

Clearance Record
DOCUMENT COMMENT LOG (PUBLIC)

Originating Office: AIR-110	Document Description: Major Repair and Alteration Data Approval Order	Project Lead/Reviewer: John Cerra	Reviewing Office: AIR-110	Date of Review:
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Commenter	Page & Paragraph or Topic	Comment	Reason for Comment	Suggested Change (Note: Items in italics are implied changes based on comment)	Comment Resolution
A4A (UPS) Robert Ireland	General	The Draft Order 8300.X references a Job Aid "AFS-300 MAJOR REPAIR/ALTERATION JOB AID" which is approved by an FAA memorandum. This job aid exceeds the definition of "approval methods" by making determination of Major and Minor classifications different from 14 CFR §§ 43Appendix A.	This internal memorandum does not have the authority to supersede 14 CFR §§ 43Appendix A.	<i>Change the job aid.</i>	Non-concur. The job aid does not supersede 14 CFR part 43 Appendix A. Appendix A is not all inclusive. The sections of the job aid were developed by each directorate to provide guidance to better identify major repairs and alterations.
A4A (UPS) Robert Ireland	Page 00i Title Page	The title should be changed, such that ASI's will not perceive that they have the same involvement in STC packages as Field Approvals.	The majority of this Draft Order 8300.X refers to Field approvals in which part 121 aircraft are typically not eligible.	The title should change to "Field Approvals related to Major Repairs and Alterations".	Non-concur. This document is primarily related to the data required for major repairs and alterations. STC's are discussed in other orders and ACs.
AEA Richard Peri	Page 01 1-4.b.	The description of a major alteration being subsequently determined to be a major change in type design is correct. However, many of the entries in the Field Approval job aid require an STC due to new, novel, or criticality of systems.	Paragraph 1-4 b. should include a statement that in some cases the Administrator has determined that a given technology should be treated "as if it were a major change in type design" even though an analysis of the regulation shows it to be a major (or minor) alteration.	Include a sentence that reads: in some cases the Administrator has published a policy directing certain technologies to be installed via an STC even though an analysis might show a major/minor alteration.	Non-concur. The job aid is the FAA's interpretation at a point in time of what is a major alteration or STC. The job aid is a living document that will change based on changes to accommodate new technology.
AEA Richard Peri	Page 02 2-1.e.	e. Major changes in type design are not typically eligible for field approvals.	An applicant who introduces a major change in type design MUST apply for an STC (or amended TC).	Revise the sentence to read: e. Major changes in type design are not eligible for field approvals.	Concur. Removed "typically." Added the following sentence: "However, the Major Repair and Alteration Data Approval Job Aid contains a process for the reclassification of a major change in type design if one is requested."

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AEA Richard Peri	Page 05 3-2.	Paragraph 3-2 implies that there are only two levels of approval: field approval and STC. There is no mention of DER/ODA data approval	AC 43-210 and FAA Order 8900.1 list over 20 sources of approved data. Only one is a field approval.	include a sentence that reads: If an alteration is not eligible for a field approval and does not warrant an STC, the applicant should be advised that obtaining data from a DER/ODA is a viable option.	Partially concur. Paragraph 3-2 through 3-5 need to be used in conjunction with figure 3-1. Added "Paragraphs 3-2 through 3-5 below provide further details on the process contained in figure 3-1." in 3-1.b. to reiterate this. Also revised 3-2.c.(3) to "(3) Examine the data and determine if all of the data for the project has been approved. If all the required data is approved, then a field approval or STC is not required. If all of the required technical data is not approved, then additional approvals (i.e. DER or ODA approved data) or a field approval are necessary. The compliance checklist in AC 43-210 may be used."
AEA Richard Peri	Page 06 3-3.a.(7)	Equipment required under 14 CFR parts 91 does not in and of itself make an alteration major.	If an article is required to be approved under title 14 chapter 1 of the CFR then the part must have pedigree (§ 21.8). Unlike the certification rule (parts 23, 25, 27, 29, etc.) which imply approval as a function of TC. Part 91 requires explicit "approved" language. Part 91 applies to ALL aircraft, both certified and non-certified, assuming required equipment implies "approved equipment" would apply to not only certificated aircraft but also EAB and LSA aircraft.	Remove the reference to required equipment under part 91.	Concur. Removed.
AEA Richard Peri	Page 10 3-6.e.	The statement: "When the alteration was originally accomplished, an FAA Form 337 and accompanying data was submitted to record the configuration change. Similarly, the restoration must be recorded via Form 337, including consideration of any accompanying documentation used in the original alteration." is in error.	There is no regulatory basis for this statement. The removal of a major alteration (or STC) may or may not constitute a major alteration requiring a FAA Form 337.	The removal of an alteration that was accomplished via an FAA Form 337 should be treated as an independent alteration. Should the alteration that results in the removal of a previous installation be determined to be a major alteration, the removal must be based on approved data and recorded in accordance with § 43.9 (d).	Partially concur. While the rule is not specific in this instance, the FAA has had a long standing policy concerning the removal of an alteration or STC. A FAA Form 337 is necessary for the removal of an alteration or STC in order to maintain configuration control in the FAA registry.

