FAA logo on business cards, letterheads, facsimile covers, document covers, or any other business forms. A DER is not a government employee. Use of a DOT seal or FAA logo may result in the termination of a DER appointment.

j. Using DER Numbers.

(1) DERs must use their DER number and title when:

(a) Signing FAA Form 8110-3 for a finding of compliance.

(b) Completing and reviewing FAA Form 8120-10, *Request for Conformity,* when authorized by the project certification branch (see chapter 4, paragraph 1.h, for further instructions).

Note: The Request for Conformity (RFC) must specify DERs who are authorized to disposition nonconformities on FAA Form 8100-1, *Conformity Inspection Record.*

(c) Signing FAA Form 8100-1 to disposition nonconformities found during the conformity process if the DER has been given prior authorization to perform this function on the RFC.

(d) Signing a Repair Specification (RS) if the DER has been granted the special delegation of RS.

(2) Reviewing Other Certification-Related Documents. DERs are encouraged to review and coordinate certification documents submitted to the FAA. In these cases, DERs may use their DER number and title to indicate that they reviewed the documents as an FAA representative. Examples of these activities may include the review of project-specific

certification plans (PSCPs), determination of test equipment for maintenance, and review of ICA. This review is intended to reduce the FAA's workload and make the FAA approval (or acceptance) process more efficient for both the applicants and the FAA. Acceptance or approval of such documents must still be accomplished by the FAA. These documents are reviewed for purposes other than finding compliance with airworthiness requirements, so using FAA Form 8110-3 is not appropriate. Instead, these activities should be documented in DMS as "non-8110-3 activity."

(3) DER Identification Numbers. DERs are not permitted to use their DER identification number when signing company or personal reports, drawings, service documents, or letters. A DER's signature on these types of documents does not constitute FAA approval.

k. Separation of Duties. An organization designation authorization (ODA) may identify individuals who are also DERs as unit members (UMs). DERs must be aware that the functions they perform as UMs in one of these organizations are separate and distinct from the delegated functions performed as a DER. A DER does not issue FAA Form 8110-3 in support of ODA projects, except when a TC holder's DER supports a Major Repair, Alteration, and Airworthiness ODA.

l. Coercion. No one may pressure DERs to approve technical data that the DER finds does not comply with the applicable airworthiness requirements or where the DER has not had enough time to review the data. A DER must report any coercion to the project certification branch and/or managing office, as discussed during the DER appointment and orientation.

2. FAA Form 8110-3, Determination of Compliance with Airworthiness Standards.

a. Using FAA Form 8110-3.

(1) A completed FAA Form 8110-3 is the DER's only means of approving technical data. This form is used when making or recommending a finding of compliance with airworthiness requirements, according to the DER's authority.

Note: Although FAA Form 8110-3 is titled "Determination of Compliance with Airworthiness Standards," it is also used to document a finding of compliance with some regulatory requirements that are not airworthiness standards, such as the requirements for noise, emissions, etc.

(2) FAA Form 8110-3 is used only for documenting a DER's finding of compliance, and no other purpose. For example, DERs should not use FAA Form 8110-3 to record the disposition of unsatisfactory items found during a conformity inspection.

(3) Generating FAA Form 8110-3. All FAA Form 8110-3s should be initiated in DMS unless doing so is not possible. Refer to FAA Order 8000.95, Volume 9.

b. Distribution of FAA Form 8110-3.

(1) Certification Activities. All FAA Form 8110-3s should be initiated in DMS unless doing so is not possible. All FAA Form 8110-3s generated outside of DMS must meet the signature requirements specified in FAA Order 8000.95, Volume 9.

(2) Major Repair and Major Alterations. The DER must submit copies of FAA Form 8110-3 to the owner/operator or repair station that requested the approval.

(3) In Support of Foreign Civil Aviation Authority (CAA) Requirements. The project certification branch will transmit FAA approval to the foreign CAA.

(4) Alternative Methods of Compliance (AMOC). For an FAA Form 8110-3 used to support an AMOC issued by the responsible office, the DER must submit a copy to the office responsible for the AD. DERs must distribute delegated AMOCs in accordance with FAA Order 8110.103, *Alternative Methods of Compliance (AMOC).*

c. Omissions and Errors. Careful preparation and use of FAA Form 8110-3 is important. DERs must be aware that omissions and errors in approvals can delay certification programs and could ultimately result in a reduction or termination of their authority. Some common mistakes include failing to:

(1) Include full titles, revision levels, and/or dates for listed documents, reports, etc.

(2) Include each complete drawing number or a drawing list, with revision levels or dates and titles.

(3) Specify those portions of the data that are approved, and those portions of the data that the FAA must evaluate.

(4) Check the “recommend” or “approve” box.

(5) Reference specific section(s) of the regulations in the “Applicable Requirements” block, including amendment levels.

(6) State the project number in the “Purpose of Data” space.

(7) Approve data only within the DER’s delegated functions and authorized areas of expertise.

(8) Properly identify the aircraft make as it relates to the existing TC.

d. Errors on FAA Form 8110-3. DERs are strongly cautioned to make sure all descriptive and substantiating data has been thoroughly reviewed prior to submitting FAA Form 8110-3. Once FAA Form 8110-3 has been signed and submitted in DMS, it cannot be rescinded. If the form is subsequently found to be in error, or if the referenced data is found not to comply with airworthiness requirements, the following must take place:

(1) Where errors or airworthiness non-compliances are found during a certification program, it is important that the DER work with the applicant and the project certification branch to address the concerns before continuing with the project. While work is ongoing, there may be an opportunity to correct the situation with minimal impact to the project. Once the certificate is issued, the DER must contact the certificate management office and inform them of the error. The managing office must then make the DAH aware of the fact that the data was approved in error. The managing office can then work with the applicant to fix the error.

(2) For repairs or alterations, it is the responsibility of the DER to alert the applicant to the fact that the data on FAA Form 8110-3 does not comply with the airworthiness requirements. This will allow the user of the data to suspend further accomplishment of the repair or alteration until the data is corrected. This is especially true in the case of data used to support a repair specification. The only purpose this notification serves is to let the end user know as soon as possible that the data must not be used as approved any longer, thus preventing additional articles or products from being returned to service erroneously. The DER must also advise their managing office. Once the repair or alteration has been accomplished on an aircraft, the only formal process to correct the airworthiness non-compliance is by AD. An AD may only be issued if the requirements of 14 CFR part 39 are met, and only the FAA can make this determination.

3. DERs with Special Delegation for Project Management Functions and Submittals.

a. Functions. A project management DER performs the following functions:

(1) Conducts FAA certification project management duties, including those identified in FAA Order 8000.95, Volume 9. A project management DER will use other DERs to accomplish the design compliance reviews and make the specific technical findings. A project management DER must ensure that the other DERs are properly authorized, competent, and reliable when they accomplish the certification compliance review work.

(2) Ensures that the applicant creates a PSCP (if appropriate) early in the program. This plan will show all necessary steps and milestones for the certification project arranged in their proper and logical order. The project management DER coordinates the plan with the applicant and FAA project manager and may include coordination with other DERs who will be involved in the project.

Note: Refer to the Enhanced Project Specific Certification Plan (ePSCP) Guide for more information.

(3) Advises the FAA of any design features that might require special conditions, exemptions, equivalent safety findings, or any unsafe features or characteristics.

(4) Determines that the technical DERs accomplished all necessary findings of compliance with applicable regulations.

Note: This determination may include verification that the appropriate revision level of the design data was used.

(5) When requested, prepares the minutes of FAA and applicant meetings, coordinates them with the appropriate DERs and specialists, and submits them to the FAA for concurrence.

