



Federal Aviation Administration

Memorandum

Date: APR - 6 2010

To: All Aircraft Certification Offices (ACO) and Aircraft Evaluation Groups (AEG)

From: ^{for} David W. Hempe, Manager, Aircraft Engineering Division, AIR-100 *syncable*

Subject: Approval of Electrical Wiring Interconnection System (EWIS) Instructions for Continued Airworthiness (ICA) using an Enhanced Zonal Analysis Procedure (EZAP) for Holders of Type Certificates, Amendments to Type Certificates, and Supplemental Type Certificates, Including Changes to Supplemental Type Certificates

This memo provides an ICA policy supplement to FAA Order 8110.54. It specifically addresses policy for approval of EWIS ICA developed by holders of, and applicants for, type certificates, amendments to type certificates, supplemental type certificates, and changes to supplemental type certificates. Holders of, and applicants for, type certificates, amendments to type certificates, supplemental type certificates, and changes to supplemental type certificates are technically all “applicants” in the context of applying for EWIS ICA approval; however, for brevity, except for instances where the distinction is important, they will be referred to as “holders” in the context of this document.

According to the rule, type certificate holders had until December 10, 2009 to comply with the EWIS ICA requirements of 14 CFR part 26, section 26.11(b). Since supplemental type certificate holders will need to evaluate the type certificate holders’ EWIS ICA before submitting their own EWIS ICA, the deadline for supplemental type certificate holders per the rule was set as June 7, 2010 (reference § 26.11(d)). We expect to see a significant number of supplemental type certificate EWIS ICA compliance approval requests between now and the June 7, 2010 compliance deadline. Note that type certificate holders were required to account for any design changes (i.e., type certificate amendments) existing in their representative airplanes when they submit their EWIS ICA on December 10, 2009. Subsequent design changes, that is those after December 10, 2009, must comply with the requirements of § 26.11(c). Also, as of the date this policy is issued, there are several type certificate holders who have not yet received approval of the EWIS ICA developed under the requirements of § 25.11(b), and those EWIS ICA will need to be approved as well.

This memo is intended to show Transport Airplane Directorate, aircraft/engine certification office (ACO/ECO) and aircraft evaluation group (AEG) staffs how to review and approve EWIS ICA that have been developed using an EZAP as required by § 26.11. This memo is also applicable to those

EWIS ICA developed with an EZAP as required by § 25.1729. Requirements of EZAP-derived EWIS ICA are described in part 25 Appendix H, paragraphs H25.5(a)(1) and (b).

This policy will be incorporated into a future revision of Order 8110.54 or other policy document. Future policy will also address internal guidance for the remaining part 25 EWIS ICA requirements of paragraphs H25.4(a)(3) and H25.5(a)(2), (a)(3), (a)(4), and (a)(5), which are also required if an applicant must comply with § 25.1729.

For questions regarding this policy memo, please contact Dave McGhee in the Delegation and Airworthiness Programs Branch, AIR-140 at (405) 954-8721, or by email at david.mcghee@faa.gov. For specific technical questions regarding compliance to 14 CFR parts 25 (including Appendix H) or 26, you may contact Stephen Slotte in the Transport Airplane Directorate's Airplane and Flightcrew Interface Branch, ANM-111 at (425) 227-2315 or by email at steve.slotte@faa.gov.

Approval of EWIS ICA developed with an EZAP

1. FAA OVERSIGHT OFFICE AND AEG RESPONSIBILITIES

1-1 What FAA Oversight Offices Must Do.

a. If you are in an ACO/ECO or office of the Transport Airplane Directorate with oversight responsibility for type certificates, amendments to type certificates, supplemental type certificates, and changes to supplemental type certificates affected by the EWIS ICA requirements of parts 25 or 26, you will be required to approve the EWIS ICA and corresponding source document. The source document is required by paragraph H25.5(b) of Appendix H of part 25. It is considered to be part of the EWIS ICA that the holders must make available to affected persons.

