



Parts Manufacturer Approval Procedures

Comments on FAA Draft Order 8110.42D
published online for public comment at http://www.faa.gov/aircraft/draft_docs/media/8110-42D.pdf

Submitted to Robert Sprayberry via email to robert.sprayberry@faa.gov

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September 3, 2013

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Dear Mr. Sprayberry:

Please accept these comments in response to FAA Draft Order 8110.42D, Parts Manufacturer Approval Procedures, which was published for public comment at http://www.faa.gov/aircraft/draft_docs/media/8110-42D.pdf.

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Who is MARPA?

The Modification and Replacement Parts Association was founded to support PMA manufacturers and their customers. Aircraft parts are a vital sector of the aviation industry, and MARPA acts to represent the interests of the manufacturers of this vital resource before the FAA and other government agencies.

MARPA is a Washington, D.C.-based, non-profit association that supports its members' business efforts by promoting excellence in production standards for PMA parts. The Association represents its members before aviation policy makers, giving them a voice in Washington D.C. to prevent unnecessary or unfair regulatory burden while at the same time working with aviation authorities to help improve the aviation industry's already-impressive safety record.

MARPA represents a diverse group of manufacturing interests – from the smallest companies to the largest - all dedicated to excellence in producing FAA-PMA aircraft parts.

MARPA members are committed to supporting the aviation industry with safe aircraft components. MARPA members manufacture and sell aircraft components that provide equal or better levels of reliability when compared to their original equipment manufacturer competitors.

MARPA members have a tremendous interest in working with the FAA to help develop and improve the guidance that directly addresses the parts they manufacture. MARPA supports efforts to produce guidance that increases the aviation industry's already excellent safety record.

Comments

MARPA thanks the FAA for the opportunity to offer comments on this draft Order. MARPA applauds the FAA's efforts to enhance aviation safety. We offer these preliminary comments on the draft Order 8110.42D and reserve the right to submit additional comments should the need arise. MARPA respectfully requests an in-person meeting with the FAA to discuss these comments and draft Order 8110.42D.

TABLE 1 Issues

Issue

Table 1 offers a summary of the information contained in FAA Order 8110.42D. Because the table functions as a quick-reference guide for FAA personnel, it is important that it accurately reflect the requirements stated in the guidance.

Revision D Table 1 changes the bullet under "Applicants" to read "Propose installation eligibility." This bullet formerly read "Set installation eligibility." This change could cause confusion as to who determines installation eligibility of an article.

Discussion

The Federal Aviation Regulations state that a PMA applicant "must apply in a form and manner prescribed by the FAA, and include . . . the identity of the product on which the article is to be installed."¹ This requirement places the burden on the applicant to establish the product or products on which the article will be used.

¹ 14 C.F.R. § 21.303(a)(1).

FAA Order 8110.42C elaborates on this requirement. Under the heading “Installation Eligibility” the Order explains that the ACO should “[e]xpect the applicant to identify where the part goes.”² The applicant may also be required to “[i]dentify at least one product for possible installation of the part.”³

Furthermore, proposed FAA Advisory Circular 21.303-PMA would also require the applicant to make a determination of installation eligibility.⁴ The proposed AC directs the applicant to “[i]dentify the eligible aircraft, engines or propellers for proposed installation of [the applicant’s] article.”⁵

According to the regulations and guidance, the burden of identifying installation eligibility of a PMA article lies with the applicant. The role of the ACO is to review and verify the installation eligibility identified by the applicant.⁶ However, the use of the word “propose” in describing the action required by the applicant may inadvertently cause some FAA personnel to regard the identified installation eligibility as subject to discussion. Although it is true the ACO personnel must verify installation eligibility, the prerogative to identify the products on which the PMA article will be installed lies with the applicant. If the FAA finds that the design and application comply with the relevant requirements, the FAA issues a PMA.⁷

Recommendation

In order to avoid confusion by those referring to the Summary of FAA and Applicant Roles in PMA, the language used in Revision C, “Set installation eligibility,” should be retained. In the alternative, the language should be changed to read “Identify installation eligibility” to mirror 14 C.F.R. § 21.303(a)(1).

