

**Clearance Record
DOCUMENT COMMENT LOG**

Originating Office: AIR-110	Document Description: Order 8110.42D, Parts Manufacturer Approval (PMA) Procedures	Project Lead: Robert Sprayberry, AIR-113	Reviewing Office:	Date of Review:
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Company & Group	Paragraph	Comment	Rationale for Comment	Recommendation	Disposition
McFarlane Aviation	General	Risk Based Resource Targeting is introduced to PMA with 8110.42D. More information concerning the algorithm used in this system would be helpful to the applicant.	None	None	Partially Adopted: RBRT policy has been removed from the PMA Order and will be addressed in later guidance.
MARPA	General comment	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.	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	Include a paragraph addressing Order 8110.119 Streamlined Process for PMA to bring this approval procedure to the attention of FAA ACOs.	Adopted: Added wording “Additionally, when determined to be appropriate by the ACO, we encourage the use of FAA Order 8110.119, <i>Streamline Process for Parts Manufacturer Approval (PMA)</i> . “ to para 2-1

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			<p>removes substantial burden from the FAA to allow FAA personnel to better direct resources to applications for parts with a greater effect on safety.</p> <p>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.</p> <p>The Streamlined PMA process is one procedure by which a manufacturer</p>		

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			may seek PMA approval. The revision to Order 8110.42 Parts Manufacturer Approval Procedures should include a reference to the streamlined process.		
GE Aviation	Pg. 1-2 Table 1.	The following statement is included under the Applicants column: “Provide statement that existing instructions for continued airworthiness (ICA) are applicable to the PMA article or provide draft supplemental ICAs for the PMA article or product as necessary.” This sentence directs the applicant to an action that is not in compliance with the requirements of §33.4 and §21.50(b).	The PMA regulation, §21.303, makes it clear that the applicant must “provide test reports and computations necessary to show that the part meets the airworthiness requirements of the ... regulations applicable to the product on which the part is to be installed.” For engines, the airworthiness standards for the product are set forth in 14 CFR Part 33, and §33.4 mandates that the applicant “prepare”	Modify the current wording in Table 1 as follows: “Provide draft supplemental Instructions for Continued Airworthiness (ICA) for the PMA article or product.”	Not Adopted: This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or maintainers to either perform or facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product

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		If the PMA applicant wishes to use the ICA for the TC holder article in its ICA, the applicant must demonstrate the applicability of the TC holder ICA; a PMA holder cannot just state the TC holder ICA is valid without demonstrating the applicability of the TC holder ICA.	ICA. Furthermore, §21.50(b) mandates that all design approval holders must “furnish” ICA. Allowing PMA applicants to state that the TC holder’s ICA apply for a given PMA part is contrary to the requirements of both §33.4 and §21.50(b).		as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements. This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.
GE Aviation	Pg. 1-2 Table 1 – ACO Column	This table is silent regarding project sequencing requirements presently in place for all design approval projects.	Present FAA procedures and a recently proposed SOP are used to establish the priority of every design approval project, including PMA applications, to ensure the FAA’s resources are being placed on projects according to their safety significance in the aviation system.	Add a bullet to the ACO column that reads as follows: “Conduct a project sequencing prioritization assessment in accordance with the latest AIR practice.”	Partially Adopted: Typically PMA projects do not require the level of FAA time commitment to warrant sequencing. However, should this not be the case, the system does have the necessary applicability to PMA and is used from time to time at the ACO level. Wording has been added to para 2-1 a.

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MARPA	Pg. 1-2 Table 1	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.	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). Modification and Replacement Parts Association Page 6 FAA Order 8110.42C elaborates on this requirement. Under the heading “Installation Eligibility” the Order explains that the ACO	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).	Adopted: Changed wording to be “Identify installation eligibility” to mirror 14 CFR 21.303(a)(1)

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			<p>should “[e]xpect the applicant to identify where the part goes.”²</p> <p>The applicant may also be required to “[i]dentify at least one product for possible installation of the part.”³</p> <p>Furthermore, proposed FAA Advisory Circular 21.303-PMA would also require the applicant to make a determination of installation eligibility.⁴</p> <p>The proposed AC directs the applicant to “[i]dentify the eligible aircraft, engines or propellers for proposed installation of [the applicant’s] article.”⁵</p> <p>According to the regulations and guidance, the burden of identifying installation eligibility of a PMA article lies with</p>		

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			<p>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</p>		

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			issues a PMA.		
GE Aviation	Pg. 2-1 Para 2-1.c.	This section addresses critical parts but fails to address the importance of parts that are defined as influencing parts for life-limited parts. Given the stated need in current FAA rules and guidance material to address influencing parts in conjunction with life-limited parts, this section should also address articles that influence critical and life-limited parts.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include “. . . environmental influences and operating conditions, including the effects of other engine parts influencing these parameters.” AC 33.70-1 issued on July 31, 2009, further	Change the wording in this section to “These projects usually involve critical parts, life-limited parts, influencing parts or articles with complex designs.”	Adopted: Changed wording to “These projects usually involve critical parts, life-limited parts, influencing parts (only applicable to 14 CFR part 33 products) or articles with complex designs. “

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Company & Group	Paragraph	Comment	Rationale for Comment	Recommendation	Disposition
			amplifies the importance of influencing parts stating “Engine life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”		
MARPA	Pg. 2-1 Para 2-1(d)	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.	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,	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.	Partially Adopted: RBRT policy has been removed from the PMA Order and will be addressed in later guidance.

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			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. 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		

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			<p>guaranteed equal protection rights of applicants may be violated.</p> <p>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,</p>		

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			<p>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.</p> <p>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</p>		

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			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.		
GE Aviation	Pg. 2-2 Para 2-1.d.(2)	The FAA’s review of the applicant’s safety assessment should ensure that influencing parts and the parts they could affect are properly identified by the applicant.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include “. . . environmental influences and operating conditions, including the effects of other engine parts influencing these parameters.”	Replace the second sentence in this section with: “Use the applicant’s safety assessment – including critical and life-limited parts potentially affected by the article - as the initial basis for this indicator.”	Partially Adopted: While we did not follow the recommendation, as stated, we did add similar wording to para 2-8 b.

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			AC 33.70-1 issued on July 31, 2009, further amplifies the importance of influencing parts stating “Engine life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”		
MARPA	Pg. 2-2 Para 2-1(e)	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.	9 See, e.g., <i>Bolling v. Sharpe</i> , 347 U.S. 497 (1954). 10 FAA Draft Order 8110.42D at 2-2. As discussed above, the use of the RBRT tool allows subjective assessments to be used in establishing risk. This	Paragraph 2-1(e) should be deleted from the draft order until objective metrics and guidance for use of the RBRT tool are established.	Partially Adopted: RBRT policy has been removed from the PMA Order and will be addressed in later guidance.