When appropriate, prepares conformity requests and type inspection authorizations (TIAs), coordinates with the authorized DERs and specialists, and submits them to the FAA for review and issuance.

b. Submittals to the FAA. Project management DERs are not authorized to sign FAA Form 8110-3. The role of the project management DER is non-technical. The only use of FAA Form 8110-3 is for an authorized DER to make a technical finding of compliance with airworthiness regulations and other requirements as described in paragraphs 2.a.(1) and (2) of this chapter. Documents such as PSCPs, compliance checklists, conformity plans, project schedules, and a proposed certification basis are all valued by the FAA for their contribution to effective project management. However, none of them are appropriate for approval by a DER via FAA Form 8110-3, indicating they comply with 14 CFR regulations. It is acceptable and often desirable for an appropriately authorized person, such as a project management DER, to submit these documents via letter, signed cover page, or a locally created form. These documents indicate that a qualified project manager has reviewed the submittal and found it acceptable for the FAA project. The letter, cover page, or other form may not indicate approval of the referenced data or findings of compliance with 14 CFR. DERs can be authorized to use their DER number and title to indicate that their review was performed as a project management DER.

4. RS-DER Functions. Reference FAA Order 8000.95, Volume 9.

5. Releasability of Data. Under the Freedom of Information Act (FOIA), the FAA will determine public availability of DER information in accordance with Title 5, U.S.C., Section 552.

Chapter 4. Certification Activities of a DER

1. Type Certification and PMA Projects. DERs must obtain FAA authorization before exercising authority on any certification project, including a new or amended TC, a major type design change, a new or amended STC, or a PMA. Once properly authorized, the DER must create a project in their DMS record. This will allow the DER to draft and submit an FAA Form 8110-3 against the project. Typically, the content of a delegation plan within an accepted PSCP is adequate evidence that a data approval or finding of compliance has been delegated to a DER. Since a PSCP is usually not developed for PMA, DERs working for a PMA applicant need not have specific authorization to work on each PMA project. However, they must have prior project certification branch authorization to work for the PMA applicant (documented in the Partnership for Safety Plan or other agreement as determined by the managing office). DERs must still obtain specific approval before exercising authority on complex, critical, or life-limited PMA parts based on test and computation. A DER must follow FAA policy in determining compliance with pertinent regulations. Approval or a recommendation of approval of the engineering technical data on FAA Form 8110-3 means that, within the limits of the DER's authority, the DER has determined that the data complies with FAA airworthiness requirements. These requirements include, but are not limited to, 14 CFR, Special Federal Aviation Regulations (SFAR), special conditions, equivalent level of safety determinations, other requirements that have been adopted or accepted by the FAA such as the EASA requirements, and specific foreign requirements that have been delegated on a project-by-project basis. The project certification branch must establish the specific role, authorized area, and responsibility a DER has in performing these functions. The project certification branch must be aware of a DER's limitations. More than one DER may be needed to cover the entire project. The project certification branch determines the extent of FAA involvement after the applicant proposes how each aspect of the project is to be approved.

a. Certification Application. After receiving an application for a TC, STC, amended TC, amended STC, or PMA design approval, project certification branch representatives will discuss necessary procedures, requirements for compliance inspections, and conformity requirements with the applicant and the DER. The DER or the project certification branch subsequently arranges, as necessary, periodic meetings to discuss problems, project status, and methods for reporting progress. These meetings also permit the project certification branch to advise the DER on particular policies, standards, and procedures that apply to the project.

b. Project Specific Certification Plans (PSCPs). Refer to FAA Order 8110.4 for more information on PSCPs.

Note: The FAA values documents such as PSCPs, compliance checklists, conformity plans, project schedules, and a proposed certification basis for their contribution to effective project management. However, none of these documents are appropriate for approval by a DER via FAA Form 8110-3, indicating they comply with the 14 CFR regulations.

c. Data Approval. The FAA limits the data that DERs approve to engineering data. Data approvals support an eventual design approval issued after compliance with all applicable airworthiness regulations is determined. There are two types of data that a DER typically

approves. *Descriptive data* is the data that will become part of the type design as defined in § 21.31 upon FAA approval, and *substantiating data* shows that the design complies with the applicable airworthiness requirements. The FAA expects the DERs to be aware of which type of data they are approving. Approval of either the descriptive or substantiating data on FAA Form 8110-3 means that, within the limits of the DER's authority, the DER has determined that the data complies with FAA airworthiness requirements for the purpose stated on the form and subject to any expressed limitations. Approval of descriptive data by a DER via an FAA Form 8110-3 indicates the listed compliance findings only. It does not indicate approval of that descriptive data as type design. DERs must advise the project certification branch of relevant data of which they are aware, but did not approve, in order to ensure a complete investigation of compliance with all pertinent requirements. A DER should coordinate with the project certification branch regarding the submission of FAA Form 8110-3 as agreed to in the PSCP.

d. Flight Tests. When a DER is authorized to conduct an FAA flight test, the DER must coordinate the flight test with the appropriate FAA flight test representatives. Flight test pilot and flight analyst DERs must use the flight test risk management process described in FAA Order 4040.26, *Aircraft Certification Service Flight Test Risk Management.*

e. Flight Manuals. The Flight Test and Human Factors Branch (AIR-710) approves flight manuals, supplements, and revisions thereof. A properly authorized DER may approve or recommend the approval of flight manuals, supplements, and revisions thereof. A properly authorized DER is one who has "Flight Manuals & Supplements" authority on their CLOA that may or may not be limited to recommend approval. This managing office will determine whether to limit a DER's authority to recommend approval for flight manuals and supplements and will clearly note this on the CLOA. This authority is only available to flight test pilot and flight analyst DERs.

f. Type Certification Boards. The FAA encourages DERs to participate as advisors in type certification board meetings on projects in which they are involved.

g. Request for FAA Conformity Inspection. The FAA may allow a DER to request FAA conformity inspections via FAA Form 8120-10. This form must not be "approved" using FAA Form 8110-3. The DER must identify any features, attributes, and components critical to the test results and provide special instructions as necessary in the RFC. DERs may be authorized to perform the final review of FAA Form 8120-10. If so, the DER will place their name, DER number, and title on the "Reviewed by:" line normally reserved for the FAA project engineer.

Note: DERs involved in the conformity process may use the National Automated Conformity Inspection Process (NACIP) or other FAA-approved automated conformity inspection system. For more information and training on NACIP, go to the FAA Aircraft Certification/Design Approvals/NACIP website.

h. DER Disposition of Unsatisfactory Items. The project certification branch may authorize a DER to disposition unsatisfactory items identified during an FAA conformity inspection or to approve a later revision of design data that eliminates or prevents a discrepancy. This authority must be identified on FAA Form 8120-10 or as part of a conformity plan or other agreement between the project certification branch and applicant. When so authorized, a DER may:

(1) Document the disposition of an unsatisfactory condition on FAA Form 8100-1, or as agreed to with the project certification branch. FAA Form 8110-3 must not be used to disposition unsatisfactory conditions since there is no finding of compliance by the DER.

(2) Use FAA Form 8110-3 to document approval of later revisions to design data within the authorized area. This may eliminate the need for a DER to disposition a discrepancy on FAA Form 8100-1, as the later approved data may correct the unsatisfactory items.

2. Acoustical Engineering DER. The FAA authorizes acoustical engineering DERs to review and recommend approval of aircraft or rotorcraft flight manuals, flight manual supplements, and supplemental flight manual pages or other media related to compliance with §§ 36.1581 and 36.1583. Acoustical engineering DERs may review pertinent aircraft noise level data included in all new flight manuals, revisions to existing flight manuals, and placards and markings before submitting them for FAA approval. An acoustical engineering DER may use FAA Form 8110-3 with the specific paragraphs of part 36, subpart O, listed in the requirements section.

3. Test Plans. A project certification branch may delegate test plan approval. Project certification branches must identify who will be responsible for the approval of test plans as early as possible in the program. In cases where a project certification branch plans to approve a test plan, the DER may be requested to recommend approval first.