Paragraph 2-1(d) Directs the Inspector to Evaluate Risk in Accordance with the RBRT Tool.

Issue

The draft Order includes a new subsection requiring the use of the Risk Based Resource Targeting (RBRT) tool. The use of the RBRT tool inserts a subjective assessment into the determination of PMA risk that will result in inconsistent application of FAA regulations and resources.

Discussion

The draft Order directs the ACO to perform a risk assessment of each PMA project using the RBRT tool to obtain a composite risk value. The RBRT tool directs the employee to consider factors such as the applicant’s relationship with the FAA, safety culture, organization stability, quality system, and use of suppliers and outside service providers.⁸ These factors are to be assigned numerical values in order to reach a composite risk value. However, the RBRT tool does not contain guidance or metrics for assigning values to specific factors.

² FAA Order 8110.42C at 10.

³ Id.

⁴ The proposed Advisory Circular removes guidance for PMA applicants from FAA Order 8110.42 revision D and would create a separate AC to instruct applicants.

⁵ FAA Draft Advisory Circular 21.303-PMA at 5 (issued June XXXXXXXXX).

⁶ See FAA Draft Order 8110.42D at 2-4.

⁷ 14 C.F.R. § 21.311.

⁸ FAA Draft Order 8110.42D at 2-1.

Factors such as safety culture and relationship with the FAA are inherently subjective. The assignment of a numerical rating creates the appearance of objectivity. Without metrics or guidance, however, that number is merely a reflection of the inspector's subjective evaluation. This creates a significant risk that the constitutionally guaranteed equal protection rights of applicants may be violated.

The RBRT tool's requirement to quantify what is fundamentally a qualitative assessment, without metrics or guidance, means that identical projects may be assigned different risk values depending on which office, or which inspector, reviews the project. Certain inspectors may evaluate or value certain factors differently than another inspector. This may result in those inspectors reaching different composite risk values for a project, even though the two projects are identical. Moreover, there is a risk that identical projects would receive different composite risk values from the same inspector, depending on other variables, such as the inspector's workload, the day of the week, or even inspector mood.

The Fifth Amendment of the U.S. Constitution ensures equal protection of the laws at the hands of the federal government.⁹ When an inspector inadvertently assigns inconsistent values to different factors when using the RBRT tool, different applicants are treated unequally under the law. It is therefore important to ensure that such risk-evaluation tools offer metrics and guidance to ensure risk is assessed objectively. The FAA should avoid creating the appearance of objectivity with respect to factors that are subjectively assessed.

Recommendation

The use of the RBRT tool should be deleted from the draft Order. In the alternative, the RBRT tool must be revised to include guidance that will allow inspectors to make objective assessments of risk.

Paragraph 2-1(e) directs the Inspector to set FAA Involvement Based on a Composite Risk Assessment.

Issue

The draft Order would require the ACO to establish the level of FAA involvement in finding compliance with various airworthiness requirements based on a composite risk value (CRV) established by use of the RBRT tool.

Discussion

As discussed above, the use of the RBRT tool allows subjective assessments to be used in establishing risk. This subjectivity creates the opportunity for dissimilar evaluations of similar or even identical projects. Without guidance or metrics to assist the inspector it is not possible to objectively and consistently establish risk, across ACOs or even within ACOs.

The risk of subjective allocation of resources extends to the proposed application of management options. Paragraph 2-1(e) directs the ACO to “[u]se the CRV per the RBRT guidance to accomplish, delegate or forego” a number of review and inspection tasks.¹⁰ This is significant, because the applicant is required to

⁹ See, e.g., Bolling v. Sharpe, 347 U.S. 497 (1954).

¹⁰ FAA Draft Order 8110.42D at 2-2.

ensure the completion of the tasks listed in paragraph 2-1(e) in order to comply with FAA regulations and receive a PMA. This is true whether the FAA accomplishes the relevant tasks or that accomplishment is left to the applicant.

In many cases, the applicant may be well able to accomplish the tasks delegated to it by the FAA based on the CRV. In many other cases, the CRV may result in significant delegation of tasks at great cost to the applicant. This is particularly dangerous when considering the potential for similar tasks to receive different CRVs as a result of the subjective nature of the RBRT tool. The outcome of such a scenario could be that in the case of two similarly situated competing applicants, a subjectively determined CRV results in one applicant efficiently being issued a PMA and bringing its product to market, while the other burdens the cost both of accomplishing the required tasks and directing resources away from other projects.

