



INTERNATIONAL NEWS AND REGULATORY UPDATES

F R O M R I C P E R I
VICE PRESIDENT OF GOVERNMENT & INDUSTRY AFFAIRS FOR AEA

The Aircraft Electronics Association's international membership continues to grow. Currently, the AEA represents avionics businesses in more than 35 countries throughout the world. To better serve the needs of the AEA's international membership, the "International News and Regulatory Updates" section of Avionics News offers a greater focus on international regulatory activity, international industry news and an international "Frequently Asked Questions" column to help promote standardization. If you have comments about this section, send emails to avionicsnews@aea.net.

UNITED STATES News & Regulatory Updates

Perform Field Approval of Major Repairs and Major Alterations

The Federal Aviation Administration has published change 159 with significant changes to FAA order 8900.1 volume 4, chapter 9, on performing selected field approvals. There are critical changes that affect every AEA member company, as well as anyone engaged in any level of aircraft maintenance.

The changes include:

- The FAA has determined that technical data contained in the manufacturer's maintenance manuals or service instructions was developed utilizing the technical data previously approved during the 14 CFR Part 21 certification process of the product or article. The FAA has further determined that there is no need to obtain re-approval of that technical data when performing a major repair in accordance with that data as required by 14 CFR Part 65, § 65.95(a) (1); Part 121, § 121.379(b); Part 135, § 135.437(b); and Part 145, § 145.201(c).
- The section on "Modifications to Approved Avionics Equipment" has been highly modified. In some cases, the improved language helps clarify the data approval process. In most instances, it has removed the PAI's authority to approve data and directed the applicant to utilizing an organization designation authorization or designated engineering representative.

In addition, there are major changes which address the installation of:

- Avionics systems installed under an approved model list STC that do not conform to the type design established at the time of certification, or which require assessment caused by a deviation in location of ancillary components or equipment. (ENG)**
- Cockpit voice recorders and associated interfaces. (EVL)
- Electronic horizontal-situation indicators. (EVL)
- Mounting fixtures or brackets for portable devices, such as global positioning system or electronic flight bag, must be flame-resistant in compliance with the requirements of 14 CFR Part 23, § 23.853(a) and wiring as installed meets the requirements of § 23.1359(c) and 23.1365(a), (b) and (d) and has passed the flammability tests of Part 23 appendix F, paragraph (g). Also see the current edition of AC 23-2, flammability tests. (ENG)
- GPS or global navigation satellite system. (EVL)
- Multi-sensor navigation system. (EVL)
- Multifunction displays or electronic map displays. (ENG)
- EFB class 1 and class 2 mounting devices, data connectivity and aircraft power connections. (ENG)
- EFB class 3 employing type A, B and/or C software applications. (STC)
- Night vision goggles environments, including existing lighting and night vision imaging system arrays. (STC)
- FLIR, light detection and ranging, or airborne surveillance systems incorporating visible and non-visible laser pointer, range finder and laser illumi-

nation devices (class IIIb and class IV, as rated by the Food and Drug Administration). (STC)

- High-intensity discharge lamps and power supplies. (STC – for required lighting)
- Automatic dependent surveillance-broadcast. (STC)

**Items with the letters “STC” require an STC. With the complexity of broad applications concerning field approval evaluations, inspectors occasionally encounter a situation in which the guidance material requires application for an STC, but the Aircraft Certification Office may deem it unnecessary. In those circumstances, ACOs should consider re-classification to ENG. In these instances, justification from the ACO must be coordinated with AIR-100 and the appropriate product directorate, and provided in writing to the approving inspector so it can be referenced on Form 337.

Items with the letters “EVL” may be eligible for approval by means other than an STC, depending on the scope and complexity of the alteration. These items will not automatically qualify for a field approval; they require evaluation and review of guidance to determine if the field approval process may be applied and is appropriate.

Items with the letters “ENG” may be eligible for approval by means other than an STC, but require either supporting designated engineering representative or organization designation authorization approved engineering data or concurrence from the ACO for issuance of field approval.

Electrical and Electronic System Lightning Protection

On Wednesday, June 8, 2011, the Federal Aviation Administration amended the lightning protection airworthiness standards by establishing new lightning protection regulations for electrical and electronic systems installed on aircraft certificated under Parts 23, 27 and 29, and revises lightning protection regulations for electrical and electronic systems installed on airplanes certificated under Part 25.

This rule establishes two levels of lightning protection for aircraft systems based on consequences of system function failure: Catastrophic consequences, which would prevent continued safe flight and landing; and hazardous or major consequences, which would reduce the capability of the aircraft or the ability of the flight crew to respond to an adverse operating condition. This rule also establishes lightning protection for aircraft systems according to the aircraft’s potential for lightning exposure. The airworthiness standards establish consistent lightning protection requirements for aircraft electrical and electronic systems.