The FAA Oversight Office (office of the Transport Airplane Directorate or ACO/ECO) will approve the source document. **Approval of the source document signifies approval of the actual EWIS ICA that is either contained in the source document itself or contained in other documents referenced in the source document.** If the source document references data contained in other documents, the FAA Oversight Office must review that referenced data to ensure compliance with the EWIS ICA requirements of paragraphs H25.5(a)(1) and (b). The approval of the source document also signifies approval of any referenced data. However, it does not necessarily signify approval of the entire referenced document. For example, EWIS ICA task procedures contained in the airplane maintenance manual are FAA Oversight Office approved, but the entire airplane maintenance manual is not FAA approved. This is because the airplane maintenance manual contains maintenance data other than EWIS maintenance data.

b. All holders of amendments to type certificates and supplemental type certificates, including changes to supplemental type certificates, must comply with § 26.11(c) or § 25.1729, as applicable, and develop EWIS ICA as required by those regulations. You must determine if the EWIS ICA is compliant with the applicable regulation and you must obtain concurrence from the applicable AEG before informing the holder that the EWIS ICA are approved.

c. Once the source document has been submitted by a holder and found to be compliant by the FAA Oversight Office and AEG, the FAA Oversight Office must issue an approval of the EWIS ICA contained in or referenced by the source document. The FAA Oversight Office must issue its approval via formal letter. In all cases the FAA Oversight Office must coordinate with the applicable AEG and obtain their documented concurrence (e.g., grid signature) prior to EWIS ICA approval. This will ensure that the AEG has proper visibility in the approval process of any particular airplane model's EWIS ICA and concurs with the EWIS ICA as submitted.

NOTE: THE FAA OVERSIGHT OFFICE MAY NOT APPROVE EWIS ICA WITHOUT FIRST RECEIVING DOCUMENTED CONCURRENCE FROM THE RELEVANT AEG.

When the FAA Oversight Office issues approval to the holder, a copy of the approval should be sent to the applicable AEG manager and the maintenance review board chairperson for the affected airplane model.

NOTE: Your approval letter should remind the holder that the source document required by H25.5(b) is considered part of the EWIS ICA and must be delivered to affected persons as part of the EWIS ICA as required by § 21.50(b) and, if applicable, per the holder's compliance plan required by § 26.11(e).

NOTE: The FAA AEG approves maintenance review board reports, and this approval indicates FAA acceptance of the ICA referenced in the report. Some maintenance review board reports contain EWIS ICA tasks. However, the maintenance review board chairperson's signature does not signify FAA Oversight Office approval of the EWIS ICA as required by § 26.11(b) or § 25.1729. The FAA Oversight Office must issue this approval. Even though the AEG, via the maintenance review board report approval page, has accepted the ICA contained in the maintenance review board report, they must provide the FAA Oversight Office with their concurrence with the EWIS ICA contained in the holder's EWIS ICA source document submittal. The maintenance review board chairperson's signature on the maintenance review board report approval page does not indicate concurrence with the EWIS ICA contained in the source document, even if the source document *is* the maintenance review board report. (The form the source document takes is the holder's choice, and the maintenance review board report is one of the documents that may be chosen as the source document.)

d. The following discussion applies to EWIS ICA submitted by holders of supplemental type certificates and changes to supplemental type certificates. After you receive an application you:

(1) Cannot delegate the approval finding for 26.11(b), (c), or § 25.1729 to a designated engineering representative or organization designation authorization. However, a designated engineering representative or properly authorized organization designation authorization can recommend that the Appendix H, sections H25.5(a)(1) and (b) EWIS ICA data be approved. (Reference FAA Policy PS-AIR-100-2007-12-13, dated December 13, 2007: "Authorization and Delegation of Functions Related to the Enhanced Airworthiness Program for Airplane

Systems/Fuel Tank Safety Rule (EAPAS/FTS”).) This can be accomplished using FAA Form 8110-3 or 8100-9, respectively.