The subjective nature of the CRV determination makes allocation of resources and accomplishment of data review and findings of airworthiness inconsistent across applicants.

Recommendation

Paragraph 2-1(e) should be deleted from the draft order until objective metrics and guidance for use of the RBRT tool are established.

Paragraph 2-3 “Influencing Parts”

Issue

Paragraph 2-3 states that “some product directorates require coordination of approvals for articles that may affect critical parts (defined as influencing parts).”¹¹

Discussion

Under this paragraph the Certificate Management ACO may need to be consulted to approve PMA parts that may affect critical parts. These PMAs are defined as “influencing parts.” However, no definition is given for “influencing part.” This creates the risk of subjective assessments of what constitutes an “influencing part” and may result in disparate treatment of similarly situated applicants.

Recommendation

Guidance should be provided to clearly articulate exactly what “influencing part” means. At the very least a definition for “influencing part” should be included in Appendix K.

The use of “pieces of interior trim” in paragraph 2-4 to illustrate a non-critical article may cause confusion

Issue

Paragraph 2-4(a) offers “pieces of interior trim” as an example of non-critical articles that do not affect safety. This may cause confusion.

¹¹ Id. at 2-3.

Discussion

Although it is true that pieces of interior trim are non-critical articles that do not affect safety, the inclusion of such an example may lead to confusion among inspectors as to what articles are or are not critical.

Examples can often be helpful to illustrate definitions. However, in this case, Appendix K offers a comprehensive definition of “Critical part.”¹² When a clear definition of a term is available, that definition should be used rather than relying on examples. This will help to avoid confusion among inspectors attempting to determine what parts are similar in nature to “pieces of interior trim” and subjectively determining how far such similarities extend.

Recommendation

Delete “like pieces of interior trim” and include a reference to Appendix K “Critical Parts.” This will provide the reader with an objective definition.

Paragraph 2-8 removes “licensee’s part” as an appropriate comparison source for the purposes of Test and Computation

Issue

Draft Order 8110.42D paragraph 2-8 states that applicants will often use “the comparative analysis approach to compare a PMA article to a TC holder’s article to identify design differences and their effects on associated compliance with regulations.”¹³ Revision C explained that a comparison was often between a PMA part and “a TC holder’s or licensee’s part” to show compliance with regulations.¹⁴

Discussion

The deletion of “licensee’s part” as a point of comparison for the purposes of test and computation may cause confusion for inspectors and applicants who had previously relied on a part produced under license by a source other than a type certificate holder for means of comparison under a test and computation program.

A PMA applicant must include in its application requirements specified in 14 C.F.R. § 21.303. After finding the applicant has complied with the necessary requirements a PMA is issued. Test reports and computations must show that the design of the article meets the airworthiness requirements. The must be applicable to the product on which the article will be installed. Among the inspections the applicant is required to make are those necessary to determine compliance with applicable airworthiness requirements and that the article conforms to its approved design.

The regulations permit a showing of compliance to be made by test and computation. The reports must show that the PMA article satisfies all necessary airworthiness requirements. The article to which the PMA part is compared is not required to be a TC holder’s part. The part need only provide comparison data sufficient to allow the applicant to meet the airworthiness requirements of Subpart K. Such articles

¹² Id. at K-1.

¹³ Id. at 2-6.

¹⁴ FAA Order 8110.42C at 23.

may be any part produced under an FAA production approval sufficient to permit the applicant to make a showing of airworthiness.

A licensee's part produced under an FAA production approval will provide the same data for comparison as a TC holder's part. A licensee's part is therefore an appropriate part for use by a PMA applicant to perform tests and computations to make a showing of airworthiness.

In addition to regulatory reasons to permit use of a licensee's part for test reports and computation, there are also practical reasons to permit the same. Permitting continued use of a licensee's part for test reports and computation allows the applicant a larger population of parts from which to draw samples. Greater access to approved parts means that the applicant can more quickly obtain test samples to conduct tests to satisfy the requirements of subpart K, resulting in faster approval and faster introduction of FAA approved parts to market.