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			<p>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 Modification and</p>		

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			<p>Replacement Parts Association Page 8</p> <p>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.</p> <p>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</p>		

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			<p>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</p>		

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			review and findings of airworthiness inconsistent across applicants.		
GE Aviation	Pg. 2-3 Para 2-1.f.(5)	The FAA’s review of differences between the proposed and original articles must include a check for life assessment conducted with an FAA-approved lifing methodology if the proposed PMA article is an influencing part.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include “. . . environmental influences and operating conditions, including the effects of other engine parts influencing these parameters.” AC 33.70-1 issued on July 31, 2009, further	Expand the last sentence to read as follows: “Also, assess the applicant’s analysis of these differences on an assembly and associated product(s) including any life-limited parts influenced by the proposed article.”	Partially Adopted: Added to para 2-5. F. (5) : “Coordinate with the accountable directorate for product specific related guidance.”

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			<p>amplifies the importance of influencing parts stating “Engine life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.” AC 33.70-1 also contains a section titled Life System Approval that starts with the following sentence: “For an applicant to use a life system, the FAA must first approve the system.”</p>		

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McFarlane Aviation	Pg. 2-3 2-1 f. (4)	says: "Verify the design data is adequate to produce and conform the article." This statement has been interpreted by the Wichita ACO to mean that the design data provided must be detailed enough such that any vendor can manufacturer the exact same part based solely upon the approved data. This strict interpretation fails to recognize that many PMA and original TC parts utilize vendor components that incorporate construction details that are proprietary to a particular vendor. Therefore, this statement should to be expanded to clarify that "to produce and conform the article" may be demonstrated by sufficient	McFarlane is an OEM supplier for push-pull controls for many Type Certified aircraft manufactures, and the TC design data for these control specify the performance requirements and functional dimensions of the controls required to interface to the next higher assembly, but they do not specify detailed subcomponent dimensions or even construction techniques such as swaging of joints as this data is vendor (McFarlane) proprietary data that is not required to ensure compliance with the regulations applicable to the TC product.	Make clear that "produce" does not necessarily mean "manufacture"	Not Adopted: One of the main functions of AIR-110 is to provide guidance on issues that arise from reading the Orders within our purview. In this case, the wording would be further confused if we changed it to be as suggested within your recommendation. Your comment is partially correct in that the FAA does not expect you to detail out the materials and dimensions of a sub-components within your PMA that you purchased from an outside supplier unless you want to own that design yourself as an additional PMA when applicable. However, your PMA approval is a two part approval for the design data and the production control. The ACO does have the right idea in the sense that the PMA holder (you) is responsible for their approved

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		functional and performance requirements and tests/inspections even though not every detailed component dimension and construction detail is specified in the design data. This is a very common scenario for PMA and TC holders alike.	In a similar fashion, McFarlane has obtained PMA for several parts with data that consisted of required dimensional data and performance requirements together with the acceptance criteria to verify these. Wichita ACO has recently been rejecting this approach and insisting that adequate design data can only consist of dimensional and material data and that it must be extensive enough so that the part could be manufactured by any vendor. We are attempting to comply, but strongly disagree with this interpretation.		design in its entirety. In this case, even though you are using a supplier for the sub-assembly you are responsible for that design within your PMA. Therefore, you are required to have “enough” design data to ensure your approved design is always met and can be produced. Meaning that if the supplier changes <u>anything</u> regarding their design, then your engineering team will know about it and be able to assess whether it is a major or minor change per 14 CFR 21.319 and involve the ACO accordingly. One common way this is accomplished is by utilizing clear drawing notes that detail the supplier by name and sub-component key design features, functions, fit, etc.. as well as the revision level.

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GE Aviation	Pg. 2-3 Para 2-3	The first sentence requires coordination with the CMACO and accountable directorate on all critical parts but is silent on such coordination for influencing parts that are specifically addressed in Part 33.	Life-limited parts are clearly a subset of critical parts. Section 33.70 states that “life limited parts are rotor and major static structural parts whose primary failure is likely to result in a hazardous engine effect.” Section 33.70 indicates that an influencing part influences parameters that affect the life limit of a part, and thus should be viewed as critical parts. Section 33.70 establishes requirements for life-limited parts and specifically mentions the need to include the effects of influencing parts in establishment of life limits. As such, the CMACO and accountable directorate	Revise the first sentence read as follows: “Coordinate with the CMACO and the accountable directorate on all critical parts and influencing parts in the case of engines.”	Adopted: Added per the recommendation

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			should be coordinated with on any PMA applications related to influencing parts.		
MARPA	Pg. 2-3 Para 2-3	Paragraph 2-3 states that “some product directorates require coordination of approvals for articles that may affect critical parts (defined as influencing parts).	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.	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.	Adopted: Para 2-3 clarified and guidance added

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Boeing B-H020- REG-13- TLM-43	Page: 2-4 Paragraph: 2-4. Verification of Installation Eligibility	The proposed text states: <i>“2-4.a. Review the applicant’s evidence of eligibility. Verify assertions and consult other information at your discretion. Illustrated parts catalogs (IPC) from TC holders provide credible information about installation eligibility for the original article, but the IPCs are not FAA-approved. ...”</i> (This same basic language can be found in the related proposed Advisory Circular 21-303-PMA, “Application for Parts Manufacturer Approval Via Tests and Computations or Identity,” page 5, paragraph 11.b.)	As written, this proposed language implies that the PMA applicant may use a TC holder’s IPC as credible information for installation eligibility, but it fails to mention that only the TC holder may authorize use of their proprietary information in this way.	We recommend striking any reference to a TC holder’s IPC from this section because any use, or proposed use, of the document is controlled by the TC holder alone.	Not Adopted: This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or maintainers to either perform or facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements. This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not

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					adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.
HEICO Aerospace	Pg. 2-4 Para 2-4	The example of non-critical articles may be misinterpreted. The Order should refer to the definition of Critical Parts in Appendix K.	Listing an example of non-critical articles “like pieces of interior trim,” may lead ACO engineers to a misinterpretation of the distinction between critical and non-critical articles.	Replace “non-critical articles that do not affect safety like pieces of interior trim,” , with “non-critical articles (see appendix K for a definition of “critical part”).”	Adopted: Wording used as stated in the recommendation
MARPA	Pg. 2-4 Para 2-4	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.	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	Delete “like pieces of interior trim” and include a reference to Appendix K “Critical Parts.” This will provide the reader with an objective definition.	Adopted: Wording changed per previous disposition

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			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.		
GE Aviation	Pg. 2-4 Para 2-5	Section 2-5 discusses the “applicant’s report or evidence on the service history of the original	Due to engine system effects, introduction of design differences including but not limited	Insert the following language in this section:	Not Adopted: That is not the purpose of the service history review of the