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AEA Richard Peri	Page 17 5-1.a.	The statement: "If the major repair or alteration affects the airworthiness limitations section (ALS) of the ICA, then that maintenance information must be approved by the FAA (e.g. ACO, DER, or ODA)" is misleading and will likely be read incorrectly.		Clarify that all other changes other than ALS to the ICA/MM do not require subsequent approval provided they are drafted using the approved FMS guidance.	Concur. Reworded for clarification to the following: " If the major repair or alteration affects the airworthiness limitations section (ALS) of the ICA, then that maintenance information that affects ALS must be approved by the FAA (e.g. ACO, DER, or ODA)."
AEA Richard Peri	Page 22 6-3.	The process for supplement approval is inconsistent with other FAA guidance. There is NO regulatory support for the use of FAA Form 337 to "process" an FMS/SFM with Flight Standards.	Supplements to a flight manual do not in and of themselves dictate a major alteration therefore any reference to a major alteration and field approval is inappropriate.	The process for developing and approving supplements for part 23/CAR 3 aircraft should be in accordance with AC 23-8C, Appendix 5 Guide for Preparing Airplane Flight Manual and Pilot's Operating Handbook Supplements. A similar AC exists for each aircraft category.	Non-concur. This paragraph specifically indicates that if the repair or alteration affect the flight manual then supplements are required. It does not address only changes to a flight manual without an accompanying repair or alteration.
AEA Richard Peri	Page 30 8-8.a.	There is no regulatory basis for these assumptions and statements.	The criterion for a major change in type design (STC) and major alteration (approved data) are specified by regulation. Any effort to expand the regulatory criterion MUST be accomplished via rulemaking -- not via simple policy.	The criterion contained in 8-8 are sound considerations. However, the reference to STC as well as the implied "follow-on" installation is incorrect.	Concur. Replaced "An STC" with "An evaluation" in last sentence of 8-8.a.(1). Changed "Follow-on" to "Previous" in first sentence of 8-8.a.(2).
AEA Richard Peri	Page 36 8-14.f.	AC 43.13-1B does not contain ELA procedures		<i>Provide the correct reference.</i>	Partially concur. Reworded paragraph to: "Detailed information on the creation or revision of an ELA is provided by ASTM F2490-05e1 or MIL-E-7016. AC 43.13-1B does not contain ELA procedures, however use of AC 43.13-1B paragraph 11-36 as a reference is appropriate for the purpose of an electrical load determination."

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Airbus	Page 01 1-4.b., Figure 3-1., 3-2.c.(2), 3-3.b.	<p>Comment 1: Current FAA definitions do not prevent confusion, ambiguities, inconsistencies, or possibilities for extensive interpretations on both sides (applicant and Aviation Safety Inspector) during the classification of alterations/modifications/changes to type design.</p> <p>Note: The question the ASI has to answer (refer to figure 3-1) is "Is the scope of the alteration sufficient to process as a major change in type design? (14 CFR 21.93)". The paragraph 1-4.b. clarifies the difference between a major change to type design and a major alteration only in terms of approval responsibility.</p>	<p>– Alteration: FAR 1.1 provides the definition of a major alteration: "Major alteration means an alteration not listed in the aircraft, aircraft engine, or propeller specifications— (1) That might appreciably affect weight, balance, structural strength, performance, power-plant operation, flight characteristics, or other qualities affecting airworthiness; or (2) That is not done according to accepted practices or cannot be done by elementary operations".</p> <p>– Modification: This Order states "The applicant will provide verification that the aircraft has been inspected and any aircraft records have been reviewed in order to ensure compatibility of this alteration or repair with previously approved <i>modifications</i>". The term "modification" is also called out in several of the 14 CFR Parts (e.g. refer to FAR 129.109: "[...] Adverse effects of repairs, alterations, and <i>modifications</i>. [...]"). The FAA clarified the meaning of this term (letter dated 25-Jan-2013): "[...] We consider this term to be synonymous with the term "alteration". We use both terms to mean making a <i>change</i> to the construction, configuration, performance, environmental characteristics, or operating limitations of the affected civil aeronautical product. [...]".</p> <p>– Change: FAR 21.93(a) provides the definition of minor/major changes: "A "minor change" is one that has no appreciable effect on the weight, balance, structural</p>	to amend this Order and to complete the FAR 1.1 with definitions clarifying the distinctions between all those terms?	Partially concur. Amending the 14 CFR is beyond the scope of this order. However, changed paragraph 3-3.b. from ". . . with previously approved modifications." to ". . .with previously approved changes to the aircraft."
Airbus	Page 02 2-1.b.	Comment 3: Aviation Safety Inspectors are not provided with a reference robust enough to prevent the misclassification of alterations and repairs.	<p>This paragraph indicates that the ASI should refer to Title 14 of the Code of Federal Regulations (14 CFR) 1.1 and part 43, appendix A to determine whether the alteration or repair is major or minor, when determining the basic eligibility of a proposed major repair or major alteration for field approval.</p> <p>The FAA Advisory Circular (AC) 120-16F "Air Carrier Maintenance Programs" addresses in its paragraph 5-2 the matter of major repairs and alterations. It is disconcerting to read in this AC that "Exclusive reliance on the part 43, appendix A, list of major repairs and alterations to make the major/minor classification <i>might result in the misclassification of some repairs and alterations</i> because the part 43, appendix A, list does not include evolving airplane design and construction techniques such as composite structures and the high-speed, high-altitude pressurized jet transport".</p>	An update or the supersession of the FAR 43 appendix A by a robust substitute would avoid ambiguous and confusing situations.	Non-concur. Changing the Part 43 rules and determining whether an alteration is major or minor are beyond the scope of this Order.