Recommendation

Retain language from Revision C permitting the use of licensee's parts for the purposes of test and computation.

Paragraph 2-8(b) fails to reference regulations governing Part 25 Transport Category Aircraft among other FAR Parts.

Issue

Paragraph 2-8(b) makes no reference to Part 25 category aircraft when discussing the safety assessment of an article, nor does it refer to Parts 23, 31, or 35.

Discussion

The draft order directs the ACO to review the relevant criteria in certain regulatory provisions when reviewing an applicant's assessment of safety significance and designation as critical or non-critical. Such assessment is typically made by means of a failure modes and effects analysis.

Part 25 transport category aircraft are a substantial market for PMA. Rules and guidance for assessments of safety under failure modes and effects analysis should therefore be referenced in this section. Although 14 C.F.R. § 25.1309 does define critical parts, it does call out the requirements for a performance of failure modes and effects analysis.

Just as the paragraph omits Part 25, it also omits Part 23 (Normal, Utility, Acrobatic, and Commuter Category Airplanes), Part 31 (Manned Free Balloons), and Part 35 (Propellers). The products described in each of these Parts (and the associated guidance) also benefit from PMA parts and therefore should be referenced in the Order.

Recommendation

Include in subparagraph (b) a reference to 14 C.F.R. § 25.1309 as well as AC 25.1309-1A to provide guidance for failure modes and effects analysis for Part 25 transport category aircraft PMA parts. Include similar references for Parts 23, 31, and 35, and the associated guidance.

2-8(c) makes reference to “appropriate sample sizes” but does not define an appropriate sample size.

Issue

Draft Order 8110.42D states that the applicant must use an appropriate sample size of parts for use in test and computation, but offers no guidance as to what constitutes an appropriate sample size.

Discussion

Draft Order 8110.42D requires the applicant to use an appropriate sample size of parts for the purpose of test and computation analysis. The draft Order, however, does not include any guidance explaining either a precise number or range of parts that would comprise an “appropriate” sample size. The lack of guidance creates a significant possibility that different inspectors will interpret “appropriate” in different ways. As discussed previously, inconsistent application of FAA requirements across field offices or within offices constitutes a violation of applicants’ equal protection rights.

MARPA has previously offered comment on the FAA’s proposed AC-33x the purpose of which is to offer guidance in determining appropriate sample sizes. MARPA explained in those comments that the proposed AC did not accurately account for the realities of the PMA industry. Additionally, the guidance in the draft AC reached unworkable results with respect to sample sizes of parts.

Without guidance included in Order 8110.42D, there is a significant risk that “appropriate sample size” will be interpreted differently by different inspectors and ACOs. This may lead to unequal requirements of PMA applicants. On the other hand, if an “appropriate sample size” is determined in accordance with draft AC-33x, unworkable sample sizes may be required of applicants.

The applicant is in the best position to determine the appropriate sample size for the purposes of test reports and computation. Rather than encourage field offices to make such determinations, the applicants should be relied upon to determine the appropriate sample size. The data resulting from the applicants test reports and computation would of course be reviewed by the ACO.

Recommendation

Remove references to “appropriate sample size” from Revision D and rely upon the applicant to determine appropriate sample size.

Paragraph 2-9(c) directs the ACO to “question the viability” of certain applications

Issue

Draft Order 8110.42D paragraph 2-9(c) states that the ACO is to “question the viability of identity applications” that use TC or TSOA holder drawings or specifications that include certain notes. The use of the word “question” in this context appears to cast doubt on the validity of this method of application.

Discussion

The use of the phrase “question the viability” in this case appears likely to cause confusion and may result in the unnecessary rejection of applications based on TC or TSOA holder drawings. The use of the word

“question” in this case is probably intended to mean “the act of asking or inquiring; interrogation; query.”¹⁵ Revision C directed the ACO in this context to “pay particular attention” when applications relied on design approval holder drawings.¹⁶

However, the word “question,” as used in the draft Order, appears to direct the reader to “doubt”¹⁷ the veracity of the application, which could lead inspectors to be more likely to reject an application. It does not appear that the intention of this change of wording is to encourage inspectors to harbor doubts as to the veracity of an application that uses TC or TSOA holder drawings. Rather, it seems intended to emphasize to the inspector that he should take extra precaution when the application uses such drawings.