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		<p>article.”</p> <p>The service history of the original article may not be valid for a replacement part approved by the FAA under Order 8110.42 when an applicant introduces changes to the part design.</p>	<p>to design features, materials and methods of manufacture or construction can introduce new failure modes and/or system interactions distinctly different from the original article whose service history has been chronicled.</p> <p>As an example, a thrust reverser ball screw actuator approved under PMA introduced a design change versus the TC holder design. This design change resulted in a failure mode unique to the PMA actuator. The PMA actuator failure created a chain of events leading to the liberation of a large portion of a thrust reverser translating</p>	<p>“When design changes are introduced to the PMA article, the safety assessment of the PMA part must consider all known service problems in assessing the adequacy of the design change. This assessment may not use good service history with the TC Holder part, as the PMA design change(s) invalidates the TC holder part service history.”</p>	<p>original article. This review forms the performance basis of the replacements that does not replicate significant service difficulties or unsafe conditions of the original design.</p>

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			<p>cowl during reverser deployment. This failure sequence would not have been predicted by a review of the service history of the original article.</p> <p>A service history assessment of the "original article" as defined in this section is inadequate to complete the required safety assessment when design changes are introduced that can create in service issues unique to the PMA article.</p>		
McFarlane Aviation	Pg. 2-4 Para 2-5	"confirm the article is not subject to an airworthiness directive" Should say "Identify whether or not..." As currently stated it could be interpreted as a requirement despite what	As currently stated it could be interpreted as a requirement despite what the sub-paragraphs say.	Should say "Identify whether or not..."	Adopted: Used wording as recommended

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		the sub-paragraphs say.			
McFarlane Aviation	Pg. 2-4 Para 2-5 d	What is the TIA process?	None	None	Answer Question: Type inspection authorization (TIA) is defined in FAA Order 8110.4 found in the FAA Regulatory Guidance Library (rgl.faa.gov)
McFarlane Aviation	Pg. 2-4 Para 2-5 c.	Wording concerning AMOC is confusing. Does this mean that, if replacing a part (because it is mandated by the AD) with a PMA (as opposed to a TC supplied part) requires an AMOC?	None	None	Answer Question: Yes, any article installed in an area covered by an AD must be either called out specifically by that AD or an approved AMOC.
GE Aviation	Pg. 2-5 Para 2-5.h.	The FAA SDR system, MSAD System and the TC product support database documentation of service	Due to engine system effects, introduction of design differences including but not limited	Add the sentence, "When the proposed article contains design	Not Adopted: That is not the purpose of the service history review of the

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		difficulties may not apply to proposed articles with design changes versus the TC holder article.	<p>to design features, materials and methods of manufacture or construction can introduce new failure modes and/or system interactions distinctly different from the original article whose service history has been chronicled.</p> <p>As an example, a thrust reverser ball screw actuator approved under PMA introduced a design change versus the TC holder design. This design change resulted in a failure mode unique to the PMA actuator. The PMA actuator failure created a chain of events leading to the liberation of a large portion of a thrust reverser translating</p>	changes versus the TC holder article, the absence of service difficulties in these databases does not ensure that the proposed article will not introduce new service issues.”	original article. This review forms the performance basis of the replacements that does not replicate significant service difficulties or unsafe conditions of the original design.

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			<p>cowl during reverser deployment. This failure sequence would not have been predicted by a review of the service history of the original article.</p> <p>A service history assessment of the “original article” as defined in this section is inadequate to complete the required safety assessment when design changes are introduced that can create in service issues unique to the PMA article.</p>		
GE Aviation	Pg. 2-5 Currently omitted from 2-6 and 2-7	Influencing parts are an important consideration in the case of engines, as they influence the life of a life-limited part. AC 33.70-1 recognizes that “engine	A new regulation was added to Part 33 in 2007, namely 33.70, dealing with engine life-limited parts requirements. That rule introduced the	Add a new paragraph between 2-6 and 2-7 that reads as follows: Engine	Partially Adopted: Utilized the recommendation but re-worded par. 2-6 slightly to allow flexibility and judgment from the ACOs.

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		<p>life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability”</p> <p>In a June 6, 2011 letter to Aerospace Industries Association (AIA), the FAA recognizes the need for better guidance and asks AIA to form an Advisory Group to provide guidance related, among other things, to influencing part issues related to PMA approvals. FAA states that “This request arises from our recent experience applying the procedures in our current policy and advisory circular guidance to validate reverse engineered designs, and finding they do not adequately account for</p>	<p>concept of influencing parts, which are defined in AC 33.70-1. The life management plan requirements in the rule specify the development and execution of an engineering plan, a manufacturing plan, and a service management plan. The AC points out that the engineering plan must consider influencing parts (other engine parts that affect the life-limited parts) “and particularly any changes to them.”</p> <p>Since life-limited parts are critical parts, and critical parts require a higher degree of FAA oversight in this and other FAA orders, it follows that changes to</p>	<p>Influencing Parts. 14CFR 33.70 introduces the concept of influencing parts – engine parts that influence the fatigue of life-limited parts. Since life-limited parts are usually categorized as critical parts, any changes to influencing parts should be treated by the applicant and ACO as critical parts and processed according to other instructions in this order for critical parts.</p>	<p>The FAA does not agree that the request for a new “2-7” is appropriate for the order. This detail of information is highly specific to Part 33 and does not fit into the broad scope of the order. Such information is already contained in EPD ACs and other guidance materials.</p>

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		<p>engine system effects when the reverse engineered part does not fully duplicate the type certificate holder's part." The letter goes on to say that reverse engineering assessments using part-level comparative techniques "may fail to identify the influence the part has on critical engine parts and systems, and the influence the engine system may have on the part."</p> <p>Given the FAA's stated need to address influencing parts, the order should contain a definition of influencing parts and a paragraph that discusses the criticality of engine influencing parts.</p>	<p>influencing parts should be treated as if they are critical parts.</p>		

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McFarlane Aviation	Pg. 2-5 Para 2-6	"Fatigue test of these parts by applicants are essential to setting life limits" This is not true for all life limited parts. .	Some parts may be life limited due to an elastomer degradation or other reason that is not related to fatigue. Likewise fatigue testing of specific parts may not be necessary if sufficient data from previous tests of similar parts with sufficient similarity in loading, manufacturing process, material, etc. exists	None	Adopted: Softened the wording by adding in "typical" to the sentence.
HEICO Aerospace	Pg. 2-5 Para 2-6	Life-Limited Parts: Design of Life Limited parts seem to be out of scope for Test and Comp PMA and should be addressed via a STC.	According to EPD, Lifting system development are Major Changes to Type design. Therefore, the appropriate design basis would be STC.	Move this paragraph to the Order and AC's for STC development/ approval.	Partially Adopted: This comment has been relayed to the appropriate parties within AIR-110, however the paragraph is still appropriate in its current location within Order 8110.42

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GE Aviation	Pg. 2-5 Para 2-6	The second sentence in this paragraph states “Confirm these data include analyses and tests that establish a part’s life limit.” GE believes this reference is too ambiguous. This section should clearly state that the applicant must have established a part’s life limit using a lifing methodology approved by the FAA.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. AC 33.70-1 issued on July 31, 2009 contains a section titled Life System Approval that starts with the following sentence: “For an applicant to use a life system, the FAA must first approve the system.”	Modify the second sentence to read as follows: “Confirm these data include analyses and tests that establish a part’s life limit using a life system approved by the FAA.”	Adopted: Incorporated per the recommendation
GE Aviation	Pg. 2-5 Para 2-7	This section includes the sentence “This is typically only possible when the applicant possesses and submits, as part of their application, the original design drawing and referenced production specifications.” Additional wording is required to reflect the fact that if original design drawings	Failure to ensure that applicants have legally obtained TC or STC holder data provided to the FAA creates integrity and potential legal risks for employees and the FAA.	Add the following sentence to the end of this section: “If the applicant submits original design drawing and referenced production specifications with their application, require the applicant to show	Not Adopted: The long standing position since the inception of PMA policy has been and continues to be that the FAA is not an adjudicator of proprietary rights.