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Airbus	Page 06 3-3.b.	Comment 4: Modifications/Alterations (refer to Comment 1) and repairs that have been embodied should be taken into account: a modification/alteration or repair may have been approved but not embodied on the aircraft.			Non-concur. Each approval and return to service has to be based on the current configuration of the product and not impending changes that may be incorporated later.
Airbus	Page 07 3-4.c.(2)	Comment 5: This Order does not describe how it is determined that a proposed alteration or repair (project) may exceed the scope and complexity or prove beyond the expertise of an ASI to approve.	The absence of specific and measurable criteria is a source of inconsistencies in the approval process of alterations/modifications/changes to type design/repairs.	Introduce or refer to specific and measurable criteria.	Non-concur. ASIs are specifically trained in the field approval process including the caveat to seek assistance if it is beyond their expertise.
Airbus	Page 13 4-2.e.(1), and e.(3)	Comment 6: Can the FAA confirm whether there is a limit to the (number of) reuse of previously approved data?	If no limit is defined for the reuse of previously approved data, the restriction referred to in the Chapter 3, paragraph 3-1.b. can be circumvented, particularly when paragraph 4-2.e.(3) states "[...] Minor deviations to previously approved data do not require reapproval. [...]". Chapter 3, paragraph 3-1.b. states: "A field approval is a one-time approval for the product or appliance to which it applies".	Add clarification on the number of reuse of previously approved data.	Non-concur. Data can be reused an infinite number of times, however each application must be approved for installation.
Airbus	Page 15 4-2.e.(6)	Comment 7: Care should also be required for: – data previously approved under the provisions of a bilateral agreement between the United States and a foreign country or jurisdiction, – data not (required to be) published. The applicable Design Approval Holder should be contacted.	The repair or alteration may affect systems or structures that are the subject of some mandatory instructions that <u>have not been published</u> because the corresponding airworthiness limitations exceed the justified aircraft operational life. This may apply to instructions that have been specified as mandatory in the approval of: – the type design or restricted type design, – a change to type design or supplemental type design that is embodied, – a repair design that is embodied.	– Alert ASI on bilateral agreement implications. – Alert ASI on potential adverse impacts on airworthiness limitations not published as a result of the use of previously approved alteration or repair in a different application. DA note : this comment seems to mainly be valid to rotatable part. Note also that there is a guideline to track repaired rotatable parts in AC 120-93 appendix 7.	Non-concur. For the first part of the comment, bilateral concerns are addressed in Figure 4-1. For the second part, paragraph 4-2.e.(6)(vi) address this however, changed the paragraph to "(vi) Any adverse interaction with other changes to the product must be addressed."

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Airbus	Page 18 5-3.	Comment 8: This paragraph states "Changes that affect the certificated life limit of a part must not be field-approved". Is this restriction limited to certificated life limit or does it apply to any form of mandatory instructions and airworthiness limitations?	For example, a change that affects the certificated threshold/interval of a structural inspection or the inspection procedure should also fall under this restriction. Certificated life limit are included in the ALS, and changes that affect ALS are approved by the cognizant ACO or qualified ODA.	Delete this sentence.	Non-concur. However, revised the wording of the sentence to further clarify: "Changes that affect the certificated life limit of a part are major changes to type design and must not be field-approved."
Airbus	Page 18 5-3.	Comment 9: This paragraph states "The vast majority of field-approved major alterations are simplistic in design and execution". If they are so simplistic in design and execution, should they really be classified as major?	The sentence seems to point in the direction opposite to the (major) classification		Non-concur. Simplistic in design and execution does not necessarily infer that the alteration might not introduce appreciable effect to the product.
Airbus	Page 28 8-1.c.	Comment 10: The objectives of this Order is to define a methodology for evaluating data packages for major repairs and alterations. Wording should not imply that the ASI can develop another methodology.	This paragraph states: "c. Not all considerations will be applicable to a particular repair or alteration. The ASI is <u>encouraged to develop a methodology</u> for evaluating data packages through the use of checklists and other aids".	Amend the paragraph to read: "c. Not all considerations will be applicable to a particular repair or alteration. The ASI is encouraged to develop checklists and other aids for evaluating data packages".	Concur. Changed.
Airbus	Page 30 8-8.	Comment 11: The matter of compatibility and configuration management goes beyond the perimeter of systems.		Should this matter be extracted from the systems section to introduce it into a section applicable to both systems and structure?	Partially concur. Compatibility of systems and configuration management of systems (paragraphs 8-8.a. and 8-8.b.) have been moved to paragraph 8-7 as the more appropriate location.

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Airbus	Page 36 8-16.	Comment 12: Human factors and performance limitations issues in activities such as design, production, aircraft operation, continuing airworthiness management, or maintenance may lead to unsafe conditions. Confessing that it is difficult to locate related requirements is particularly confusing. It follows that this difficulty is a hazard which could result in the misvaluation of an alteration, potentially leading to an unsafe condition	The evaluation of an alteration/repair should be performed against an exhaustive list of S.M.A.R.T. (Specific, Measurable, Attainable, Relevant and Time-bound) airworthiness standards to ensure a uniform level of evaluation, from one alteration/repair to another. A comprehensive list of human factors in these airworthiness standards, to be taken into account during the evaluation as a common basis for both the applicant and the authority, should be developed (and completed progressively, as a result of experience gained).	To amend this paragraph to explicitly define and locate the HF related requirements	Non-concur. Because of the uniqueness of each repair or alteration specific measurable criteria is not possible. The FAA human factors web page link was listed to help provide guidance to the ASI, but the ASI always has the right to obtain the assistance they need to make a determination.
ARSA Marshall Filer	General	ARSA is concerned that draft Order 8300.X is inconsistent with AC 120-77, Repair and Alteration Data by introducing different definitions than those set forth in that document.			Comment only. We have reviewed AC 120-77 and believe that it is consistent with this order after the following changes we have made to the order. Added the substantiating data definition from the AC to to Appendix A.
ARSA Marshall Filer	General	Additionally, the draft does not adequately consider the FAA's February 23, 2013 letter to Erickson Air-Crane, Inc. (EAC) in response to EAC's submission under the Consistency and Standardization Initiative (CSI) (Attachment 1).	The FAA's CSI response resulted from a multi-year effort involving Aircraft Certification, Flight Standards and ARSA. It focused on how technical data is approved under 14 CFR part 21 and how this relates to regulatory requirements in parts 65, 121, 135 and 1451 that major repairs and major alterations be performed in accordance with FAA-approved technical data. The FAA's CSI letter also addressed the relationship between technical data and the requirement in § 43.13(a) to perform maintenance, preventive maintenance and alterations in accordance with methods, techniques and practices acceptable to the FAA.		Partially concur. See related comment resolution for figure 4-1.