FREQUENTLY ASKED QUESTIONS

United States

Installation of an ELT

The following information is from the FAA Chief Counsel Interpretation Memorandum dated Aug. 24, 2010.

SUBJECT:

The following is a Federal Aviation Administration response to a December 2010 request for a legal interpretation on the use of the data contained in FAA advisory circular 43.13-2B as FAA-approved data for use in performing major alterations.

The response from the FAA was thorough, surprising and worth reviewing. It addressed a number of pertinent issues, including approved data as requested, and then addressed the question whether the installation is, in fact, a major alteration. The conclusion, which is often taught by the AEA, is an emergency locator transmitter installation in a light, unpressurized aircraft is seldom a major alteration. The FAA legal interpretation then goes into great depth defining the difference between “technical data” and “methods, techniques and practices.”

From the FAA legal interpretation dated April 8, 2011:

The primary focus of the inquiry is the use of the data in the AC for installing an ELT. As an ancillary matter, the question was asked whether, under criteria similar to that specified in the AC for its use as approved data, the ELT installer may follow “the installation instructions (not FAA approved) provided by the manufacturer of a TS01 ELT, and any aircraft manufacturer’s data (in the form of maintenance manuals, also not FAA approved) and have the data considered to be approved data.”

The FAA assumed all of the questions were premised on the installation at issue applying to a non-pressurized area of a civil aircraft weighing less than 12,500 pounds, because those are the applicability limits of the AC.

PURPOSE:

The purpose paragraph of the AC states:

This advisory circular contains methods, techniques and practices acceptable to the administrator for the inspection and alteration on non-pressurized areas of civil aircraft of 12,500 pounds gross weight or less. This AC is for use by mechanics, repair stations and other certificated entities. This data generally pertains to minor alterations; however, the alteration data herein may be used as approved data for major alterations when the AC chapter, page and paragraph are listed in block 8 of FAA form 337 when the user has determined that it is: appropriate to the product being altered, directly applicable to the alteration being made and not contrary to manufacturer’s data.

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THE FAA'S RESPONSE:

Assuming the installation of the ELT is a major alteration on a non-pressurized area of a civil aircraft of 12,500 pounds gross weight or less, and that it meets the criteria of the AC (i.e., the data is appropriate to the product being altered; the data is directly applicable to the alteration being made; and the data is not contrary to manufacturer's data), the relevant AC chapter, page and paragraph(s) may be listed in block 8 of FAA form 337 as approved data.

For major alterations, the regulations do require the use of FAA-approved technical data and the completion of a form 337. Section 43.7(b) of the Federal Aviation Regulations, 14 C.F.R. § 43.7(b), in conjunction with section 65.95(a)(1), 14 C.F.R. § 65.95(a)(1), require that major alterations be done in accordance with technical data approved by the FAA.

And, section 43.9(d) requires that, for a major alteration, the maintenance entry must be made as prescribed in appendix B to Part 43 – and this requires the completion of the FAA form 337. It is in block 8 of form 337 (description of work accomplished) where a reference to FAA-approved data would appear, including any applicable field approval of technical data.

Under the definition of a *major alteration*, however, we (FAA legal counsel) doubt that the installation you describe would be considered a major alteration. Section 1.1 of the Federal Aviation Regulations defines major alteration as follows:

Major alteration means an alteration not listed in the aircraft, aircraft engine or propeller specifications:

That might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics or other qualities affecting airworthiness; or

That is not done according to accepted practices or cannot be done by elementary operations.

14 C.F.R. § 1.1. Unlike the definition of *major repair*, the definition of *major alteration* assumes the work (installation) is done properly. The Aircraft Maintenance Division (AFS-300) in the Office of Flight Standards has expressed the view that the installation of a TSO ELT in a small airplane using the methods, techniques and practices contained in AC 43.13-2B would not constitute a major alteration to the aircraft. In view of the definition of major alteration, we concur with that determination. Accordingly, completion of an FAA form 337 would not be required.

As to whether some particular ELT installation that would be considered a major alteration (or some other modification that would be considered a major alteration) could be done in accordance with instructions from the manufacturer that are contained in a maintenance manual or some other document

that is not specifically FAA-approved, and be considered to be done in accordance with approved data, we note the following.

The term *technical data* must be distinguished from the "how to install" instructions, i.e., the methods, techniques and practices that, under section 43.13(a), must be acceptable to the FAA. In general, the methods, techniques and practices provided in manufacturer's maintenance manuals are acceptable to the FAA unless they have been found to be unacceptable through an airworthiness directive or some other notice and comment rulemaking.