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		and referenced production specifications are propriety data owned by the TC or STC holder, the applicant must demonstrate that they have a legal right to use these documents.		that they have a legal right to use these documents.”	
GE Aviation	Pg. 2-6 Para 2-7.c.	The second sentence here gives examples of design changes that would be acceptable for PMA articles based on identity without a licensing agreement. But, the examples of design changes listed can also alter the basis of the PMA and should get appropriate scrutiny.	The FAA has made it clear that identical means identical in all aspects, with respect to approvals based on identity. Any change to a process specification should be considered as a change requiring FAA scrutiny and prior approval. Even the relocation of the part number marking could affect the stress on the article.	Revise the second sentence to read as follows: “Any changes to the article or process specifications controlling the manufacture of the article, should be reviewed by the ACO and CMACO as appropriate.”	Adopted: Added to para 2-7, “Note that any changes to the processes and/or specifications controlling the manufacture of the article (or the use of industry standards over OEM processes/specifications) should be reviewed by the ACO and CMACO as appropriate. “

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MARPA	Pg. 2-6 Para 2-8	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.	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	Retain language from Revision C permitting the use of licensee’s parts for the purposes of test and computation.	Adopted: Wording added per the recommendation

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			<p>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.</p> <p>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</p>		

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			<p>provide comparison data sufficient to allow the applicant to meet the airworthiness requirements of Subpart K. Such articles may be any part produced under an FAA production approval sufficient to permit the applicant to make a showing of airworthiness.</p> <p>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.</p> <p>In addition to regulatory</p>		

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			<p>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.</p>		

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GE Aviation	Pg. 2-6 Para 2-8.b.	The applicant's safety assessment should go beyond designating parts as "critical or non-critical" to include identification of influencing parts that can affect critical and life-limited parts.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include "... environmental influences and operating conditions, including the effects of other engine parts influencing these parameters." AC 33.70-1 issued on July 31, 2009, further amplifies the importance of influencing parts stating "Engine life-limited parts are part of a complex system in which other engine parts can	Add a new sentence after the third sentence in this paragraph that reads as follows: "In the case of life-limited engine parts, the analysis must include the effects of influencing parts that can impact established life limits.	Partially Adopted: Para 2-8 b. has been updated to include influencing parts but not per the recommended wording.

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			affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”		
HEICO Aerospace	Pg. 2-6 Para 2-8 b.	Part 23, 25, 31 and 35 references should be included.	Part 23, 25, 31, and 35 references seem to be omitted.	Add Part 23, 25, 31 and 35 references.	Not adopted: All relevant CFR references are accounted for.
MARPA	Pg. 2-6 Para 2-8 (b)	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.	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.	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	Not Adopted: While it is our desire to include all relevant CFR references related to Safety assessments, unfortunately the recommended wording would add more confusion since 14 CFR parts 23, 25, 31, and 35 do not contain directly relevant criteria similar to those currently listed in the Draft Order. Upon development by the accountable directorates, these references will

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			<p>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.</p> <p>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</p>	for Parts 23, 31, and 35, and the associated guidance.	<p>be added at the earliest possible Order revision.</p> <p>Furthermore, this paragraph is not focused on FMEA per se. Its main purpose is about determinations of critical/non-critical, life-limited or not, influencing or not. FMEA is simply a tool to aid in that determination.</p>

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			in each of these Parts (and the associated guidance) also benefit from PMA parts and therefore should be referenced in the Order.		
GE Aviation	Pg. 2-6 Para 2-8.c.	This section references “using appropriate sample sizes” but does not provide any guidance as how “appropriate sample sizes” are determined.	In March of this year, the FAA released a draft Advisory Circular 33-X Statistical Analysis Considerations for Comparative Test and Analysis Based Compliance Findings for Turbine Engine and Auxiliary Power Unit Replacement, Redesign and Repaired Parts. This draft guidance material describes acceptable statistical methods for developing substantiating data for comparative test and analysis compliance findings to support the	The key tenets of the new statistics AC should be referenced here.	Not Adopted: The reference AC is specific to Part 33 and is not applicable nor appropriate for the vast majority of PMA articles. Additionally, the new AC 21.303-PMA does address this concern. The purpose of the Order is to highlight the requirements placed on the applicable FAA Offices. Setting a minimum number of articles greater than one is not as important as the guidance for properly evaluating the engineering report and supplemental information.

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			<p>FAA approval of turbine engine and auxiliary power unit (APU) parts including PMA parts.</p> <p>Key content from this new AC should be incorporated here and elsewhere in this Order.</p>		
McFarlane Aviation	Pg. 2-6 Para 2-8 c.	"Subsequent testing confirms its intended function." Change to "Subsequent testing may be performed to confirm its intended function"	As currently stated it implies that testing is always required whereas simple articles many times do not require testing.	Change to "Subsequent testing may be performed to confirm its intended function"	Adopted: Clarified per the recommendation but did not use exact wording.
McFarlane Aviation	Pg. 2-6 Para 2-8 c.	"Confirm use of qualified or accredited laboratories for analyses of materials and processes." Should allow for in-house testing	By implying the use of a 3rd party laboratories, this unnecessarily restricts the use of in house equipment that is appropriately calibrated and traceable and used per the equipment manufacturers	Should allow for in-house testing	Adopted: Updated to reflect the possibilities for in-house testing. However, it must be noted that many in-house facilities will not be able to present data that meets the confidence requirements unless they not only utilize calibrated and traceable

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			instructions.		<p>equipment but also employ qualified individuals to run that equipment.</p> <p>Knowing how to run a particular machine is not that same as understanding the full process of what that machine is actually doing and knowing whether the data is good when it is finally computed.</p>
MARPA	Pg. 2-6 Para 2-8 (c)	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.	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	Remove references to “appropriate sample size” from Revision D and rely upon the applicant to determine appropriate sample size.	Not Adopted: This is intended to allow flexibility by the ACO engineer and the applicant on a project by project basis. Additionally, the AC sets up more guidance on specific sample sizes and expectation for the applicants to follow.