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ARSA Marshall Filer	Page 12 4-2.	Chapter 4 should include the following definition of methods, techniques and practices from AC 120-77:	Methods, Techniques, and Practices. The step-by-step, "how-to" instructions for accomplishing maintenance, preventive maintenance, and alterations. These instructions are considered "acceptable to the Administrator" if the certificate holder shows that the instructions will return the aircraft, engine, or other article to its original or properly altered condition. (Reference sections 21.50(b), and 43.13(a).)	<i>Add the definition of methods, techniques and practices from AC 120-77.</i>	Partially concur. Added the following to Appendix A: "Methods, Techniques, and Practices. The step-by-step, "how-to" instructions for accomplishing maintenance, preventive maintenance, and alterations."
ARSA Marshall Filer	Page 12 4-2., 4-2.b.	The definitions of technical data and substantiating data in chapter 4 are different than the definitions of the same terms in AC 120-77, Repair and Alteration Data: t. Technical Data. Drawings and specifications, including a list of drawings and specifications, needed to define the configuration and design features of a particular article, repair, or alteration. Typically, this includes information on materials, dimensions, and processes necessary to define structural strength, any required airworthiness limitations, and any data necessary to determine the airworthiness, noise characteristics, fuel venting, and exhaust emissions (as applicable) of the altered or repaired aircraft. Technical data also includes test data and engineering analyses and other engineering information, such as engineering handbooks or approved military or industry specifications. It may also include operational and service experience, maintenance and alteration experience, reliability data, and other documented factual information that can be shown to be directly applicable to the airworthiness of the article. (Reference Part 21, section 21.31.) r. Substantiating Data. Technical data used to show that an article complies with the applicable airworthiness standards (e.g., Parts 25 or 33). Compliance may be shown by tests, analysis, experience, and/or computations appropriate to the maintenance, alteration, or continue-in-service condition of the article being evaluated. Substantiating data shown to comply with the applicable airworthiness standards is acceptable to the Administrator. This is	The FAA should avoid using multiple definitions of the same term in different guidance documents. Indeed, eliminating potential sources of ambiguity in FAA rules and guidance is the primary recommendation made by the Consistency and Regulatory Interpretation (CRI) Aviation Rulemaking Committee (ARC) convened pursuant to section 313 of the FAA Modernization and Reform Act of 2012. ARSA recommends that Order 8300.X use the same definitions as those appearing in AC 120-77.	<i>Make the definitions in AC 120-77 and this order consistent.</i>	Partially concur. The definition of technical data in Appendix A of this order is the same definition as in AC 120-77. Added the substantiating data definition from AC 120-77 to Appendix A.

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ARSA Marshall Filer	Page 12 4-2.c.	The term "acceptable data" as used in Chapter 4 does not appear in Title 14 CFR. In pertinent part, section 43.13(a) requires that maintenance, preventive maintenance and alterations be performed using methods, techniques and practices (i.e., work instructions) acceptable to the FAA.	There is significant confusion among FAA and industry representatives regarding the difference between technical data (i.e., engineering information) and methods, techniques and practices. This is one of the fundamental principles explained in the FAA's CSI letter. By using "acceptable data" interchangeably with "acceptable methods, techniques and practices" in the draft order the FAA is helping to perpetuate this confusion.	If acceptable data is to be defined in the new order, it should read "technical data not requiring FAA approval but which is shown to return the article to its original or properly altered condition."	Non-concur. The terms "acceptable to," "accepted by," and "approved" are being defined by the FAA in an upcoming notice. This order aligns with that notice.
ARSA Marshall Filer	Page 12 Chapter 4	Chapter 4, entitled Data should be re-named Technical Data.	Title 14 CFR uses the term "technical data" in numerous sections and FAA guidances should be the same as the language used in the regulations.	<i>Change Chapter 4 title to "Technical Data"</i>	Non-concur. Chapter 4 includes discussion of non-technical data in addition to technical data.
ARSA Marshall Filer	Page 12 Chapter 4	The chapter on Technical Data should be moved to chapter 2.	This information is critical to understanding the draft order and consequently should be stated early in the document.	<i>Move Chapter 4 to Chapter 2.</i>	Non-concur. We have determined that the order from general to eligibility to outlining the process and then going into the details is a more logical presentation of the material.
ARSA Marshall Filer	Page 16 Figure 4-1	Figure 4-1 of the draft is entitled Sources of Approved Data Relevant to Major Repairs and Alterations. Among the items on that list and their accompanying descriptions are: - Appliance manufacturer's manuals or instruction, unless specifically not approved by the FAA, are approved for major repairs only; - FAA-approved portions of SRMs; - FAA-approved service bulletins (SBs) and service letters or similar documents as documented in AC 20-77, Use of Manufacturer's Maintenance Manuals; and - Original aircraft manufacturer's service and repair data in accordance with current regulations, for major repairs on nonpressurized elements of airplanes that are 12,500 pounds or less maximum certificated take-off weight provided the person intending to perform such repair makes certain determinations.	The above items are contrary to Title 14 CFR and the FAA's CSI letter in the following respects: a. The technical data supporting a repair or alteration contained in most manufacturer's maintenance manuals has been approved during the design approval process. b. The data remains FAA-approved in accordance with §§ 21.93, 21.95 and 21.97 and similar design change rules in other subparts of part 21 (i.e., PMA, TSOA). c. Therefore, in the absence of a major deviation from the manufacturer's manual there is no need for the technical data to be re-approved when accomplishing a major repair or alteration. d. The approval of a Structural Repair Manual or other maintenance manual has no added regulatory significance for purposes of compliance with §§ 65.95(d)(1), 121.379(b), 135.437(b) and 145.201(c).	Consequently, the above bulleted items above should be removed from Figure 4-1 of the draft order and replaced with the following statement: Maintenance manuals issued by design and production approval holders and certain supplier manuals (i.e., those for which the supplier is the actual designer and producer of an article that is approved under part 21) were developed using part 21-approved technical data. This technical data remains FAA-approved provided the design change requirements of part 21 are followed. Therefore, it does not require re-approval when a major repair or major alteration is performed in accordance with these maintenance manuals.	Partially concur. The figure 4-1 is a list of possible resources of approved data. It does not indicate that they need reapproval. Changed title to: "Possible Resources for Approved . . ." Added the following statement as a note to the figure: "Maintenance manuals issued by design and production approval holders and certain supplier manuals (i.e., those for which the supplier is the actual designer and producer of an article that is approved under part 21) were developed using part 21-approved technical data. This technical data remains FAA-approved provided the design change requirements of part 21 are followed. Therefore, it does not require re-approval when a major repair or major alteration is performed in accordance with these maintenance manuals."
Bell Helicopter	Page 14 4-2.e.(5)	Spelling	Sentence 6	Use an STC in lieu of a STC	Non-concur. "a" vs. "an" is correct as written. However, revised other references from "an STC" to "a STC"