4. Test Witnessing.

a. DERs must receive specific authorization from the project certification branches before witnessing a test or approving any test data on the FAA's behalf. The DER must coordinate with the project certification branch to determine if the FAA wishes to participate in witnessing all or part of a test. Before witnessing the test, the DER must verify that the necessary FAA conformity inspections have been accomplished, that the test article is in conformity, and that all unsatisfactory conditions have been dispositioned. A DER is not required to witness an entire test to approve the test data. However, the DER must coordinate with the project certification branch to determine which conditions are critical and must be witnessed in order to ensure that all the data are valid. When DERs approve test data, they indicate that they witnessed those portions of the test dealing with critical conditions, the test was conducted in accordance with the FAA-approved test plan, and the data are official test results that satisfy the test criteria for compliance.

b. Though a DER can rely on other engineers to review data, the DER must actually witness the test. The DER authorized to witness the test cannot delegate witnessing to anyone else.

c. Documentation that tests results have been witnessed by a DER is not done with an FAA Form 8110-3. Rather, the DER will sign, or otherwise notate on the test results, using their DER number to indicate that they were the official test witness.

5. Flight Test Pilot DER. The FAA requires flight test pilot DERs to perform all tests on which they intend to approve or recommend approval of the data. The extent and conduct of the overall flight test plan must be coordinated with the project certification branch. When flight test pilot DERs approve test data, they are indicating that they performed the tests, the tests were

conducted in accordance with the approved test plan, and the data are official test results that comply with the applicable requirements. A TIA is required for conducting official FAA tests.

6. Changes in Type Design.

a. Major vs. Minor Change. Section 21.93 classifies changes in type design as minor and major.

(1) Major changes require FAA involvement that may include specific DER authorization for the project.

Note: DERs should not be used to approve data for a change that has been determined to be a minor change. Individuals performing the functions for the DAH may have the same skills and abilities as a DER or may be a DER. However, it must be clear that the requirements for classifying changes and showing compliance reside with the DAH and not individuals performing functions on behalf of the FAA. Any individuals or organizations holding authorizations in accordance with part 183 are not functioning as designees when involved in the minor change process. If DERs are needed for data approvals, test witnessing, etc., then this may be an indication that the change is not a minor change or the DAH lacks the knowledge, skills, or ability to process minor changes using a minor change agreement. Minor changes to type design for a TC or STC should not be confused with minor repairs or minor alterations. DERs are not allowed to approve data for minor repairs or minor alterations.

(2) The decision as to whether a change in type design and/or alteration is major or minor must be reviewed with the project certification branch if the decision is controversial or if the DAH needs guidance.

b. Acoustic, Emissions, and Fuel Efficiency Changes. Title 14 CFR 21.93(b), (c), and (d) requires any voluntary change in type design (in addition to being a "major" or "minor" change) to be evaluated to determine whether it is an acoustic change, emissions change, or fuel efficiency change. The applicant is responsible for making this determination.

Note: Per 14 CFR 183.29(i), no acoustical engineering DER may determine that a type design change is not an acoustical change or approve equivalencies to prescribed noise procedures or standards. However, acoustical engineering DER involvement is beneficial to the FAA and the applicant in providing appropriate substantiating data in support of a determination.

7. Material Review Board (MRB) Actions.

a. Engineering Representative. Members of the MRB are the manufacturer's personnel acting for the manufacturer. The manufacturer's engineering representative may also be a DER but cannot act as a DER for the FAA during any MRB action.

b. Approval of Revised Data. When an MRB action results in a change to type design, a manufacturer must ensure approval of any data (both descriptive and substantiation data) required to show compliance with the change and any areas affected by the change (reference §§ 21.93, 21.95, 21.97, and 21.101). For additional guidance, refer to FAA Order 8110.4.

8. Approval of an AMOC to an AD.

a. Approval Process. A structural company DER with a special delegation to approve an AMOC must execute the AMOC approval on FAA Form 8110-3 (reference FAA Order 8110.103). The approval must at least specify:

(1) The affected aircraft model, serial number, and owner/operator. For a global AMOC, identify the applicable aircraft for which the AMOC is approved. This can be accomplished through a listing of applicable operators, serial numbers, or other limiting criteria, or if the global AMOC applies to all serial numbers, indicate explicitly.

(2) The AD number and paragraph(s) to which the AMOC applies.

(3) A complete and detailed description of the AMOC, including part names, numbers, and serial numbers (if applicable). A description of damage, alterations, repairs, and any inspections, inspection thresholds/intervals, and other necessary descriptive information.

(4) Any restrictions on the AMOC, such as special processes or time limitations.

(5) A statement as to whether or not the AMOC is transferable.

(6) Reference(s) to substantiating data.

(7) A reference to the DER's letter of appointment from the FAA (and date) granting AMOC approval authority to that particular DER.

(8) A statement that the approval meets the applicable sections of the aircraft type certification basis or other defined airworthiness requirements. For example, an alternative inspection method requires an approved damage tolerance assessment. Specific 14 CFR paragraphs must be listed.

(9) The following statement: "Before using this AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local Flight Standards District Office/Certificate Holding District Office."

(10) The following statement: "All provisions of AD ****-**-** that are not specifically referenced above remain fully applicable and must be complied with accordingly."

(11) The following statement (not required for global AMOCs): "The [*responsible office*] will revoke this AMOC if the [*responsible office*] later determines that this AMOC does not provide an acceptable level of safety."

Note: The responsible office is defined as the office identified in the AD as being authorized to approve AMOCs.

(12) DER signature and date.

b. Temporary Repairs. If a DER is approving data for a temporary repair as part of an AMOC, then the DER must:

(1) Include a statement on the FAA Form 8110-3 that the approval is time limited and will have to be removed on or before a specified date, cycle limit, or flight time limit.

(2) Keep all records (analyses, letters, etc.) associated with AMOC approval.

9. Approval of Service Documents.

a. Type Design Change Data. DAHs may identify changes to type design incorporated after the original manufacture in service documents. The type design change data of service documents require FAA approval. The project certification branch may delegate these approvals to a qualified DER. Service documents developed to transmit information on items such as maintenance tips do not need FAA approval. FAA approval of type design data in service documents must clearly indicate those aspects of the document that the FAA approved. FAA Form 8110-3 submittals must list (in the "applicable requirements" block) the airworthiness requirements to which the DER found compliance. Advisory Circular (AC) 20-176, *Service Bulletins Related to Airworthiness Directives and Indicating FAA Approval on Service Documents,* provides guidance by which DAHs may indicate FAA approval on service documents.

b. Service Documents and Revisions in an AD. Project certification branches and DERs must coordinate with the appropriate certificate management office on service documents and revisions that are made part of an AD or referenced in it.

10. DER International Operating Procedures.

a. Finding Compliance to Foreign Regulations.

(1) Approval Basis. The project certification branch may authorize a DER to make compliance findings with specific foreign regulations delegated to the FAA by a foreign CAA. This can be done in accordance with Implementation Procedures for Airworthiness under a Bilateral Aviation Safety Agreement (BASA) or some other written FAA-approved arrangement with that authority, after consultation with the International Office (AIR-40). If the FAA accepts the delegation of a compliance finding from a bilateral partner under the BASA implementation procedures, that finding can be made either directly by the FAA or by an appropriately qualified designee. The decision to delegate the compliance finding, as well as the decision to provide this special authorization to a designee, is made by the FAA only, depending on the availability of resources. A DER who is granted such approval authority must have demonstrated knowledge of the foreign regulations and how to apply them to the project. This typically will be evidenced by participation on previous validation programs with the foreign CAA and the FAA.

(2) Transmittal of Final Approval. The project certification branch will transmit FAA final approval for the compliance finding to the foreign CAA. In that final approval, the FAA confirms that compliance has been demonstrated and findings of compliance have been made.