A synonym for technical data is engineering information, such as that found in a type design.

As stated in section 21.31, of the Federal Aviation Regulations, 14 C.F.R. § 21.31, technical data include drawings and specifications, including a list of drawings and specifications, needed to define the configuration and design features of an aircraft, aircraft engine or propeller. Typically, these include 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 or other article. Technical data also include test data and engineering analyses and other engineering information, such as engineering handbooks or approved military or industry specifications. These 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.

Technical data are approved under 14 C.F.R. Part 21, usually when the FAA issues a design approval. Design approvals include, but are not limited to, type certificates, supplemental type certificates, parts manufacturer approvals and technical standard order authorizations – other approvals can be issued under section 21.305.

Technical data can also be approved in support of repairs and alterations such as a field approval by an FAA inspector in block 3 of form 337, by a DER on form 8110-3, or pertinent organization designation authorization on form 8100-9. The FAA has recently published guidance material on how to prepare and submit a data package when seeking FAA approval of a major repair or a major alteration. This is found in advisory circular AC 21-47, "*Submittal of Data to an ACO, a DER or an ODA for a Major Repair or a Major Alteration.*"

Please note that FAA-approved data may or may not contain the methods, techniques and practices needed for installation. They usually define a design configuration and may not contain the how-to instructions. These data would be sufficient to meet the intent of sections 65.95(a)(1), 121.379(b) and 145.201(c); however, they may not meet the performance standards of section 43.13(a). The methods, techniques and practices generally contained in a manufacturer's maintenance manual or instruc-

tions for continued airworthiness may not be part of the technical data required by Part 21.

The following question and answer, previously provided by the FAA in response to an inquiry, is relevant to and answers your ancillary question:

QUESTION:

When an authorized person performs a major repair or major alteration in accordance with a manufacturer's maintenance manual or other manufacturer's "service information," does this comply with the requirement that the work be accomplished in accordance with approved technical data?

ANSWER:

Yes, provided the manual or other manufacturer's service information is developed using FAA-approved technical data as described above. In the absence of a special circumstance, such as an airworthiness directive or airworthiness limitation, presently there is no requirement in 14 CFR that a maintenance manual be FAA-approved. When performing a major repair or major alteration, only the technical data must be approved. Such data are initially approved upon issuance of a design approval for a product or article.

Subsequently developed technical data are also FAA-approved when design changes are made in accordance with Part 21. Following the methods, techniques and practices contained in a manufacturer's maintenance manual or service information prepared using Part 21-approved data would, therefore, comply with sections 43.13(a), 65.95(a)(1), 121.379(b), 135.437(b) and 145.201(c).

Note: The AEA offers "Frequently Asked Questions" to foster greater understanding of the aviation regulations and the rules governing the industry. The AEA strives to ensure FAQs are as accurate as possible at the time of publication; however, rules change. Therefore information received from an AEA FAQ should be verified before being relied upon. This information is not meant to serve as legal advice. If you have particular legal questions, they should be directed to an attorney. The AEA disclaims any warranty for the accuracy of the information provided.

CANADA

News & Regulatory Updates

Transport Canada Revises Level of Involvement Procedures

As identified in the July issue of *Avionics News*, the current implementation of the Transport Canada Civil Aviation level of involvement policy is severely impacting the supplemental type certificate approval process in Canada. TCCA has now released issue 2 of staff instruction SI 500-003. This issue has incorporated the following changes and improvements:

- Clarified LOI principles related to the program activity architecture.
- Clarified responsibilities and accountabilities related to the introduction of CAR 521.

Added new definitions to section 2.3 to clarify the intent and implementation of LOI.

Section 5.0 contains a chart of oversight activities for TCCA aircraft certification, identifying which activities are surveillance and which are service.

Section 9.0 now identifies five phases of involvement. These are applicable to an application for a type certificate, supplemental type certificate, technical standard order or repair design approval. The phases are:

Phase I – Application and Establishing Certification Basis

Phase I includes the initiation of the project, application for design approval by the applicant, initial product design familiarization by TCCA and foreign authorities where applicable, the submission of preliminary or draft certification plans, and finally, the initial type board or equivalent meeting.

Phase II – Establishing Means and Methods of Compliance and TCCA Level of Involvement

Phase II consists of a series of reviews and meetings aimed at seeking concurrence on the proposed means and methods of compliance. As the compliance demonstration planning activities are established through these reviews, TCCA will specify its LOI, using LOI risk criteria defined in section 8.0 of the SI.