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Bell Helicopter	Page 24 6-4.h.	A placard limiting one piece of equipment as VFR only, may imply that all other equipment is IFR certified.	Misleading the operator to think his aircraft can be operated IFR.	Statement should be added that "If the aircraft is not certified as IFR then a placard is not required".	Non-concur. The placard applies to the piece of equipment being installed. Long standing practice is placard as specified to minimize confusion.
Bell Helicopter	Page 30 8-8.a.(1)	This paragraph is too restrictive; it ties companies to completing an STC.	" an STC is the best approach to ensure adequate analysis....."	Change the language to be less restrictive	Concur. Replaced "An STC" with "An evaluation" in last sentence of 8-8.a.(1).
Bell Helicopter	Page 34 8-11.	No mention of AC 20-62E, AC 20-168, RTCA/DO-313, or COTS	There are additional FAA documents that provide guidance	Expand to include references to other guidance	Non-concur. The paragraph discusses only commercial parts. The other references discuss other replacement parts and are referenced in Order 8110.118 and AC 21-45.
Bell Helicopter	Page 44 10-2.(a)	Would this include aux tanks installed as a Bell kit? Would the Bell factory kits still be required to complete a 337 and the other requirements that go with it? See 43 appendix B paragraph (d). Also see 91.417 (d). One example would be for the 407, Bell calls these Auxiliary fuel tank kits, 407-706-011 and installation is covered in 407 maintenance manual under kits, 407 MMS-6.	Current practice is to complete a 337 for each aircraft with aux fuel tanks. This practice was done after this issue about the factory tanks when a Bell customer was questioned by the FAA about these factory installed aux tanks.	Clarification of intent	Comment only. In answer to the question this would include Bell aux tank kits, as per the cited rule.
Delta Airlines	General	Ref (A) proposes to replace and expand on the information contained in Order 8900.1, Volume 4, Chapter 9. This draft order provides guidance on the responsibilities and requirements for the approval of technical data associated with major repairs or alterations. Types and sources of technical data are discussed. Considerations that must be addressed in the development of technical data to substantiate major repairs or alterations are also addressed.			Comment only. Thank you for your comment.

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Delta Airlines	General	Delta would ask that you make the entire document only for field approvals, or do a better job organizing and clarifying which is which (i.e., how to request and/or perform field approvals vs. how to develop and approve technical data for major repairs or alterations).	As written, this draft is heavy on the field approval side and is somewhat cumbersome to figure out exactly what applies only to field approvals (which we as operators almost never deal with) and what applies to all general major repairs and alterations.	<i>Revise document to clarify the difference between field approvals and technical data that applies to all major repairs and alterations.</i>	Non-concur. FAA orders are direction to FAA personnel. Advisory circulars provide guidance to the industry on what the FAA would find an acceptable method of compliance. This order is focused on the ASIs role in approval of data for a major repair or alteration and as such is not intended to be a how-to document for industry.
Delta Airlines	General	In general, this is an abbreviated summary of the data required and means of getting data approved, compiled from existing orders, but by no means a stand-alone document.	As an operator and ODA Holder, we would need to provide our engineers and/or customers with additional information and training in order to get a complete data package in support of a major repair or alteration.		Comment only. We agree that additional information is required and further guidance for ODAs is contained in the ODA order.
Delta Airlines	Page 12 Chapter 4	We suggest that this chapter be revised to address data required, no matter the method of approval or approver involved (see Chapter 9, Roles and Responsibilities).	The Data Chapter (Ch. 4) gives a fairly good description of the data needed to support a major repair or alteration, but then slips back into the type of data an ASI will need or need to generate in order to grant a field approval.	<i>Revise Chapter 4.</i>	Non-concur. The baseline of this order is information for the inspector from FSIMS V4C9S1. Although other forms of data approval are mentioned, they are not discussed in detail since each of those methods have their own published order. We have reviewed the draft to ensure adequate coordination with those orders has been provided.
Embraer Lucio Cursino Pereira	Page 16 Figure 4-1	On the Chapter 4. Data, Figure 4-1, Sources of Approved Data Relevant to Major repairs or Major Alterations, the two following items should be included: a. Technical data developed by TC Holder if data is identified as FAA approved or approved by the cognizant airworthiness authority. b. Technical data developed by STC Holder if data is marked as FAA approved or approved by the cognizant airworthiness authority.	Not all approved technical data is necessarily published as service bulletins, service letters, or structural repair manual (especially in the case of unique major repairs).	<i>Include a and b from comment.</i>	Non-concur. Figure 4-1 lists possible resources for approved data that may not be specifically identified as FAA approved. If the data has been specifically identified as FAA approved then it should not need to be identified in this figure. Also see the note added by the ARSA comment on this issue.
Embraer Lucio Cursino Pereira	Page 41 9-5.b.	On the Chapter 9. Roles and Responsibilities, 9-5. DER, b, the following note should be placed: Note: DER authorizations and limitations are based on airworthiness regulations compliance findings and do not cover regulations aspects outside of Part 21 processes.	Because the lack of this note can create expectation that DER approved data covers aspects addressed by regulations outside those mentioned on Part 21 processes.	<i>Add the note from comment.</i>	Non-concur. All roles of the DER are contained in Order 8110.37 and will not be repeated in this Order.