(3) Completion of FAA Form 8110-3. A DER with this specific authorization is permitted to approve data as compliant with additional technical requirements for the affected CAA. Where requirements are harmonized, only the 14 CFR requirements are listed on FAA Form 8110-3 and approved by the DER.

b. Compliance Findings Outside the United States. A DER may be authorized to find compliance with 14 CFR on behalf of the FAA in a country other than the United States under the following conditions and limitations:

(1) Project Certification Branch Coordination. The project certification branch must coordinate, as applicable, with the certificate managing office.

(2) DER Access. The DER and the FAA should be aware that some countries do not allow FAA designees to operate in their jurisdiction or prefer to be given the opportunity to participate on major FAA projects themselves, in lieu of a DER conducting the requested tasks.

(3) U.S.-Certificated and Foreign-Registered Aircraft. The DER may engage only in activities pursuant to an FAA TC, FAA STC, or FAA approval, or by direction of the project certification branch.

Note: DERs are never authorized to work for another CAA in their FAA DER capacity.

(a) U.S.-Registered Aircraft. Before a project certification branch authorizes a DER to perform any authorized function(s) outside the United States, the project certification branch must review any bilateral agreements and comply with any requirements for prior notification with the CAA. If required, the notification will outline the proposed visit (anticipated activities, length of stay, etc.).

Note: The FAA is responsible for contacting the CAA if there is no bilateral agreement, or if a bilateral agreement requires prior notification. For a list of bilateral agreements, see the FAA Aircraft Certification/International/Bilateral Agreements website.

(b) Foreign-Registered Aircraft. For project aircraft on a foreign registry, the authority for the state of registry (i.e., CAA) may have requirements in addition to the FAA's requirements. The DER making compliance determinations or witnessing tests for the project should confirm with the project certification branch that all such requirements have been identified and considered in the showing(s) of compliance.

(4) Conformity Inspections. The DER should meet with the project certification branch as an initial step in the project to establish that the proposed DER and the Designated Airworthiness Representative (DAR)/Designated Manufacturing Inspection Representative (DMIR) have the knowledge of the aircraft type design necessary to make findings of data compliance and conformity. For additional guidance concerning conformity inspections, see FAA Order 8110.4.

(5) Reporting Activities. During the DER's stay outside the United States, the project certification branch may require the DER to report activities periodically.

(6) Feedback to Foreign Authorities. On some occasions, DERs may conduct certification activities in facilities that hold an approval from their local CAA. The DER may encounter problems during the U.S. project certification activities, such as test failures due to nonconforming test articles or inattention to test plan details. Such experience might be evidence of a system breakdown or a major problem at the facility. If the DER encounters such problems, they must advise the project certification branch and provide details of any problems

experienced. The project certification branch will then determine if any systemic issues or major problems should be forwarded to the applicable CAA for its consideration.

11. PMA Identicality Procedures. The FAA requires a DER to follow the provisions of FAA Order 8110.42 when conducting PMA activities. A DER with special delegation for PMA identicality may sign and submit FAA Form 8110-3 without a PSCP or specific prior consent from the FAA. The project certification branch must issue a Letter of Design Approval (LODA) even when a DER is involved in making a finding of identicality.

a. Authority. The managing office must specifically authorize a DER to make PMA identicality findings. The DER and the PMA applicant must verify the DER's authority and limitations before proceeding with the finding of identicality. The DER must have access to the DAH's data, allowing for a direct comparison of the design data. Authorized DERs may sign FAA Form 8110-3 as "approved," indicating identicality to the DAH's data listed for the TC, STC, TSOA, or letter of TSO design approval (i.e., the data that defines the part covered under a TC, STC, or TSO-approved article as being eligible for installation on a type certified product). The requested eligibility for the applicable product model(s) must be indicated. The DER must send the DAH's data for the TC, STC, TSOA, or LODA to the project certification branch with FAA Form 8110-3 and the PMA data.

b. Findings of Identicality. If a DER checks the approved block on FAA Form 8110-3, it does not mean that the PMA or any engineering aspects of the data are approved. It means the DER is indicating the finding that the PMA applicant's design is identical to the TC, STC, TSOA, or LODA of the DAH's design. The DER must append a note in the "List of Data" section stating, "FAA approval of the design is contingent upon FAA engineering verification of the type design data (or STC or TSOA data) listed."

Note: In the "Purpose of Data" block on FAA Form 8110-3, the DER must state "Identicality only approval under 14 CFR 21.303." In the "Applicable Requirements" block, the DER must state "14 CFR 21.303(a)(4)."

c. FAA Actions. The FAA will verify that the listed DAH's data for the TC, STC, TSOA, or LODA is approved type design data for the product models indicated, and that the stated eligibility is valid. The FAA will also verify that there are no mandatory corrective actions to be implemented and no serious unresolved service difficulties that make the part ineligible. The applicant's design does not need to conform to the latest revision level of the DAH's drawing for the TC, STC, TSOA, or LODA if the FAA determines that the previously approved parts are still eligible for installation on the listed product models. After verifying that all the requirements are met, the project certification branch will continue processing the application in accordance with FAA Order 8110.42.

12. Repairs and Alterations. A *repair* is the restoration of a damaged product or article accomplished in such a manner and using material of such quality that its restored condition will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness). The original condition can be new or used and airworthy. A properly altered condition reflects a product or part that has undergone a repair or alteration and has been deemed airworthy. A properly altered condition is a pre-existing condition, and not one that is

normally realized through a restoration. The damage can be due to deterioration or to external causes. An *alteration* is the modification of an aircraft from one sound state to another sound state; the aircraft meets the applicable airworthiness requirements both before and after the modification. Repair specification and DER approval are discussed in paragraph 13 of this chapter.

a. Major Repairs and Major Alterations. Major alterations and major repairs must be accomplished in accordance with technical data approved by the Administrator. A DER may approve descriptive and/or substantiating data, if specifically authorized, to support a major repair or major alteration. However, this DER-approved data may not be adequate to cover every aspect of the repair or alteration. Repairs or alterations involving flight manual supplements, airworthiness limitations, ground and flight test plans, ground and flight tests, compliance inspections, alterations to critical structure or life-limited parts, ICA, special conditions, noise findings, and equivalent level of safety findings may require data that a DER is not normally authorized to approve. If the repair or alteration requires approval of data beyond the DER's authority, then additional approval, such as an FAA field approval or managing office approval, is required.

b. Minor Repairs and Minor Alterations. Minor repairs and minor alterations do not require FAA engineering approval. As such, DERs cannot approve minor repairs or alterations. Responsibility for determining if a repair or alteration is a major repair or a major alteration rests with the applicant. DERs may assist the applicant in making this determination, but their participation is on behalf of the applicant, not as an FAA representative.

c. Authorization. A DER must have authorization from the managing office via DMS in order to approve data for major repairs or major alterations. This authorization may be granted on a one-time basis or as a special delegation. A DER with the special delegation may approve technical data for major repairs and major alterations without first notifying the managing office, except when the part is critical or life-limited, or if the repair or alteration will be done outside the country. For critical or life-limited parts, the DER must contact the managing office for guidance.

Note: If a DER is aware that a proposed repair or alteration is in an area that is the subject of an AD, even though it may be prior to the compliance date of the AD or is in an area under investigation as a safety concern, the DER must contact the office responsible for the AD for additional guidance. Contacting the responsible office will ensure the repair or alteration will adequately address the safety concern or meet the intent of the AD, and will not contribute to or create a different unsafe condition.

(1) Repairs and Alterations for Specific Aircraft and Components. Authorization for major repairs or major alterations limits the DER to approving data for the specific serial-numbered aircraft, engines, propellers, parts, or components identified on FAA Form 8110-3. Parts or components that are not serialized must be identified by a specific work order on FAA Form 8110-3.

(2) Multiple Repair Authority. Authority to approve data in support of repair specifications is documented in the DER's limitations. See FAA Order 8000.95, Volume 9, for specific requirements. Repair specification authority is discussed in paragraph 13 of this chapter.