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			<p>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</p>		

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			<p>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</p>		

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			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.		
GE Aviation	Pg. 2-7 Para 2-8.e.	This section includes the sentence “If the applicant proposes that no new ICA or maintenance instructions are necessary, assess the applicant’s rationale for such. Note acceptance of this approach in an email or a letter of notification.” These sentences direct the	The PMA regulation, §21.303, makes it clear that the applicant must “provide test reports and computations necessary to show that the part meets the airworthiness requirements of the ... regulations applicable to the product on which the part is to be installed.”	Delete the sentence “If the applicant proposes that no new ICA or maintenance instructions are necessary, assess the applicant’s rationale for such.”	Not Adopted: This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or

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		<p>FAA employee to an action that is not in compliance with the requirements of §33.4 and §21.50(b).</p> <p>If the PMA applicant wishes to use the ICA for the TC holder article in its ICA, the applicant must demonstrate the applicability of the TC holder ICA. A PMA holder cannot just propose “that no new ICA or maintenance instructions are necessary” when the applicable rules require the applicant to “prepare” and “furnish” ICA.</p>	<p>For engines, the airworthiness standards for the product are set forth in 14 CFR Part 33, and §33.4 mandates that the applicant “prepare” ICA. Furthermore, §21.50(b) mandates that all design approval holders must “furnish” ICA.</p> <p>Allowing PMA applicants to “propose” that the TC holder’s ICA apply for a given PMA part is contrary to the requirements of both §33.4 and §21.50(b).</p>		<p>maintainers to either perform or facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements. This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.</p>
GE Aviation	Pg. 2-7 Para 2-8.f.(1) and (2)	In 14 CFR 33.70 and AC 33.70-1 the FAA has highlighted the fact that some parts can influence the life capability of other	Paragraph (1) – AC 33.70-1 issued on July 31, 2009, highlights the importance of influencing parts stating	At the end of Paragraph (1) insert the following: “If the article is an	Not Adopted: Other recommendations to highlight influencing parts have been adopted, however, in this

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		parts. The concept of influencing parts needs to be added to both paragraphs.	<p>“Engine life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”</p> <p>Paragraph (2) – This section needs to address design changes to influencing parts that can affect critical and life-limited parts, not just design changes to critical parts.</p>	<p>influencing part, review the applicant’s assessment of the article’s effect on critical or life-limited parts. Ensure the applicant’s assessment includes use of an FAA approved life system.”</p> <p>At the end of Paragraph (2) insert the following: “Scrutinize any design change to an influencing part. Even minor changes in this part’s design may have appreciable effects on life-limited parts</p>	area the Order already points to the product level when making the assessment. At that point, the directorate guidance will need to address the specific such as the information requested to be added here.

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				influenced by this part.”	
GE Aviation	Pg. 2-7 Para 2.9.a.	<p>This section includes the sentence “If the applicant’s detail drawings refer to a TC holder’s process specification, the applicant must submit these specifications in a manner determined by the ACO.”</p> <p>Additional wording is required to reflect the fact that if TC holder specifications are propriety data owned by the TC holder, the applicant must demonstrate that they have a legal right to use these documents.</p>	Failure to ensure that applicants have legally obtained TC or STC holder data provided to the FAA creates integrity and potential legal risks for employees and the FAA.	Add the following sentence to the end of this section: “If the applicant submits TC holder process specifications with their application, require the applicant to show that they have a legal right to use these documents.”	Not Adopted: This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or maintainers to either perform or facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements.

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					This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.
McFarlane Aviation	Pg. 2-8 Para 2-9 b	Same comments as 2-2 f. apply	None	None	Not Adopted: The current wording does not need to be clarified as much as the understanding of that wording by the ACO and applicant in question. One of the main functions of AIR-110 is to provide guidance on issues that arise from reading the Orders within our purview. In this case, the wording would be further confused if we changed it to be as suggested within your recommendation. Your comment is partially correct in that the FAA does not expect you to detail out the materials and

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					<p>dimensions of a sub-components within your PMA that you purchased from an outside supplier unless you want to own that design yourself as an additional PMA when applicable. However, your PMA approval is a two part approval for the design data and the production control. The ACO does have the right idea in the sense that the PMA holder (you) is responsible for their approved design in its entirety. In this case, even though you are using a supplier for the sub-assembly you are responsible for that design within your PMA. Therefore, you are required to have “enough” design data to ensure your approved design is always met and can be produced. Meaning that if the supplier changes <u>anything</u> regarding their design, then your engineering team will know about it and be able to assess whether it is a major or minor change per 14</p>

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					CFR 21.319 and involve the ACO accordingly. One common way this is accomplished is by utilizing clear drawing notes that detail the supplier by name and sub-component key design features, functions, fit, etc.. as well as the revision level.
McFarlane Aviation	Pg. 2-8 Para 2-9 d (1)	This comment reflects a too narrow view of the reverse engineering process. When confronted with measurement data with a small range, this may indicate a dimension that requires a tight tolerance for the part to function. It may also indicate that the parts are produced with a method that produces highly repeatable results. ACO should be cautioned against	Experience. Lots of experience with this very issue.	amend	Not Adopted: While your comment and experience are appreciated, the FAA expects that a reasonable explanation is warranted if the submitted data does not support your proposed design. In the absence of further information, the ACO cannot be expected to have the required confidence necessary to approve the PMA request. Additionally, the AC has expanded information on this issue to help

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		too great of a bias against tolerances exceeding measured ranges.			clarify FAA expectations placed on the PMA applicants.
MARPA	Pg. 2-8 Para 2-9 (c)	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.	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	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	Adopted: Primary recommended wording has been used similar to the previous revision C.

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			<p>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.</p>	<p>would also provide clarity and appears to more accurately reflect the intent of the paragraph.</p>	

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McFarlane Aviation	Pg. 2-8 Para 2-9 e (1):	Refers to FAA CSTA for acceptable methods. Is this information available to PMA applicants. What is CSTA?	None	None	<p>Answer Question:</p> <p>The acronym CSTA has been spelled out in this paragraph and is defined in App. J, pg J-1.</p> <p>The information on material analysis highlighted here is included in the AC. Additionally, as more/new information is generated and evaluated by the applicable CSTA and their industry contacts, FAA guidance can evolve without roadblocks from this order as it is currently written.</p>
HEICO Aerospace	Pg. 2-8 Para 2-9 e.	Material Analysis: This paragraph is vague on what is not acceptable.	This paragraph may lead to confusion by the ACO engineers as to what methods are acceptable as “standalone”.	Change “Certain Methods” to “Semi-quantitative Methods”.	<p>Adopted:</p> <p>Recommended wording used as-is.</p>

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MARPA	Pg. 2-8 Para 2-9 (e)	Subparagraph (e) state that “certain methods of determining material properties are not supported by the FAA as acceptable for standalone processes.”	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.	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.	Adopted: Altered the word “certain” to “semi-quantitative” per prior recommendation above. Additionally, AC 21,303-PMA provides additional information to define FAA expectation on the PMA applicants regarding this issue.