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Embraer Lucio Cursino Pereira	Page 41 9-6.b.	On the Chapter 9. Roles and Responsibilities, 9-6. ODA, b, the following note should be placed: Note: TC or STC ODA authorizations and limitations are based on airworthiness regulations compliance findings and do not cover regulations aspects outside of Part 21 processes.	Because the lack of this note can create expectation that TC or STC ODA approved data covers aspects addressed by regulations outside those mentioned on Part 21 processes.	<i>Add the note from comment.</i>	Non-concur. All roles of the ODA are contained in Order 8100.15 and will not be repeated in this Order.
HEICO Aerospace	Page 00i Title Page	The Order title should be modified to clarify the purpose of the order.	This Order addresses major repair & alteration data approval for Field Approvals & STCs. It does not address: Repair Specifications created by Part 145 Repair Stations & approved by an RS- DER nor, One time repairs created by Part 145 Repair Stations & approved by a DER.	Add "for Field Approvals & STCs" to title. Add a note to the d: "Note: For approval of Repair Specification data approval, see Order 8110.37"	Partially concur. For the first suggestion, Non-concur. This order does not address data approvals for STCs. STCs are addressed in other orders and ACs. For the second suggestion, partially concur. We agree that repair specifications should be addressed. Reorganized paragraph 4-2.e.(2) under previously approved data and added: "(ii) Another example would be technical data contained in a repair specification (RS). RSs provide an alternative to major repair technical data. Approval as a RS is required for multiple-use major repairs that do not come from the DAH, and do not specifically identify serial numbers of all the products or parts currently in need of repair to which the RS applies. Refer to FAA Order 8110.37, Designated Engineering Representative (DER) Guidance Handbook for more details on repair specifications." Revised the DER data line in Figure 4-1 to: "DER-approved data, including repair specifications, within the limitations listed on the DER's authorization (refer to section 9.5)."
HEICO Aerospace	Page 01 1-1.	The Scope of the order should be clarified.	This Order addresses major repair & alteration data approval for Field Approvals & STCs only.	Change "alterations including field approvals" to "alterations for STC & field approvals"	Non-concur. This order does not address data approvals for STCs. It is for major repairs and alterations only. However, removed the last part of the sentence ". . . of all types." to prevent confusion.
HEICO Aerospace	Page 03 3-1.c.	Add guidance reference for multiple use data approvals.	The Note states ASIs & DARs cannot approve data for multiple use.	Add a reference to Order 8110.37 for multiple use Repair Specifications.	Non-concur. Order 8110.37 is for DERs only not DARs or ASIs. The note is correct.
HEICO Aerospace	Page 08 3-5.b.	Add guidance reference for multiple use data approvals.	The Note states ASIs & DARs cannot approve data for multiple use.	Add a reference to Order 8110.37 for multiple use Repair Specifications.	Non-concur. Order 8110.37 is for DERs only not DARs or ASIs. The note is correct.

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Schober, D. IA, NAVAIR	General	Since this Order is intended to replace Order 8900.1 Vol 4 Chapter 9 Section 1, I would suggest that that a placeholder be inserted in 8900.1 Vol 4 Chapter 9 directing you to this new proposed Order.	There are lots of other FAA publication that point to 8900.1 field approval process, and industry is just starting to get used to finding the information there, that a change to a new publication without a place holder and link it will cause a lot of confusion. If the existing text is maintained in 8900.1 Vol 4 Chap 9, there will be conflicting information concerning the field approval process causing even more confusion.	A placeholder be inserted in 8900.1 Vol 4 Chapter 9 directing you to this new proposed Order. Likewise AC43-210 should be reviewed and updated to include any new policy that is contained in this document.	Concur. When this order is published 8900.1 will be amended. Likewise the FAA has started the process to revise AC 43-210 to align with this order.
Schober, D. IA, NAVAIR	General	At the beginning of this document there should be a statement that identifies the controlling policy where a conflict might arise due to the schedule of updating FAA Orders, and the different procedures that may be identified in the various ACs, Orders or other FAA publications.	I would think that the publication with the latest publication date would be the controlling document.	<i>Add statement.</i>	Partially concur. The FAA recognizes the concern with conflicts that might arise due to different publication dates on different controlling documents. The FAA does not concur with adding a statement to the order. If the user has a concern with current policy they should contact the controlling office for the document to resolve the issue.
Schober, D. IA, NAVAIR	General	"ASI" is used throughout this document.	It would be more appropriate to identify "ASI or DAR" or "ASI or appropriately rated Designee"	A global search and replace would work for all but one or two locations.	Partially concur. Replaced ASI with "ASI or appropriately authorized designee" as necessary.
Schober, D. IA, NAVAIR	General	Paragraph 3-1 (e) identifies that "A DER or ODA that is approving data for a major repair or alteration must follow sections 3-2 and 3-3 of this chapter and well as chapters 4 through 8 in making their approvals."	To accomplish this, a similar statement will need to be added into Orders 8110.37 and 8100.15.	Those orders (8110.37 and 8100.15) will need to be updated to point back to this document.	Partially concur. This is outside the scope of this order, however, when this order is published the controlling office for the other orders will be notified of the change.
Schober, D. IA, NAVAIR	Page 01 1-4.a.	Paragraph 1-4 (a) states that "This document does not provide guidance for making decisions on major or minor changes in type design." I think this statement is inappropriate for this document.	In the process of developing a Data Package to support a change or repair, the very first thing that needs to be done is decide if it is a major change to Type Design. Your very flow chart Figure 3-1 has as the second decision box that very decision and identifies paragraph 3-2(c)(1). While that paragraph then refers one to the job aid, the very reference helps one to make the decision of Major/Minor change in Type Design.		Non-concur. It is beyond the scope of this order to provide guidance for making the major/minor change in type design decision, however, new guidance on major/minor change in type design is currently under consideration by the FAA.