- (2) Coordinate with the responsible AEG individual at the start of each program to give them information, and to notify them that you need their concurrence with the EWIS ICA. We recommend using a certification project notification to notify them.
- (3) Give the holder the names and offices of the AEG aviation safety inspectors who will review the EWIS ICA.
- (4) Invite the AEG aviation safety inspector to any formal meetings with the holder. This ensures that everyone understands the requirement for the EWIS ICA and what should be in it.
- (5) Communicate regularly with the holder and AEG aviation safety inspector to ensure that the EWIS ICA meets the project schedule. Reviewing the EWIS ICA can be time-consuming. You, the AEG, and the holder need to communicate regularly to keep the project on schedule.
- (6) *For amended type certificate and supplemental type certificate projects, including changes to supplemental type certificates, requiring compliance with § 25.1729, thus requiring revised EWIS ICA:* Approve a program to ensure the holder provides a complete set of approved revised EWIS ICA to the owner before delivery of the first aircraft or issuance of the standard airworthiness certificate, whichever occurs later. The program should ensure that all EWIS ICA requirements will be complete and approved before the first affected aircraft is operated with a standard airworthiness certificate.
- (7) *For amended type certificate and supplemental type certificate projects, including changes to supplemental type certificate that must comply with 26.11(c):* Ensure that the holder is aware that any revised EWIS ICA must be approved before issuance of the amended or supplemental type certificate. This means the holder must submit the proposed EWIS ICA with enough lead time to allow for review and approval of the data by the FAA Oversight Office and AEG.
- (8) *If the holder submits an impact assessment showing there are no changes to the existing EWIS ICA or maintenance instructions:* Place a statement on the design approval (the design approval letter, FAA-approved top drawing, or supplemental type certificate) indicating this situation. This shows that revised EWIS ICA are not required. We recommend placing this statement as a “note” below the “Limitations and Conditions” section for supplemental type certificates. This will show that the FAA has reviewed the impact assessment and found that no additional changes to the existing EWIS ICA are required.
- (9) Review and determine (with AEG concurrence) the acceptability of the holder’s program showing how the holder will distribute the initial EWIS ICA and subsequent changes. This program should include the kind of media the holder will use to distribute the EWIS ICA and how soon after a change the holder will send it.
- (10) Review and determine (with AEG concurrence) the acceptability of the holder’s program for submitting for approval changes to the EWIS ICA that are not associated with a new design

approval. These changes include manual revisions driven by service bulletins or errors found during operation of the airplane.

1-2 What the AEG Must Do. For the purposes of this policy, if you are in an AEG, you are a Flight Standards maintenance or avionics inspector lending your specialized technical services to assigned aircraft at the respective ACO. You must review, resolve deficiencies in, and concur on the acceptance of the maintenance requirements of the EWIS ICA. This includes helping to review the EWIS ICA and subsequent changes to it. If you are an AEG aviation safety inspector and have been assigned an EWIS ICA review project, you need to do the following:

- a.** Give the requesting FAA Oversight Office project manager the names of the AEG aviation safety inspectors assigned to the project. This should be done via the certification program notification process, if used. Otherwise use the process for project communication in place between the affected offices.
- b.** Ensure that the project AEG aviation safety inspectors meet or communicate with the FAA Oversight Office project engineers to coordinate the maintenance requirements for each discipline, particularly those for maintaining EWIS continued airworthiness.
- c.** Inform the FAA Oversight Office project manager of any scheduled meetings with the holder in which EWIS ICA will be discussed.
- d.** Report the EWIS ICA status to the FAA Oversight Office project manager during any internal FAA meetings and whenever you think necessary.
- e.** Meet or communicate with the holder as often as necessary to monitor the progress of EWIS ICA development. You must advise the holder, when needed, on proper compliance with the operations and maintenance requirements in the airworthiness regulations and their associated appendices. Ensure that the FAA Oversight Office project manager is aware of these communications and any disputed issues and associated corrective action.
- f.** Send the FAA Oversight Office project manager written concurrence of acceptance, within 30 calendar days of receiving the EWIS ICA submittal. Written concurrence requires a memo, electronic mail, or completion of an ICA acceptance coordination process developed between the FAA Oversight Office and AEG. If you cannot meet this timeline, you should coordinate a schedule with the FAA Oversight Office. The schedule should show the earliest possible time you can complete your review.
- g.** Review and determine (with the FAA Oversight Office project manager) the acceptability of the holder's program showing how the holder is going to distribute ICA changes. This program should include the type of media the holder will use to distribute changes, and how soon after the change the holder will send it.
- h.** Review and determine (with the FAA Oversight Office project manager) the acceptability of the holder's program for submitting changes to the ICA for review.