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MARPA	Pg. 2-9 Para 2-12 (c)	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.	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	No recommendation.	N/A

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			from this opportunity to expedite processing.		
McFarlane Aviation	Pg. 2-10 Para 2-14:	Although the ACO should have the right to return the whole package when a non-compliance is found, for the sake of efficiency for both the ACO and the applicant, we suggest emphasizing that the ACO has discretion in communicating with the applicant to resolve minor non-compliance issues before sending the entire package back.	efficiency	we suggest emphasizing that the ACO has discretion in communicating with the applicant to resolve minor non-compliance issues before sending the entire package back.	Not adopted: The applicant's primary requirement of the PMA application process is to show compliance. If they cannot do this within the acceptable timeframe of the PMA application process then the ACO should not waste further resources bringing the applicants "up to speed". Note that this paragraph does not dictate a cut-off time/date so the intent is not for the ACOs to be sending back the majority of applications due to easily corrected typos, oversights, or miscues on the applicant's data package.

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PMA Design & Manufacturing, Inc. Chris Scott	Pg. 2-10 2-15a	Clarification of 'appreciable effect' for design changes	Even with definition provided in 21.319 and an example described (identity to test and computations) it isn't clear what other possible changes might be 'appreciable'	Definition added for 'appreciable effect' or more examples	Not Adopted: A definition within the PMA Order for "appreciable effect" and its relation to major/minor changes is outside the scope of the order. The term is used quite often, in many different context and has been intentionally left out of any formal definitions. It is a term that requires engineering judgment and discussion between the applicant and the FAA. It can vary from project to project and that is acceptable for the purposes and intent of this Order.

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McFarlane Aviation	Pg. 2-10 Para 2-15 b.	"The responsible ACO sets the manner for approving and ..." This leaves ambiguity as to whether or not the ACO must at some point formally approve the minor changes that have been submitted and notify the PMA holder of such.	None	None	<p>Not Adopted:</p> <p>There is nothing in the paragraph that allows the ACOs to never approve the minor changes. This paragraph only highlights that there is flexibility as to how and when they will get approved depending on the ACOs resources to do so.</p> <p>This wording and its intent remains unchanged since the original revision of the PMA Order. It is intended to allow flexibility that should benefit both the individual ACOs and their applicants to work out the best acceptable action plan for their respective situations.</p>

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McFarlane Aviation	Pg. 2-10 Para 2-15 a. and c.:	It needs to be clarified how the ACO is to interpret "appreciable effect on the approval basis of the PMA. 2-15 c. seems to indicate that only a change in approval basis such as from identity to test and computation or test and computation to STC is a major, but local ACO's still are applying a broader interpretation.	None	None	Not Adopted: A definition within the PMA Order for "appreciable effect" and its relation to major/minor changes is outside the scope of the order. The term is used quite often, in many different context and has been intentionally left out of any formal definitions. It is a term that requires engineering judgment and discussion between the applicant and the FAA. It can vary from project to project and that is acceptable for the purposes and intent of this Order.
PMA Design & Manufacturing, Inc. Chris Scott	Pg. 2-10 2-15c	Information on how the ACO demonstrates approval of minor changes to critical parts.	How does the ACO show approval? Revised supplement? Letter? Currently in rev C. (top of numbered pg 18) paragraph dealing with design changes post-approval states that the approval is in the same	Either state that demonstration of approval will be established in the Quality Manual or state in the order.	Not Adopted: The specific method for approving minor changes has historically been in the hands of the ACO assisted by the applicant. The agreement itself is the act of approving the minor change and following the resulting process.

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			manner as original PMA (which I assume would be via amended supplement).		Typically, minor change approvals are sent into the ACO every 6 mos. Additionally, DERs can be authorized as part of the previously agreed to process between the ACO and applicant. The specific method of compliance for this minor change approval is applicant specific and contained in the applicant's quality manual.
McFarlane Aviation	Pg. 2-10 Para 2-15 c	Although major changes require a new PMA application, it should be clarified that the new application is only required to address the effects of the change on the prior approved design.	None	None	Not Adopted: A new PMA application must be able to stand on its own. It is acceptable to reference previous PMA approvals but the current application must contain the data even if it was previously approved. This does not imply a requirement from the ACO to fully re-review the old data, but it is within their discretion to do so if the situation demands it. A new PMA application is a new application as

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					far as the required data reports are concerned. They are not the same as an “amended” application.
Ontic Engineering and Manufacturing, Inc.	2-16 a. PMA via Identity w/o Licensing Agreement	<p>Per the proposed text: <i>“The transition to identity without a license agreement requires a new application and associated supplement. The respective article’s P/N needs a suffix or prefix to distinguish it from that from the license agreement or type certificate.”</i></p> <p>The requirement of this paragraph to add a suffix or prefix does not address the situation in which the PAH currently holding a license agreement and acting as supplier to the TC holder (“Incumbent PAH”) sells or grants the right to use its</p>	Requiring the addition of a prefix or suffix in the case of an Acquiring PAH having acquired or acquired the right to use the design data from the Incumbent PAH adds neither to the safety of the article or part, nor to its traceability, which is already addressed by 14 C.F.R. § 45.15(a)(1) (to mark with the name, trademark, or symbol of the applicant). However, requiring the addition of prefix or suffix in such case places undue costs and burden within the industry and creates confusion in the marketplace as to the basis for the production of the part with the implication	We recommend enforcing the requirement to mark the article FAA PMA along with addition of the name, trademark or symbol of the manufacturer when it comes to identity with or without a license agreement. This would help readily distinguish who the manufacturer was versus the alternative of typically adding a letter designation to the prefix or suffix of the part number.	<p>Not Adopted:</p> <p>The recommendation is not consistent with long standing practices for the issue at hand. For the industry at large, this issue has never been presented to the FAA as something that is confusing or unmanageable in its current state.</p> <p>Also the proposed wording would entangle the FAA into industry specific matters regarding the legal wording of licensing agreements between companies. Currently, the FAA only needs to see evidence of these agreements and therefore does not concern itself with the actual agreement language, which is beyond our</p>

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		design data to permit production of the identical article or part. It is standard industry practice for an Incumbent PAH wishing to no longer produce an article or part to formally sell or grant the right to use its design data to another PAH (“Acquiring PAH”) for production. In such circumstances, the article or part produced by the Acquiring PAH purchasing or acquiring the right to use the design data from the Incumbent PAH should have the same P/N.	<p>that it is produced other than by license of the design data of the original Incumbent PAH.</p> <p>Permitting the use of the same P/N by an Acquiring PAH using the same original design data as the Incumbent PAH is consistent with the use of the original P/N; otherwise the use of a suffix or prefix creates an incorrect impression that the design data used for the article’s production is somehow different from the original design data.</p> <p>If the FAA requires a change in the P/N for an article produced in accordance with design date acquired from the Incumbent PAH, the result is the very same article or part being produced with the same production and</p>	<p>We recommend revising paragraph 2-16 a.</p> <p>PMA via Identity w/o Licensing Agreement as follows:</p> <p><i>“The transition to identity without a license agreement requires a new application and associated supplement. If in addition, there is no acquisition of title or grant to use the design data from a PAH holding a license agreement acting as the original supplier of the article, the respective produced article’s P/N needs a suffix or prefix to distinguish</i></p>	purview.