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Schober, D. IA, NAVAIR	Page 01 1-4.b.	Paragraph 1-4(b) third sentence replace "alteration" with "alteration/repair", fourth sentence replace "alterations" with "alterations/repairs".		Paragraph 1-4(b) third sentence replace "alteration" with "alteration/repair", fourth sentence replace "alterations" with "alterations/repairs".	Non-concur. This paragraph is referring to changes to type design. A repair returns the article to its original or properly altered condition, but is not an alteration.
Schober, D. IA, NAVAIR	Page 01 1-4.c.	Paragraph 1-4(c) is the first reference to the Major Repair and Alteration Job Aid. When this document is released, please be aware that the job aid will have to be revised to point back to this document rather than 8900.1.		<i>Revise job aid.</i>	Concur. Will revise job aid reference this order once this order is released.
Schober, D. IA, NAVAIR	Page 04 Figure 3-1	I don't think the decision block "Is this a repair or alteration" is required, and may actually lead you down the wrong path.	While the basic concept of a repair is to restore a product to its original condition, there are times when an applicant may try to classify an alteration as a repair either intentionally or by not understanding that certain repairs may in fact be alterations (example would be a repair that may change the fatigue life of a component). By sending all applicants to the decision block for "is it a major change in type design" will prevent this type of safety escape.	<i>Change</i>	Non-concur. This block was added during FAA review since repairs are not major changes to type design (they are restorations). This decision block is required in order to separate out repairs from alterations when discussing major changes to type design.
Schober, D. IA, NAVAIR	Page 04 Figure 3-1	block 3-2(c)(3) "Is all the technical data "approved" or can the applicant obtain "approved data?" The primary purpose of the Field Approval Process is to obtain "Approved Data".	If the repair or alteration is possible within the regulatory confines, the applicant can always go out and pay a DER or ODA to generate and approve the data, or get an STC. The issue with Field Approvals is to save both time and money on the part of the applicant and the FAA. It makes no sense to support an STC project when the change doesn't require it.	That block should ask, is the data "Approved Data" as identified in Figure 4-1?	Non-concur. The details of what needs to be considered in decision block of the flow chart referenced are contained in the cited paragraph.
Schober, D. IA, NAVAIR	Page 04 Figure 3-1	Block 3-3 "ASI evaluates data."	Should be "ASI or DAR evaluates data" or "ASI or appropriately authorized designee evaluates data".	<i>Change</i>	Non-concur. Due to space limitations on the flowchart not all language can be inserted into the blocks. The accompanying explanations in the paragraphs appropriately describe the authorizations and limitations of the DAR.

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Schober, D. IA, NAVAIR	Page 04 Figure 3-1	Block 3-5 (a), (b) (c) "ASI terminates. . ."	should read "ASI or appropriately authorized designee. . ."	<i>Change</i>	Non-concur. Due to space limitations on the flowchart not all language can be inserted into the blocks. The accompanying explanations in the paragraphs appropriately describe the authorizations and limitations of the DAR.
Schober, D. IA, NAVAIR	Page 05 3-2.c.	ODA doesn't get involved in Field Approvals, they approve data on Form 8100-9.		Remove ODA from first sentence.	Concur. Removed "ASI/DER/ODA" in 3-2.a. and 3-2.c. and added "ASI or appropriately authorized designee"
Schober, D. IA, NAVAIR	Page 05 3-2.c.(4)	conflicts with 2-1(a).	Denial letter should always be provided, not when asked for.	<i>Change</i>	Non-concur. The ASI should have the flexibility to reply as necessary.
Schober, D. IA, NAVAIR	Page 07 3-4.c.	add a new sub paragraph (1) to read "DARs with Function Code 51 will coordinate with their advisor for any ACO coordinated field approvals."		add a new sub paragraph (1) to read "DARs with Function Code 51 will coordinate with their advisor for any ACO coordinated field approvals."	Non-concur. FC 51 procedures are contained in order 8100.17A.
Schober, D. IA, NAVAIR	Page 08 3-5.b.	Specify that this is not authorized for DARs with FC 51.		Specify that this is not authorized for DARs with FC 51.	Non-concur. Order 8100.17A already specifies the responsibilities and limitations of the DAR FC 51. This Order does not need to repeat that information.
Schober, D. IA, NAVAIR	Page 09 3-6.b.	Commercial Derivative Aircraft. In my day job (System Safety Engineer for the Navy), that is all I deal with. I strongly believe that there needs to be a Field Approval process for military CDA aircraft.	While perhaps outside the scope of this document, the lack of Field Approvals, and lack of understanding of FAA processes within the military airworthiness organizations has led to things being approved that never should have, or other things that could have been field approved getting STCs.	Comment only.	Thank you for the comment. All parties would benefit from the process. The FAA agrees that this issue is beyond the scope of this document. However, other organizations within the FAA is currently developing policy related to civil use of military aircraft that could potentially addresses your concern.
Schober, D. IA, NAVAIR	Page 11 3-6.e.	Reversal of STCs or Major Alterations. You need to address STCs that were installed during production that have no 337 on file and may, or may not be identified on the 8130-6 Application for Airworthiness Certificate.	This has been a constant issue in the field where a manufacturer installs an STC as part of the production of the aircraft and that equipment is later removed and replaced with alternate equipment. (Example is an autopilot system).	Address STCs that were installed during production that have no 337 on file and may, or may not be identified on the 8130-6 Application for Airworthiness Certificate.	Concur. Added note: " Note: For removal of a major alteration, whether installed by the manufacturer in production or post production by an STC, removal of the alteration requires a Form 337 unless the removal instructions are provided with the STC or as part of the production."
Schober, D. IA, NAVAIR	Page 24 6-5.a.	add a new (a) that states For DARs with FC 51, coordinate with your advisor for ACO approval.		add a new (a) that states For DARs with FC 51, coordinate with your advisor for ACO approval.	Non-concur. DAR responsilites are defined in Order 8100-17 and the information will not be repeated here.