(3) Repair/Alteration Authority. The repair/alteration authority listed in paragraph 12(c)(1) is for aircraft/components currently in a condition requiring repair or alteration. The DER may only list multiple aircraft/components, including engines, propellers, or articles installed on the aircraft, when they are specifically identified to receive an alteration. Data in support of alterations for aircraft or components that are not identified to receive an alteration, but may be identified at a later date, are considered data for "future use" and may only be approved via STC or amended type certificate (ATC). Data in support of repairs for "future use" (i.e., for those aircraft not currently requiring repair) may only be approved as a repair specification. Service bulletins or service documents from DAHs or their suppliers providing optional alterations/repair must be approved as part of the "Service Document" DER authority and not as "repair/alteration" authority.

d. Compliance Inspections. Approval of a major alteration may require a compliance inspection. Information regarding compliance inspections is contained in FAA Order 8110.4. If DERs are not delegated this function, they must add the following note to the body of FAA Form 8110-3: "_____compliance inspection is not included in this approval and requires FAA approval."

e. Repair and Alteration Design Data. The FAA presumes that basic design information will be available to DERs working in a design/production approval holder's organization. A DER outside the organization must make every effort to obtain the necessary information. A DER must determine that the technical data covering the repair or alteration contains clear references and appropriate consideration of all fundamental design information pertinent to the repair or alteration. When the DER determines that additional approvals are necessary to constitute complete approval of a repair or alteration, the necessity for the additional approvals must be noted on FAA Form 8110-3. A DER must develop or obtain the technical data necessary to substantiate the repair or alteration according to the following guidance:

(1) Compliance Data. The applicant is responsible for showing compliance with the applicable airworthiness requirements established by § 21.101 or § 21.115. These rules and amendment levels are listed on the TCDS for the product.

(2) Standards. The technical data developed and used for a major repair or major alteration must show that the condition of the repaired or altered product will be at least equal to its original or properly altered condition. To accomplish this, the data for a major alteration must show compliance with the applicable airworthiness requirements from the product's certification basis. For a major repair, the data must show that the repaired part is still compliant via a showing that the applicable airworthiness requirements of the certification basis of the product, to which the part is installed, have not been invalidated by the repair. For repair or alteration data approvals for aircraft in other than the standard category (e.g., restricted, experimental, limited), DERs are encouraged to contact their managing office to determine if approval is appropriate and to establish appropriate standards for their approvals.

(3) Performance. The applicant must develop both the design data and substantiating data to show how the repaired or altered product meets all the requirements of the applicable regulations. The applicant must show that the product will function reliably throughout its established inspection interval when operated within the approved flight envelope of the

certificated aircraft and maintained in accordance with FAA-approved or accepted manuals or an FAA-approved Continuous Airworthiness Maintenance Program (CAMP).

f. Data Submittal. The DER must submit a copy of FAA Form 8110-3 and the approved data to the owner/operator or repair station requesting approval. If specifically requested by their managing office, the DER must also send a copy of the approved data to their managing office. The managing office uses these submittals to perform DER oversight. The DER must include the following notations in the "Purpose of Data" block on FAA Form 8110-3, as applicable:

(1) The purpose is to support a major repair or major alteration.

(2) The approval is engineering data approval only.

(3) The serial number of the aircraft for a major repair or major alteration of an aircraft, an engine, propeller, or component installed on an aircraft. For major repair or major alteration of an engine, propeller, or component not installed on an aircraft, the DER must reference either the serial number of the item or the work order for the repair or alteration.

g. Reserved.

h. Major Repairs and Major Alterations May Need Additional Approval or STC.

(1) Some major repairs or major alterations may be so complex that they require approval via STC. FAA Order 8300.16 includes reference to a major alterations job aid that must be used to determine if a particular alteration requires approval by STC or can be supported with DER-approved data and/or a field approval by an FAA Flight Standards District Office (FSDO) inspector. If a particular alteration requires an STC, a DER cannot approve any data for the alteration under the special delegation for major alterations, unless that data is in support of the installation of the STC. DERs unsure of the extent of their approval authority or authorization to approve data required to support a major repair or major alteration are encouraged to contact their managing office.

(2) In order to help the repair or alteration installer, DERs will provide a statement on their approval to indicate whether the data being approved does (or does not) constitute all the data necessary to substantiate compliance of the repair or alteration with all applicable airworthiness regulations. In order to help the installer and FSDO involved, the DER must add the following note to the "List of Data" block on FAA Form 8110-3:

> "This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as 'Applicable Requirements.'"

Note: The DER must also indicate if compliance with additional regulations not listed here may be required.

i. Process Specifications. A DER cannot approve generic process specifications (e.g., process specifications that are not applicable to a specific repair or alteration for an aircraft, engine, propeller, or component). Many generic processes may have been accepted by industry

or listed as an acceptable method, technique, or practice in AC 43.13-1, *Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair,* or AC 43.13-2, *Acceptable Methods, Techniques, and Practices—Aircraft Alterations.* The DER must not approve parts inventory, receiving, handling, inspecting, or cleaning, since these shop practices do not require FAA engineering review/approval.

j. Interim Repairs. A DER must contact the managing office for appropriate policy and guidance for anything other than a complete repair, such as an "interim/time-limited" structural repair. Without prior coordination with the managing office, a DER is not authorized to approve extensions of established limits.

k. DER Data Approvals for Repair and Alteration of Foreign-Registered Aircraft. The DER system supports data approval for aircraft major repairs and major alterations. For U.S.-registered aircraft, these repairs and alterations may be accomplished under 14 CFR part 43 using DER-approved data as FAA-approved data. However, for foreign-registered aircraft, the CAA of the State of Registry is responsible for approving repair or alteration data. The FAA permits a DER to approve data for foreign-registered aircraft in accordance with the following criteria:

(1) The DER must have the authority to approve data for major repairs and/or major alterations.

(2) The data must concern a U.S. State of Design (i.e., the TC holder is located in the United States) aircraft, engine, propeller, or STC unless:

(a) It is repair data applicable to Canadian-registered aircraft; or

(b) It is for an aircraft operated by a U.S. operator under 14 CFR 121.153(c) or 135.25(d).

(3) The DER must include this disclaimer in the "Purpose of Data" block on FAA Form 8110-3 except as defined in (4) and (5) below:

> "This FAA approval is provided for a foreign-registered aircraft. Acceptance is at the discretion of the civil aviation authority of the State of Registry. The installer must determine compatibility of this data with the aircraft configuration."

(4) DER-approved major repair data applicable to Canadian-registered aircraft will be accepted by Transport Canada Civil Aviation (TCCA) without the disclaimer per FAA Order 8110.53, *Reciprocal Acceptance of Repair Design Data Approvals Between FAA and TCCA.* A DER will approve the data as compliant with the applicable FAA requirements unless TCCA requests specific findings with the Canadian Aviation Regulations through the DER's managing office. The managing office will then determine if the DER has the knowledge and experience necessary to make findings with the Canadian Aviation Regulations and may delegate these findings to the DER on a case-by-case basis.

(5) A DER may approve major repair and major alteration data intended for use on foreign-registered aircraft operated by U.S. operators under parts 121 and 135 in the same manner that data is approved for U.S.-registered aircraft on the certificate without using the above disclaimer.