2. EWIS ICA DEVELOPMENT PROCESS

2-1 Type certificate holders and applicants typically use the maintenance review board process to develop maintenance programs for type certificates and amendments to type certificates. This includes using the maintenance review board process to develop EWIS ICA with an EZAP. Supplemental type certificate applicants/holders do not use the maintenance review board process to develop maintenance data, however, they will use the same EZAP process as type certificate holders when they develop EWIS ICA. The only real difference is that, since the EZAP process has been incorporated into the Maintenance Steering Group MSG-3 document, which is used in the maintenance review board process, type certificate holders will typically follow the EZAP from there, while the supplemental type certificate applicant will likely use the EZAP process straight out of AC 25-27A. The EZAP process in both documents is, of course, the same.

NOTE: If the applicant proposes to deviate from the guidance in AC 25-27A, the deviation must be coordinated with and agreed to by the FAA Oversight Office and applicable AEG office prior to commencing development of EWIS ICA. Any deviation should be documented in writing and thoroughly understood by all involved parties. An issue paper can be used for this purpose.

a. Development and Approval Process for Existing and New Type Certificate Holders/Applicants Complying with H25.5(a)(1) and H25.5(b). Following are typical actions for holders of, or applicants for, type certificates as they develop EWIS ICA to comply with requirements of part 25, Appendix H, paragraphs H25.5(a)(1) and (b). The persons or organizations involved in these steps are listed in parentheses. As noted in the beginning of this document, the term “holders” refers to type certificate holders or applicants, or both.

- (1) The holder conducts preliminary EZAP analysis. (Holder)
- (2) The holder presents results of the EZAP analysis to the Industry Steering Committee working group assigned to review the analysis. This will typically be the Zonal Working Group. The working group members and the holder review the preliminary EZAP analysis performed by the holder. The FAA maintenance review board chairperson will attend and participate in this meeting. The ACO/Transport Airplane Directorate FAA Oversight Office must also participate in this meeting. The working group and holder agree on any necessary revisions to the analysis and the holder updates the analysis based on those agreements. (holder, AEG, ACO/Transport Airplane Directorate, industry)
- (3) The holder presents the revised EZAP analysis results to the Industry Steering Committee. (Holder, AEG, Industry)
- (4) The Industry Steering Committee reviews the EZAP analysis results and identifies any necessary revisions. (Holder, AEG, industry)
- (5) The holder updates the analysis based on the Industry Steering Committee’s review and prepares the maintenance review board report (known as the MRBR proposal), which includes EZAP-derived EWIS ICA. (Holder)

(6) The holder transmits the MRBR proposal to the applicable FAA AEG office for approval. (Holder)

(7) The AEG maintenance review board chairperson reviews and forwards the maintenance review board report to AFS-300 for coordinated approval. After receiving concurrence from AFS-300, the maintenance review board chairperson approves the maintenance review board report and accepts other relevant EWIS ICA documentation, such as the airplane maintenance manual. The chairperson then transmits the approved report to the holder. This could be an iterative process if the maintenance review board chairperson identifies any additional changes he or she deems necessary. (AEG)

NOTE: The maintenance review board chairperson's signature does not indicate approval of compliance with the requirements of §§ 26.11 and 25.1729. These compliance findings must be issued by the FAA Oversight Office (refer to step 11 below). As part of the maintenance review board report review/approval process, the AEG maintenance review board chairperson may coordinate any revisions to EWIS ICA referenced by the maintenance review board report with the FAA Oversight Office. The FAA Oversight Office should promptly support any such requests. (AEG, ACO/Transport Airplane Directorate)

(8) The holder prepares EZAP-derived EWIS ICA based on the content of the FAA-approved maintenance review board report. (Holder)