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			<p>design data now bearing a different P/N.</p> <p>If a license agreement between the TC holder no longer exists the TC holder may still order the same part number from a new PAH without a PMA requirement. However, all replacement articles or parts sold to the market outside of the TC holder, although identical in every way, shape and form to those sold to the TC holder, would have a different P/N. This does not help does not serve any safety purpose, nor is it required for traceability.</p> <p>There does not appear to be any data supporting the FAA's position that changing the P/N increases safety. In fact, many</p>	<p><i>the design basis for its production from that the production basis under the license agreement or type certificate."</i></p>	

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			PMA's are granted by license agreement, transfer of ownership of STC's and as a PAH producing a part for the OEM without any requirement to change the original P/N by prefix or suffix. Additionally, there are no P/N changes required for TSO parts.		
Boeing B-H020-REG-13-TLM-43	Page: 2-11 Paragraph: 2-16.b. PMA via Test and Computation	The proposed text states: <i>“b. PMA via Test and Computation. The transition from a PMA via identity w/ a licensing agreement to one via tests and computations will require a full evaluation of the new PMA data the same as any new PMA. The shift in PMA basis negates the finding of identity and requires new design data, test reports, and computations to show compliance with airworthiness</i>	We recommend revising the “Note” to read as follows: <i>“Note: While the license agreement remains in effect until surrendered, withdrawn, or otherwise terminated by the licensor, the existing PMA via license agreement remains in effect until surrendered, withdrawn or otherwise terminated by the FAA.”</i>	As written, the proposed text may imply that the FAA decides when a license arrangement is terminated. However, only the licensor controls the status of the actual license arrangement with the PMA holder. We suggest adding the text indicated above to preclude any confusion as to who controls the	Partially Adopted: Clarified previous paragraph and deleted this note to avoid further confusion and restating information in multiple places.

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		<i>requirements. Treat this change of PMA basis as a major design per 14 CFR 21.319. Note: The existing PMA via license agreement remains in effect until surrendered, withdrawn, or otherwise terminated by the FAA.”</i>		status of a license agreement vs. PMA.	
GE Aviation	Pg. A-2 Appendix A Figure A-2.	The initial column of the flowchart shows a decision point based on whether or not the part is “critical”. This approach fails to identify influencing parts that are themselves not critical parts but can affect critical or life-limited parts.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include “. . . environmental influences and operating conditions, including the effects of other engine parts	Add a second decision point in the first column immediately below the “critical” decision point to identify if a part is an “influencing part”. If the part is an “influencing part” then the risk should be set as “high” and intersect the flowchart at this point.	Partially Adopted: The flow chart wording was modified to include LLPs only. Detailing influencing parts does not add value for this chart. Extra information on these items has been added to the appropriate paragraphs within the order.

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			<p>influencing these parameters.”</p> <p>AC 33.70-1 issued on July 31, 2009, further amplifies the importance of influencing parts stating “Engine life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”</p>	<p>Also, an additional action block should be added to this flowchart for influencing parts that requires a life assessment for potentially influenced life-limited parts.</p>	<p>Not Adopted:</p> <p>Detailing influencing does not add value for this chart. This is engine specific guidance is better suited to be located in the appropriate EDP Advisory Circulars. Also, extra information on these items has been added to the appropriate paragraphs within the order.</p>
HEICO Aerospace	Pg. A-2 Figure A-2	Flow chart consistency	8110.42C had Life Limited included in the first decision box. Either add Life Limited back into this flow chart or remove LLPs from the order (see comment on	Add “or Life Limited?” to “Critical?” in the first decision box. Change PSCP to PartSCP to be consistent with the	Adopted: Modified per recommendation

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			paragraph 2-6).	text of the Order and AC 21.303-PMA.	
HEICO Aerospace	Pg. A-3 Figure A-3	Flow chart consistency	For Identity designs you will not have comparative data, but original design data.	Change “comparative data” to “originally approved data” in the first document box.	Adopted: Modified per recommendation
HEICO Aerospace	Pg. A-3 Figure A-3	Flow chart consistency	8110.42C had Life Limited included in the first decision box. Either add Life Limited back into this flow chart or remove LLPs from the order (see comment on paragraph 2-6). 8110.42C had a conformity inspection for designs found to be identical.	Add “or Life Limited?” to “Critical?” in the first decision box. Add a conformity inspection process for identical design. (Yes in the last decision box.)	Adopted: Modified per recommendation

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GE Aviation	Pg. A-3 Appendix A Figure A-3.	The initial column of the flowchart shows a decision point based on whether or not the part is “critical”. This approach fails to identify influencing parts that are themselves not critical parts but can affect critical or life-limited parts.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include “. . . environmental influences and operating conditions, including the effects of other engine parts influencing these parameters.” AC 33.70-1 issued on July 31, 2009, further amplifies the importance of influencing parts stating “Engine life-limited parts are part of a complex system in which other engine parts can	Add a second decision point in the first column immediately below the “critical” decision point to identify if a part is an “influencing part”. If the part is an “influencing part” then the risk should be set as “high” and intersect the flowchart at this point. Also, an additional action block should be added to this flowchart for influencing parts that requires a life assessment for potentially influenced life-limited parts.	Not Adopted: Detailing influencing parts does not add value for this chart. This is engine specific guidance is better suited to be located in the appropriate EDP Advisory Circulars. Also, extra information on these items has been added to the appropriate paragraphs within the order. Not Adopted: Detailing influencing parts does not add value for this chart. This is engine specific guidance is better suited to be located in the appropriate EDP Advisory Circulars. Also, extra information on these items has been added to the appropriate paragraphs within

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			affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”		the order.
GE Aviation	Pg. D-1 Appendix D General Notes	The second note states “The FAA accepted the ICA approach for the above articles with their designs. These ICA may refer to those of the respective articles from the holders of type certificates.” This note directs the FAA employee to an action that is not in compliance with the requirements of §21.50(b).	The PMA regulation, §21.303, makes it clear that the applicant must “provide test reports and computations necessary to show that the part meets the airworthiness requirements of the ... regulations applicable to the product on which the part is to be installed.” For engines, the airworthiness standards for the product are set forth in 14 CFR Part 33, and §33.4 mandates that the applicant “prepare”	Change the wording for this note as follows: “The FAA accepted the ICA provided by the applicant for the above articles with their designs. The applicant must make its supplemental ICA readily available per 14 CFR 21.50.”	Not Adopted: This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or maintainers to either perform or facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product

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			ICA. Furthermore, §21.50(b) mandates that all design approval holders must “furnish” ICA. Allowing PMA applicants to state that the TC holder’s ICA apply for a given PMA part is contrary to the requirements of both §33.4 and §21.50(b).		as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements. This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.
HEICO Aerospace	Pg. D-1 Appendix D	Sample Supplements should be consistent between Order 8110.42D, the AC 21.303-PMA and Order 8100.15.	The 6 column headers are not consistent between Order 8110.42D, the AC 21.303-PMA and Order 8100.15. The sample content should also be consistent.	Select a standard supplement format and harmonize each of the FAA documents that use PMA supplements as examples.	Partially Adopted: Order 8110.42 and AC 21.303-PMA have been harmonized. Order 8110.15 will be harmonized at the earliest convenience. However, Order 8110.42 is the genesis of this information and therefore sets the precedence for all others to follow.