(6) A DER must identify the aircraft by serial number on FAA Form 8110-3 in accordance with paragraph 12.f in this chapter.

l. Engine, Propeller, and Component Activity. When DERs approve data for the repair or modification of an engine, propeller, or component that is not installed on an aircraft, they may not know when or where it will be installed or the country in which the aircraft will be registered. Provided they are acting within their authority, DERs are not required to take the aircraft's registry into account during the approval process.

m. Instructions for Continued Airworthiness (ICA). If ICA are affected, the applicant prepares ICA in accordance with 14 CFR xx.1529, 31.82, 33.4, or 35.4 that are acceptable to the FAA. If ICA are not affected, the applicant must complete an impact assessment and provide it along with the approved data. Some ICA data for transport airplane electrical wiring are required to be approved to show compliance with part 25, subpart H (reference part 25, appendix H, section H25.5). A properly authorized DER can approve data that complies with specific sections. In some cases, DERs can approve data that is contained in the airworthiness limitations when that data meets a technical airworthiness standard such as §§ 25.571 and 25.981, etc. Beyond this authority, no DER can accept or approve ICA as being compliant with the regulations. The DER cannot approve/accept revisions to the ICA. If airworthiness limitations are affected, then the DER must coordinate the approval of those airworthiness limitations with the DER's managing office and the certificate managing office. Otherwise, it is the maintenance entity's responsibility to ensure the ICA are acceptable to the FAA and provide them to the owner of any repaired article. A DER can review ICA to ensure it reflects the correct engineering information necessary for maintenance. When a DER does this, there is no ICA compliance finding made, but a note can be included on FAA Form 8110-3 that indicates what ICA the DER has reviewed relative to the engineering data being approved. See FAA Order 8110.54, *Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents,* for more guidance on ICA.

n. Articles with Technical Standard Order Authorization (TSOA).

(1) DERs cannot make a finding of compliance with the TSO. DERs can approve repair data applicable to articles approved under a TSO the same as they can approve repair data for any other article. The repair approval for any article is based on continued compliance with the airworthiness requirements for the product(s) on which the article may be installed. For an auxiliary power unit (APU), these airworthiness requirements might include 14 CFR xx.601, xx.603, xx.605, xx.1301, and xx.1309. It is important to note that the TSO is not the repair standard for the article being repaired. There is one unique consideration that must be given when repairing an article approved under a TSO; if the repair invalidates the article's conformance to the TSO, the TSOA marking must be removed. Though not required, the DER may include a note in the "List of Data" block stating that the incorporation of the approved repair data does not invalidate the APU's conformance with TSO-C77.

(2) It is not acceptable to base repair data approval for an article approved under a TSO solely on continued conformance to the TSO. Airworthiness standard compliance must be demonstrated. Because an article approved under a TSO is likely to be used on more than one type of aircraft, approval of repair data may be more complex than for other types of approved articles. The person seeking the repair approval must identify the appropriate certification basis for the repair, which may be a combination of rules and amendment levels from different product rules based on installation eligibility.

(a) An example of this is seat belt webbing repair. There is no assurance that a repaired belt will meet the same dynamic test standards required of the original unless additional testing is done after the repair. Even though the repaired belt would conform to the TSO and carry the same part number, it may not meet the installation standards.

(b) Another example is for seat belt part number 123 that is used on Boeing 737 and Airbus A-319 airplanes. A repair station gets a box of worn belts from ABC airline that only flies Boeing 737s. It designs a repair to re-web the belts. It generates repair data that only substantiates the dynamic seat certification for the Boeing 737. It may repair the belts, but since there is no substantiating data to support installation in Airbus A319s, the belts must be identified to make sure that they can only be used on Boeing 737s.

(3) It is not acceptable to approve repair data in the form of general processes applicable to all articles that meet a particular TSO. Each repair data approval, whether individual or multiple approved by a repair specification, must identify each eligible article by part number. The repair must be approved in accordance with the applicable airworthiness regulations.

13. Repair Specifications (RS). An RS provides an alternative to the major repair technical data as well as the methods, techniques, and/or practices contained in the current manufacturer's manuals, service bulletins, or ICA. Approval as an RS is required for multiple-use major repairs that do not come from the DAH and do not specifically identify serial numbers of all the products or parts currently in need of repair. An RS may be developed that creates a procedure similar to one listed in the current manufacturer's maintenance manual, ICA, or FAA-approved portions of service documents, but is not required. An RS is used only for major repairs and includes step-by-step "how to" instructions for performing the repair. In the past, this type of data has been referred to by many names, including RSs, repair procedures, and maintenance specifications. An RS may include one or more process specifications as part of the "how to" instructions.

a. Examples.

(1) A repair station has four aircraft that need the same major repair. A DER with the authority of major repairs could, once the DER finds the substantiating data is sufficient to show compliance, approve the data for the major repair on FAA Form 8110-3 and put all four serial numbers on the form. This would not be considered as requiring an RS. Nor would this DER need the special delegation of "RS-DER."

(2) A repair station has four aircraft, all in need of the same major repair. The repair station decides that they will need to use this same repair on future aircraft as well. It wants to

develop a repair that is non-serial number specific and non-DAH specific, and use it repeatedly, so it needs to develop an RS.

b. The RS describes:

(1) What the specific repair accomplishes;

(2) When the repair is applicable;

(3) How the repair will be accomplished;

(4) How the repair is substantiated;

(5) How the repair will be inspected;

(6) How the repair must be maintained; and

(7) How the RS will be kept up to date.

c. An acceptable RS:

(1) Results in a consistent, repeatable end state that can be evaluated to show compliance with the applicable airworthiness requirements;

(2) Provides the technical data for use in approving the aircraft or product for return to service;

(3) Is intended to be used repeatedly;

(4) Requires FAA data approval; and

(5) Is authorized for use by the FAA for a specific maintenance entity. This includes maintenance facilities holding a 14 CFR part 145 certificate and operators having a maintenance program authorized by operations specifications under part 121 or 135.

Note: This means that a part 135 operator must have a CAMP in order to qualify.

d. Requirements for ICAs. The developer of the RS must determine if the repair affects the ICA or existing maintenance requirements of the affected article. Major repairs may require a change in existing maintenance requirements or inspection intervals. For example, a major structural repair, such as a repair to a static engine component, could influence the life limits on critical rotating parts or require more frequent inspections. This determination must be performed with special consideration of the repair falling into an alteration category.

(1) The RS must address whether or not the existing ICA are adequate and clearly state that finding.

(2) If it is determined that the existing ICA are inadequate because of the proposed repair, the RS must contain the appropriately revised ICA. These revised ICA become part of the

RS. Subsequent revisions to the ICA will be processed in accordance with the RS revision process.

(3) The DER must not sign on the signature page of the RS until the ICA has been addressed. See appendix D for a sample title/signature page for an RS.

(4) The DER cannot approve/accept revisions to the ICA. If airworthiness limitations are affected, then the DER must coordinate the approval of those airworthiness limitations with the DER's managing office and the certificate managing office. Otherwise, it is the maintenance entity's responsibility to ensure the ICA are acceptable to the FAA and provide them to the owner of any repaired article. The RS-DER must verify that these steps are included as part of the RS prior to signing the cover sheet. See FAA Order 8110.54 for additional guidance.

e. Responsibilities of an RS-DER. To manage RS approvals, the RS-DER performs a role for the FAA similar to an FAA certification project manager for a design approval project. The RS-DER will review the RS to ensure it complies with the established type certification requirements for the product. They will ensure compliance with each applicable certification regulation. The RS-DER evaluates the RS to ensure the repair design results in a repair that restores the part or product to an airworthy condition. Managing activities for compliance includes:

(1) Managing Data Approval. An RS-DER will develop a compliance plan to ensure all the activity necessary to review and approve individual data items is accomplished as part of the project. This includes design data, analyses, inspection results, test plans, results, and reports. The approved technical data for the RS may originate either from the authority of the RS-DER if the RS-DER has multiple major repair authority, or from other DERs with the required authorization of multiple repairs. This approval is documented on one or more copies of FAA Form 8110-3. DER-approved data in support of an RS must be authorized for the special delegation of major repairs and have specific authority to approve data for multiple-use repairs, but do not need to be RS-DERs. The RS-DER must review every FAA Form 8110-3 submitted by other DERs to determine that all necessary findings of compliance have been made.

(2) Managing Test Activity. Normally, a repair does not require any testing to substantiate it. However, there may be some cases where testing is required. The FAA authorizes the RS-DER to review and approve test plans, coordinate the company's test article conformity, witness tests, and evaluate and make findings on test results, if the RS-DER has multiple major repair authority. The RS-DER may rely on other DERs for some, all, or none of these tasks. The use of other DERs for structural, electrical, material, and other aspects of the repair is limited to those tasks for which they are authorized.