Recommendation

In order to better clarify the direction, Revision D should retain Revision C’s language, which reads “Pay particular attention when the design approval holder’s drawings or specifications used to make a finding of identity have notes”¹⁸ In the alternative, the word “question” should be replaced by the word “review.” This would also provide clarity and appears to more accurately reflect the intent of the paragraph.

Paragraph 2-9(e) states that certain methods of material analysis are not acceptable to the FAA but does not elaborate

Issue

Subparagraph (e) state that “certain methods of determining material properties are not supported by the FAA as acceptable for standalone processes.”¹⁹

Discussion

This statement is misleading because it does not provide specific guidance to FAA personnel as to which methods may be unacceptable. The FAA should ensure that discussions of unacceptable or unsupported methods and techniques, regardless of where they occur in the approval process, are adequately described and discussed. This will help avoid confusion among personnel and disparate interpretations among field offices as individuals attempt to understand and interpret the guidance.

Recommendation

This section should be further elaborated upon so that the FAA’s areas of concern are clear to the reader following the guidance. In the alternative, the subparagraph should be deleted until it can be further developed to avoid confusion.

¹⁵ See <http://dictionary.reference.com/browse/question>.

¹⁶ See FAA Order 8110.42C at 24.

¹⁷ See <http://dictionary.reference.com/browse/question>.

¹⁸ FAA Order 8110.42C at 24.

¹⁹ Draft FAA Order 8110.42D at 2-8.

Paragraph 2-12(c) adds a new sentence allowing discretion to send advanced electronic copies of PMA supplement

Issue

Paragraph 2-12(c) includes a new direction that reads “At the discretion of the MIDO, send advance electronic copies of these documents to expedite processing of the PMA.” This provides an excellent benefit to industry by allowing PMA parts to be brought to market more quickly.

Discussion

MARPA applauds this addition to the Order 8110.42. Allowing the ACO and MIDO to coordinate via electronic documentation rather than requiring hard copies to begin processing will accelerate the PMA approval process. Any opportunity to increase efficiency without compromising safety should be implemented. The use of electronic communications to speed approvals is just such an opportunity. The use of electronic documentation for business purposes has grown commonplace, and is accepted more frequently every day. MARPA believes that the industry will see a benefit from this opportunity to expedite processing.

Recommendation

No recommendation.

The Draft Order Should Contain a Reference to the Streamlined PMA Process

Issue

FAA Order 8110.119 “Streamlined Process for Parts Manufacturer Approval (PMA)” was issued on November 30, 2012. It should be referenced in the guidance for PMA approvals.

Discussion

The Streamlined PMA process was developed and issued by the FAA, in cooperation with the PMA industry, to establish a streamlined process by which a PMA applicant with an established safety record could take advantage of expedited process of PMA applications for non-safety-significant parts. The process uses test and computation to show compliance with applicable airworthiness requirements, but removes substantial burden from the FAA to allow FAA personnel to better direct resources to applications for parts with a greater effect on safety.

The Streamlined PMA process is still in its infancy. However, those companies that have implemented an MOU with their ACOs and have taken advantage of the streamlined process have reported positive results. In other cases, certain ACOs have taken a negative view of the streamlined process and been hesitant or have outright refused to implement it.

The Streamlined PMA process is one procedure by which a manufacturer may seek PMA approval. The revision to Order 8110.42 Parts Manufacturer Approval Procedures should include a reference to the streamlined process.

Recommendation

Include a paragraph addressing Order 8110.119 Streamlined Process for PMA to bring this approval procedure to the attention of FAA ACOs.

Conclusion

We thank you in advance for your consideration of these preliminary comments. MARPA looks forward to working with the FAA to better improve aviation safety and we look forward to meeting with you to further discuss this Order. Your consideration of these comments is greatly appreciated.

Respectfully Submitted,



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Modification and Replacement Parts Association



Jason Dickstein
President
Modification and Replacement Parts Association