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Schober, D. IA, NAVAIR	Page 27 7-2.	add subparagraph (c) that states "A flight evaluation can be accomplished under the existing Standard Restricted or Limited Airworthiness Certificate.	This and the next are required due to the confusion within the industry one when a Show Compliance certificate is required, and when it is not.	add subparagraph (c) that states "A flight evaluation can be accomplished under the existing Standard Restricted or Limited Airworthiness Certificate.	Partially concur. Added the following after the first sentence. "The purpose of this flight is to ensure that the alteration or repair that was accomplished with all of the data FAA approved functionally works correctly. The purpose of the operational flight is not to gain additional data that is need to show compliance to the regulations."
Schober, D. IA, NAVAIR	Page 27 7-2.b.	add a requirement that the aircraft maintenance record entries required by 43.9 have been completed prior to the flight evaluation.		add a requirement that the aircraft maintenance record entries required by 43.9 have been completed prior to the flight evaluation.	Non-concur. This is already addressed by referencing 91.407 since it states that 43.9 maintenance entries have to be done prior to flying an airplane after maintenance.
Schober, D. IA, NAVAIR	Page 27 7-3.	add a new subparagraph (c) that states "A flight test for show compliance must be done under an Experimental-Show Compliance airworthiness certificate.	This and the next are required due to the confusion within the industry one when a Show Compliance certificate is required, and when it is not.	add a new subparagraph (c) that states "A flight test for show compliance must be done under an Experimental-Show Compliance airworthiness certificate.	Partially concur. Added the following after the first sentence. "In order to gather additional flight test data for the purposes of showing compliance, an Experimental, Show Compliance Airworthiness Certificate is needed."
Schober, D. IA, NAVAIR	Page 41 9-8.a., b., c.	Function Code 50 is going away and there is no need to address it in this document. Directly from Order 8100.17A "Function Code 50 authority to issue a statement of completeness in block 3 of Federal Aviation Administration (FAA) Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), for alterations using Designated Engineering Representative (DER)-approved data will begin to be phased out in favor of this authorization." Referring to Function Code 51.	Function Code 50 is going away.	All of paragraphs (a), (b), and (c) can be removed.	Concur. Removed 9-8.a., b., c.

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Schober, D. IA, NAVAIR	Page 41 9-8.d.	Paragraph 9-8 (d) ends with the statement "While DARs with function code 51 may refer to this order, it does not provide guidance specifically for them" I strongly disagree with this statement.	There may be certain sections of the proposed order that don't apply (like the disposition of paperwork), the overall process applies and goes into much greater detail than what is included in 8100.17A. This paragraph should identify that 8100.17A provides for the requirements and training of a DAR with Function Code 51 and the Recording and Reporting requirements.	Perhaps in Chapter 10 a statement could be made that DARs with FC 51 will use the reporting and Recording policies as identified in 8100.17A or later revision.	Non-concur. Processes for DARs is described in Order 8100.17. Duplication of those processes in this order are not appropriate.
Southwest Turbine, Inc Steve Keith	Page 11 3-6.f.	"...until the engine or propeller is installed on and aircraft." – should be "an"		<i>Change "and" to "an"</i>	Concur. Changed.
United Rotorcraft C.J. Daniel	Page 07 3-4.a.(3)	This statement seems to be limiting in nature.	If any possible modifications not listed in the job aid must be considered (EVL), then any and all major alterations not specifically listed in that job aid must be submitted to the ASI for evaluation, even if that major alteration can be returned to service using DER 8110-3 approved data. That would seem to produce an undo burden on the ASI's and it would delay the completion of many alterations and subsequently it would delay aircraft deliveries. It would seem this single statement will only slow aviation progress and add extra work to already overworked FSDO and ACO staff.	<i>Change.</i>	Non-concur. The job aid is not all inclusive and therefore the ASI would need to evaluate these unknown future situations.

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<p>United Rotorcraft C.J. Daniel</p>	<p>Page 35 8-13.</p>	<p>With regards to HIRF, my past experience shows that the ACO has to be involved with all HIRF test plans/results.</p>	<p>If this new order is going to require documented HIRF compliance on all 337's, then I would suggest the FAA allow DER's to perform the testing without direct ACO oversight. I would also suggest a matrix or job aid on what systems actually fall under what failure condition. AC 20-158, Table 1 is vague at best and 2 different DER's or even 2 different FAA engineers may have differing views (I have actually experienced this) on what a classification level is for a given item. With EMI/EMC there are simple, common sense, guidelines based on amperage draw or transmit power. I would imagine some similar guidance for common, reoccurring, installations could be created with regards to HIRF; that guidance could then be used by DER's under increased autonomy so the certification of a field approval doesn't become as restrictive and bogged down as the STC process has become.</p>	<p><i>Change order to allow DER's to perform HIRF testing without ACO oversight. Add a matrix or job aid on what systems fall under what failure condition.</i></p>	<p>Concur. Revised paragraph 8-13.e. to read: "HIRF, lightning, and EMC compliance should be documented."</p>