(3) Approving the RS. After the RS-DER finds that all the data necessary to substantiate the repair design is complete, and the repair complies with applicable certification regulations, the RS-DER indicates the RS is approved for use on multiple products by signing the title/signature page of the RS with their DER number along with the applicant who plans on using the RS. Copies of the signed cover page of the RS must then be sent to the RS-DER's managing specialist and the FSDO/Certificate Management Office (CMO)/International Field Office (IFO) principal maintenance inspector. The DER should add the RS cover sheet as "non-

8110-3 activity" in DMS and upload it as an attachment. See appendix D for a sample title/signature page.

f. FAA Form 8110-3 Does Not Indicate RS Approval. DERs must use one or more FAA Form 8110-3 to approve RS technical data, but RS-DERs must *not* use FAA Form 8110-3 to show approval of a complete RS. RS approval is indicated when the specification title/signature page bears all the required signatures. The RS is not approved until the title/signature page bears the signature of the applicant, and the RS-DER with their DER number or, if appropriate, the DER's managing office.

g. Limitation on Repairs Affecting Critical, Life-Limited, or Influencing Parts.

(1) An RS-DER may manage an RS project affecting critical, life-limited, or influencing parts, but prior to starting an RS project, RS-DERs must coordinate with their managing office. The managing office may or may not delegate the approval of the RS. If the managing office does not delegate the approval, the amount of involvement and whether or not the RS-DER recommends approval of the RS is at the discretion of the managing office. In this case, the applicant and the DER's managing office must sign the title/signature page of the RS to indicate approval.

(2) It is the applicant's responsibility to state when the repair affects critical, life-limited, or influencing parts. If the applicant states that critical, life-limited, or influencing parts are not affected, and the RS-DER believes otherwise, the RS-DER must notify the managing office. The managing office must make a determination and then notify the DER. If the managing office agrees with the DER, the DER notifies the applicant, and the process may continue with FAA engineering involvement. If the managing office determines the part is not critical, life-limited, or influencing parts, the RS approval process may continue without FAA engineering involvement.

14. Flammability Testing of Interior Materials. A DER with authority to witness flammability tests on the FAA's behalf must know how the material or part will be installed on an end product and must identify that use on FAA Form 8110-3. For certification projects, a DER makes this finding of compliance in accordance with an approved test plan and using a conformed test article that represents the final configuration. For a specific repair or alteration, a DER makes this finding of compliance using an acceptable method agreed upon by the managing office, which will include a defined test process and means to ensure test article conformity. A DER may not use FAA Form 8110-3 to attest to compliance with 14 CFR xx.853, or other material flammability test, to support lot or quality control testing, or in support of TSOAs.

15. TSOA Procedures. FAA Order 8150.1, *Technical Standard Order Program,* covers procedures for issuing TSOAs. DERs may not make findings of compliance to support an applicant's statement of conformance.

16. Human Factors. Human factors authority is available as an area of expertise on the flight analyst authorization chart. Only flight analyst DERs can be authorized and delegated to approve data for human factors-related regulations. See the FAA Aircraft Certification/Design Approvals/Human Factors in Aviation Safety (AVS) website for more information, including a list of human factors-related airworthiness regulations.

17. Data Approval in Support of § 21.8(d). The DER must obtain special authority to approve any data associated with compliance findings or approval of articles in accordance with § 21.8(d). These approvals are required to be coordinated with AIR-630, Organization and System Policy Branch, and as such, it is inappropriate for a DER to make a finding of compliance in support of a § 21.8(d) article without contacting their managing specialist.

18. Commercial Parts. A commercial part is an article that is listed on an FAA-approved commercial parts list (CPL) included in the DAH's ICA. By creating a "commercial parts" classification, the FAA has constructed, under § 21.9(a)(4), a mechanism by which a DAH may designate commercial parts that are acceptable for installation as replacement articles without having to be produced under an FAA production approval. For commercial parts, the DAH is a TC/STC holder and certain PMA holders. TSOA holders are not eligible for commercial parts privileges. PMA holders who obtained PMA through evidence of a license agreement are also excluded unless prior approval is obtained from the licensor. DERs may not approve the original issuance or changes to the CPL. DERs may approve data within their authorization in support of a commercial part replacement alternative, in the same manner they would approve any part substitution, using FAA Form 8110-3. For more information, see AC 21-45, *Commercial Parts.*

Chapter 5. DER Guidance Material

DER guidance material consists of the airworthiness requirements and FAA directives and advisory circulars (ACs) the DER needs to effectively carry out their responsibilities as representatives of the Administrator. Each DER is responsible for accessing the required material.

1. Electronic DER Guidance Material. DER guidance material is available from the FAA website in accordance with paragraph 3 of this chapter. A DER needs to be familiar with the regulations, orders, and ACs appropriate to the work being done.

2. Other Guidance Material and Forms. Managing or project certification branches provide all necessary forms, instructions, and other material not available through the FAA website.

3. FAA Website. The primary source for DER guidance material is the FAA website, FAA.gov. The FAA website offers access to DRS, an information database that contains many current FAA publications such as safety data, airworthiness regulations, orders, notices, ACs, and ADs. As an alternative to linking to this database from the main FAA website, information in DRS can be accessed directly at the Dynamic Regulatory System (DRS) website. A DER may obtain other related regulations and policy through the managing office, the U.S. Government Printing Office, or U.S. government bookstores.

Chapter 6. Administrative Information

1. Distribution. Distribute this order to all branch levels of the Aircraft Certification Service (AIR), the Flight Standards Service, and regional flight standards divisions; to all certification branches, all certificate management branches, the International Office (AIR-40), and FAA Academy Regulatory Standards Training Division.

2. Authority to Change This Order. The issuance, revision, or cancellation of the material in this order is the responsibility of the Policy and Standards Division (AIR-600).

3. Deviations. Adherence to procedures in this order is necessary for uniform administration of the DER program. Any deviations from this guidance material must be coordinated and approved by AIR-600. If a deviation becomes necessary, the FAA employee involved must ensure the deviations are substantiated, documented, and concurred with by the appropriate supervisor. A copy of the deviation must be submitted to AIR-600 for review and concurrence.

4. Definitions and Acronyms. Appendix A contains definitions for certain key terms. Appendix B contains a list of all acronyms and their meanings as used in this order.

5. Related Material. See appendix C for related regulations, publications, and forms pertinent to this order.

6. Suggestions for Improvement. Please forward all comments on deficiencies, clarifications, or improvements regarding the contents of this order to the AIR Directives Management Officer at 9-AWA-AVS-AIR- DMO@faa.gov. Your suggestions are welcome. FAA Form 1320-19, *Directive Feedback Information,* is located in appendix E of this order for your convenience.

7. Records Management. Refer to FAA Orders 0000.1, *FAA Standard Subject Classification System,* FAA Order 1350.14, *Records Management,* or your office Records Management Officer (RMO)/Directives Management Officer (DMO) for guidance regarding the retention or disposition of records.

Appendix A. Definitions

For the purpose of this order, the following definitions apply:

A-1. Applicant. Any person (individual, company, aircraft owner, aircraft operator, certificated repair station, and so forth) applying for an FAA approval, authorization, or certificate who has not yet gained approval, authorization, or has not yet been denied.

A-2. Compliance Inspection. Physical inspections performed by the FAA engineer or the DER, when authorized. This inspection includes reviewing an installation and its relationship to other installations on a product to determine compliance with 14 CFR requirements that cannot be determined adequately by evaluating the technical data.

A-3. Field Approval. Signature approval in block 3 of FAA Form 337, *Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance),* by a Flight Standards District Office airworthiness inspector signifying that the data identified on FAA Form 337 complies with applicable airworthiness requirements and is approved for the described application subject to conformity inspection by a person authorized in 14 CFR 43.7.