(9) The holder produces the source document (required by H25.5(b)), which either contains, or identifies the location of, the EWIS ICA. (It's the holder's choice whether the source document contains the EWIS ICA or references its location in other documents. Refer to the discussion about H25.5(b) in 1-1 above.) (Holder)

(10) The holder submits the source document and any referenced ICA documents to the FAA Oversight Office for approval. (Holder)

(11) The FAA Oversight Office (ACO or office of the Transport Airplane Directorate) reviews and approves the source document, which indicates approval of the EWIS ICA referenced by or contained in that document. (ACO/Transport Airplane Directorate)

(12) For section 26.11(b) programs, the FAA Oversight Office (ACO or office of the Transport Airplane Directorate) revises the type design data sheet to reflect that section 26.11(b) is included in the model's certification basis per FAA policy memorandum PS-AIR-100-2009-05-27, "Adding Part 26 to Type Certificate Data Sheets and Supplemental Type Certificates," dated Jun 10, 2009, or later version. (ACO/Transport Airplane Directorate)

(c) Development and Approval Process for Holders of or Applicants for Amendments to Type Certificates, Supplemental Type Certificates, and Changes to Supplemental Type Certificates. Following are the typical steps that holders will need to follow in determining whether a design change requires revisions to previously approved EWIS ICA. These examples

of events may not necessarily represent the exact order in which these actions may occur every time or all of the necessary actions required.

(1) The holder determines whether the proposed modification requires a revision to the existing EWIS ICA. Guidance on making this determination is contained in Appendix B of AC 25-27A. If required, the holder develops a revised EWIS ICA. (Holder)

(2) *If revised EWIS ICA are required:* The holder produces a source document (required by H25.5(b)) containing the EWIS ICA that were developed with an EZAP or identifying their location in other documents. (Whether the source document contains the EWIS ICA or references their location in other documents is the holder's choice). (Holder)

(3) The holder submits the source document and any referenced ICA documents to the FAA Oversight Office for approval. (Holder)

(4) The FAA Oversight Office coordinates their review of the proposed EWIS ICA with the relevant AEG office. (ACO/Transport Airplane Directorate, AEG)

(5) The FAA Oversight Office reviews and approves the source document, which indicates approval of the EWIS ICA referenced or contained in that document. (ACO/Transport Airplane Directorate)

(6) For section 26.11(c) programs, the FAA Oversight Office (ACO or office of the Transport Airplane Directorate) will revise the supplemental type certificate to reflect that § 26.11(c) or § 25.1729, as appropriate, is included in the model's certification basis per FAA policy memorandum PS-AIR-100-2009-05-27A, "Adding Part 26 to Type Certificate Data Sheets and Supplemental Type Certificates," dated June 10, 2009, or later version. (ACO/Transport Airplane Directorate)

c. Non-US Design Approval Holders. In the case of non-US holders the cognizant civil aviation authority (i.e., Transport Canada Civil Aviation (TCCA), National Civil Aviation Agency of Brazil (ANAC), European Aviation Safety Agency (EASA)) will review the EWIS ICA source document and its referenced data and provide a recommendation for approval or disapproval to the Transport Airplane Directorate (ANM-116). However, the AEG will still review the non-US holder's EWIS ICA and provide their concurrence or non-concurrence (including detailed reasons for any non-concurrence) to the Transport Airplane Directorate (ANM-116). After receiving input from the AEG, the Transport Airplane Directorate will respond via letter to the civil aviation authority stating whether or not they agree with the civil aviation authority's recommendation. For example, if the Transport Airplane Directorate concurs with the civil aviation authority's recommendation that the EWIS ICA be approved, the Transport Airplane Directorate will respond to the civil aviation authority explicitly stating that they concur with their recommendation and, therefore, approve the EWIS ICA. The civil aviation authority will then inform the holder of the FAA's decision. If the Transport Airplane Directorate does not concur with the recommendation, or if the recommendation is for disapproval and the Transport Airplane Directorate concurs, then the Transport Airplane Directorate must work with the civil aviation authority and the holder (as appropriate) to resolve the issues of the non-concurrence or disapproval.