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GE Aviation	Pg. F-1 Appendix F	<p>The “choose the best scenario” section toward the bottom of this sample letter includes the following option: “We concur with your determination that installation of your PMA’d parts do not impact existing 14 CFR §21.50(b), instructions for continued airworthiness (ICA).”</p> <p>This note directs the FAA employee to consider an action that is not in compliance with the requirements of §21.50(b).</p>	<p>The PMA regulation, §21.303, makes it clear that the applicant must “provide test reports and computations necessary to show that the part meets the airworthiness requirements of the ... regulations applicable to the product on which the part is to be installed.”</p> <p>For engines, the airworthiness standards for the product are set forth in 14 CFR Part 33, and §33.4 mandates that the applicant “prepare” ICA. Furthermore, §21.50(b) mandates that all design approval holders must “furnish” ICA.</p> <p>Allowing PMA applicants to determine</p>	<p>Delete this option and reformat this section of the sample notification letter to simply state the following:</p> <p>“We concur with your instructions for continued airworthiness (ICA) as required by 14 CFR 21.50(b) for this PMA. The ICAs have been coordinated with the (<i>Specific Aircraft Evaluation Group (AEG)</i>) as required by PMA Order 8110.42D. The AEG acceptance for this project is recorded via FAA</p>	<p>Not Adopted:</p> <p>This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or maintainers to either perform or facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements. This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not</p>

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			that the TC holder's ICA apply for a given PMA part is contrary to the requirements of both §33.4 and §21.50(b).	Memorandum dtd: (<i>memo date</i>) from the (<i>Specific AEG</i>) to (<i>ACO Project Engineer</i>).	adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.
GE Aviation	Pg. K-1 Appendix K	No definition is provided for influencing parts.	In 2007 a new regulation (33.70) was added to Part 33 dealing with engine life-limited parts requirements. The life management plan requirements in this rule specify the development and execution of an engineering plan that must include "... environmental influences and operating conditions, including the effects of other engine parts influencing these parameters." AC 33.70-1 issued on July 31, 2009, further	Add the following definition: Influencing Part is a part that can have a direct or indirect effect on the environmental influences and operating conditions of a life-limited part.	Not Adopted: Order 8110.42 is not the venue to have this definition since it is EPD specific in nature.

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			amplifies the importance of influencing parts stating “Engine life-limited parts are part of a complex system in which other engine parts can affect the life-limited parts, including their capability. Therefore, the engineering plan must consider these other parts and particularly any changes to them.”		
GE Aviation	Pg. K-1 Appendix K	The current definition for Instructions for Continued Airworthiness (ICA) does not make it clear that the ICA reference here refers to ICA issued by the PMA applicant, not the TC or STC holder for an article being replaced by the PMA article.	The PMA regulation, §21.303, makes it clear that the applicant must “provide test reports and computations necessary to show that the part meets the airworthiness requirements of the ... regulations applicable to the product on which the part is to be installed.”	Modify the wording of the definition of Instructions for Continued Airworthiness to read as follows: “Instructions for Continued Airworthiness (ICA) documents, directions and	Not Adopted: This issue is well known and addressed by long standing policies since the inception of PMA. The FAA accepts the referral to existing ICA by holders of PMA as an element of finding compliance to airworthiness requirements. Restricting the ability of owners, operators or maintainers to either perform or

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			<p>For engines, the airworthiness standards for the product are set forth in 14 CFR Part 33, and §33.4 mandates that the applicant “prepare” ICA. Furthermore, §21.50(b) mandates that all design approval holders must “furnish” ICA.</p> <p>Allowing PMA applicants to determine that the TC holder’s ICA apply for a given PMA part is contrary to the requirements of both §33.4 and §21.50(b).</p>	requirements issued by the PMA applicant to maintain the continued airworthiness of an aircraft, engine or propeller.”	facilitate the performance of maintenance is counter to the intent of regulation. PMA holders show the designs of their replacement articles preserve the original interfaces to the product as the original articles. This allows maintainers to refer to the products’ ICA to facilitate installation of these replacements. This approach meets the requirements of 14 CFR 21.50(b) and does not conflict with 14 CFR 33.4. Note that the FAA does not adjudicate intellectual property rights. The COMSIs Report of 1984 discussed at length IP rights, ICA and PMA.
McFarlane Aviation	Pg. K-1 App. K 6.	change "Critical part is one whose failure has a direct hazardous effect..." to "Critical part is one with failure modes that have a direct hazardous effect ...".	This clarifies that "failure" must be an actual conceivable failure mode, not just a hypothetical disappearance of the part.	None	Not Adopted: The requested clarification still leaves a level of subjectivity and only adds to the perceived confusion. The key to this

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					determination should be relevant discussions based on sound engineering data review and judgment between the PMA applicant and the ACO.
McFarlane Aviation	Pg. K-1 App. K 6	"Consult the appropriate criteria for each eligible product." Suggest clarifying where these criteria may be found.	None	None	Partially Adopted: This information is contained and detailed in the appropriate paragraph of the preceding Order. The "definitions of Terms" listing is not the proper place for this clarification.
McFarlane Aviation	Pg. K-1 App. K	Add definition of "Approval Basis" as used in 21.319.	None	None	Not Adopted: The focus of 14 CFR 21.319 is limited to an article centric mindset. Approval Basis is a term understood within the certification community but is not specifically defined in any one location. This Order refers to "approval basis" in the context of the specific regulations upon which the initial

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					article was first certified.
PMA Design & Manufacturing, Inc. Chris Scott	Pg. K-1 Appendix K. 6.	Definition for Critical Part	States that typically critical parts have fixed replacement times or inspection intervals. There are numerous components on the aircraft that are not critical that have at the very least, inspection intervals (inspection cards). Also, parts that are mandatorily consumed during an overhaul/repair, is this considered 'fixed replacement times'? Again, many hardware, seals, and miscellaneous small components would not necessarily be	Rewording the definition to make it clear how much of the fact that the part is located in the airworthiness limitation sections or has inspection intervals goes into categorizing it as 'critical' when compared to the hazardous effects. i.e. a part with a life limit, however its failure has no hazardous effect to the flight.	Not Adopted: The definition has been updated to agree with the harmonization efforts between the FAA and EASA. This new definition reflects the wording found in the latest Bilateral Technical Implementation Procedures (TIP)

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			'critical', but are required to be replaced.		