A-4. Managing Office. The FAA office with the responsibility of oversight and management of a designee.

A-5. Product. Aircraft, aircraft engine, or propeller.

A-6. Project Certification Branch. The FAA office with whom the DER coordinates when verifying compliance with regulations on certification projects for products and parts.

Appendix B. Acronyms

Acronym	Definition
14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
AD	Airworthiness Directive
AFM	Aircraft Flight Manual
AFMS	Aircraft Flight Manual Supplement
AIR	Aircraft Certification Service
AMOC	Alternative Method of Compliance
APU	Auxiliary Power Unit
ATC	Amended Type Certificate
AVS	The FAA Office of Aviation Safety
BASA	Bilateral Aviation Safety Agreement
CAA	Civil Aviation Authority
CAMP	Continuous Airworthiness Maintenance Program
CAR	Civil Air Regulation
CLOA	Certificate Letter of Authority
CMO	Certificate Management Office
CPL	Commercial Parts List
CSTA	Chief Scientist and Technical Advisor
DAH	Design Approval Holder
DER	Designated Engineering Representative
DER-T	Consultant DER
DER-Y	Company DER
DMIR	Designated Manufacturing Inspection Representative
DMO	Directives Management Officer
DMS	Designee Management System
DOT	Department of Transportation
DRS	Dynamic Regulatory System
EASA	European Union Aviation Safety Agency
ePSCP	Enhanced Project Specific Certification Plan
FAA	Federal Aviation Administration
FOIA	Freedom of Information Act
FSDO	Flight Standards District Office
ICA	Instructions for Continued Airworthiness
IFO	International Field office
IPA	Implementation Procedures for Airworthiness

JAR	Joint Aviation Requirements
LODA	Letter of Design Approval
MRB	Material Review Board
NACIP	National Automated Conformity Inspection Process
ODA	Organization Designation Authorization
PMA	Parts Manufacturer Approval
PSCP	Project Specific Certification Plan
RFC	Request for Conformity
RFM	Rotorcraft Flight Manual
RFMS	Rotorcraft Flight Manual Supplement
RS	Repair Specification
RS-DER	Repair Specification DER
SFAR	Special Federal Aviation Regulations
STC	Supplemental Type Certificate
STS	Senior Technical Specialist
TC	Type Certificate
TCCA	Transport Canada Civil Aviation
TCDS	Type Certificate Data Sheet
TIA	Type Inspection Authorization
TSO	Technical Standard Order
TSOA	Technical Standard Order Authorization
UM	Unit Member
VLA	Very Light Aircraft

Appendix C. Related Material

C-1. Title 14, Code of Federal Regulations (14 CFR). The following 14 CFR regulations are related to this order. You can download the full text of these regulations from the eCFR Code of Federal Regulations website. You can order a paper copy from the U.S. Superintendent of Documents, U.S. Government Publishing Office, Washington, D.C. 20401; at Government Publishing Office, by calling telephone number (202) 512-1800; or by sending a fax to (202) 512-2250.

- Part 21, *Certification Procedures for Products and Articles.*
- Part 23, *Airworthiness Standards: Normal Category Airplanes.*
- Part 25, *Airworthiness Standards: Transport Category Airplanes.*
- Part 27, *Airworthiness Standards: Normal Category Rotorcraft.*
- Part 29, *Airworthiness Standards: Transport Category Rotorcraft.*
- Part 31, *Airworthiness Standards: Manned Free Balloons.*
- Part 33, *Airworthiness Standards: Aircraft Engines.*
- Part 34, *Fuel Venting and Exhaust Emissions Requirements for Turbine Engine Powered Airplanes.*
- Part 36, *Noise Standards: Aircraft Type and Airworthiness Certification.*
- Part 38, *Airplane Fuel Efficiency Certification.*
- Part 39, *Airworthiness Directives.*
- Part 43, *Maintenance, Preventative Maintenance, Rebuilding, and Alteration.*
- Part 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations.*
- Part 135, *Operating Requirements: Commuter and on Demand Operations and Rules Governing Persons on Board Such Aircraft.*
- Part 145, *Repair Stations.*
- Part 183, *Representatives of the Administrator.*

C-2. FAA Advisory Circulars (ACs). The following ACs are related to the guidance in this order. Use the latest AC version for guidance, available on the Dynamic Regulatory System (DRS) website.

- AC 20-176, *Service Bulletins Related to Airworthiness Directives and Indicating FAA Approval on Service Documents.*

- AC 21-45, *Commercial Parts.*
- AC 43.13-1, *Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair.*
- AC 43.13-2, *Acceptable Methods, Techniques, and Practices—Aircraft Alterations.*

C-3. FAA Orders. The following FAA orders are related to the guidance in this order. Use the latest FAA order version for guidance, available on the FAA Regulations/Policies/Order/Notices website.

- FAA Order 0000.1, *FAA Standard Subject Classification System.*
- FAA Order 1350.14, *Records Management.*
- FAA Order 4040.26, *Aircraft Certification Service Flight Test Risk Management.*
- FAA Order 8000.79, *Use of Electronic Technology and Storage of Data.*
- FAA Order 8000.95, *Designee Management Policy.*
- FAA Order 8100.15, *Organization Designation Authorization Procedures.*
- FAA Order 8110.4, *Type Certification.*
- FAA Order 8110.42, *Parts Manufacturer Approval Procedures.*
- FAA Order 8110.53, *Reciprocal Acceptance of Repair Design Data Approvals Between FAA and TCCA.*
- FAA Order 8110.54, *Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents.*
- FAA Order 8110.103, *Alternative Methods of Compliance (AMOC).*
- FAA Order 8150.1, *Technical Standard Order Program.*
- FAA Order 8300.16, *Major Repair and Alteration Data Approval.*

C-4. FAA Information Guide FAA-IR-01-01A, *Aircraft Certification Guide for the Use of Electronic Technology and Alternative Methods of Storing Information.* Use the latest version of FAA-IR-01-01A for guidance, available on the Dynamic Regulatory System (DRS) website.

C-5. FAA Forms. The following forms are available on the FAA Forms website.

- FAA Form 337, *Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance).*

- FAA Form 1320-19, *Directive Feedback Information.*
- FAA Form 8100-1, *Conformity Inspection Record.*
- FAA Form 8110-3, *Determination of Compliance with Airworthiness Standards.*
- FAA Form 8120-10, *Request for Conformity.*

Appendix D. Sample Repair Specification Title/Signature Page

[Specification Name and/or Control Number (Assigned by Applicant)]
[Revision Number and Revision Date]
Data contained in this specification may be used as approved data when: The repair is accomplished by the Certificate Holder identified below, and the specification title page contains all required signatures.
[Company Name]
[Address]
[FAA Certificate Number and Ratings]
List of applicable products or components:

I certify that the repair described in this document will restore the aircraft or aircraft component, as applicable, to an airworthy condition.

_____ Date: _____
Signature—Certificate Holder's Authorized Representative

_____
Printed Name and Title—Certificate Holder's Authorized Representative

I find the technical data are adequate to substantiate the repair design and the repair is compliant with applicable airworthiness CFRs.

_____ Date: _____
FAA Engineer/RS-DER Signature

Office ID/RS-DER ID Number: _____

Changes to the Repair Specification. The FAA must authorize any change to the repair specification before the applicant implements the change. The repair specification holder must submit all technical data to support the proposed change. Minor changes that do not differ appreciably from the previously authorized data and having no bearing on safety are permitted provided the FSDO/Flight Standards CMO/IFO is notified of the change.

Appendix E. 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: Order FAA Order 8110.37G, Designated Engineering Representative Handbook

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

(Please mark all appropriate line items)

☐ An error (procedural or typographical) has been noted in paragraph_____on page_____.

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

☐ In a future change to this order, 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: _____

Telephone Number: _____Routing Symbol: _____

FAA Form 1320-19 (11/23) Supersedes Previous Edition