Phase III – Demonstrate and Record Compliance

Phase III consists of the execution of the conformity demonstrations by the applicant and the making of findings of compliance by the minister (delegate or appropriately delegated TCCA specialist). Phase III is the phase where LOI is actually conducted if a delegate is involved. If a delegate is not involved, TCCA's certification activities with the applicant are considered a service to the applicant, as TCCA will be responsible for the finding of compliance in these areas. As the certification demonstration progresses, LOI will be conducted and signed off and tracked by the TCCA specialist as part of the completion record.

Phase IV – Type Design Approval

Phase IV of the certification process primarily consists of the approval of the type design or change to the type design. Phase IV is all service, no surveillance. The service includes approval of the documentation (e.g. airworthiness limitations and AFM, if not already approved in Phase III). During this phase, the applicant also will submit a declaration of the signed undertaking to carry out the responsibilities under CAR 521 division VIII.

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Phase V – Post Certification Design Changes

The LOI process is still applicable as above for type design changes, i.e. revisions to an STC.

In the future, TCCA will be placing more emphasis on completing each of these phases in sequence with the end of each phase being considered as a gate that should be closed before TCCA subsequent activity on the next phase.

These phases apparently will be adopted in all future CAR 521 guidance materials.

The AEA is encouraged to see that the LOI policy has been clarified and updated to reflect CAR 521 requirements. It is understood that this is the first of a series of advisory materials to be revised or published to address the recent introduction of CAR 521.

SI 500-003 issue 2 may be viewed at:

www.tc.gc.ca/eng/civilaviation/opssvs/managementservices-referencecentre-documents-500-500-003-230.htm#4-0.

EUROPE

News & Regulatory Updates

EASA

In an effort to incorporate generic special conditions and AMC certification review items in CS-25, EASA issued NPA 2011-09 in May 2011. The proposed changes to certification specification for large aircraft (CS-25) address a number of various issues. One of those addressed is the introduction of the li-ion batteries in certification. This technology is widely used in equipment on board aircraft and inside permanently installed or portable electronic equipment, which pose a potential safety problem because of the instability and flammability of the organic electrolyte employed by the cells of those batteries. The NPA provided is a proposal to amend the existing CS-25, specifically in the use of such batteries, as well as critical conditions and how to cope in the design of such installations. Topics discussed are overcharging, over-discharging and the flammability of cell components.

Vienna, Austria, played host to the 2011 Europe-U.S. International Aviation Safety Conference in June. During this three-day meeting, a lot of topics were discussed between the agencies, national authorities and the industry. Worth noting are the presentations on the new agreement between the U.S. and the European Community, their annexes and the related implementation procedures to maintenance and initial airworthiness, as well as the discussions on the definition and responsibilities for instruction for continued airworthiness, operational suitability data, the newly introduced certification memo, replacement parts including the discussion on PMA parts and some new policies on how to cope with future challenges in the rulemaking.

Local workshops to inform the industry on the impact of the new agreement between the U.S. and the EC are planned during the next few months. The AEA will brief you in the coming issues of *Avionics News* on the content of this arrangement.

AUSTRALIA

News & Regulatory Updates

AC 66-2 (2): list of aircraft type ratings for CASR Part 66 licenses was revised in May 2011

Advisory Circular (AC) 66-2 (2) provides guidance and information to personnel who seek or have a CASR Part 66 aircraft engineers license approved maintenance organization who employ CASR Part 66 license holders.

The MOS Part 66 section 66.A.45 allows aircraft type ratings to be set out in an AC made for that purpose. This AC specifies by table the following:

- Table 1 - Large airplanes or airplanes designated as large requiring type training and individual type rating.
- Table 2 - Aircraft for which an AMO may select/control type training (theory and practical) for AMO authorization (six months) for subsequent CASA issue of individual type rating. Note: These aircraft were previously covered by CASA Civil Aviation Regulation 1988 31 lower group ratings or are considered eligible for AMO selected manufacturer training.
- Table 3 - Aircraft excluded from CASR Part 66 type rating and therefore eligible to have the powerplants systems maintained by a B1.1 category holder with the small/non-rated aircraft (engine) rating or a B2 category holder. Note: These ratings have no applicability for category B2 and category C; however, category B1.1 requires these ratings to perform maintenance certifications for the powerplant systems of these aircraft.
- Table 4 - Multi-engine helicopters (turbine powered), requiring type training and individual type rating and turbine engines that can be fitted to those helicopters. The small non-rated aircraft ratings (engine ratings) are applicable to non-type rated multi-engine and single-engine helicopters (turbine powered).

AC 66-2 (2) can be viewed at:

www.casa.gov.au/wcmswr/_assets/main/lib100047/066c02.pdf.

Notice of Final Rule Making for Regulatory Administrative Procedures - Civil Aviation Safety Regulation Part 11

Amendments to Part 11 commenced on June 27, 2011. The amendments simplify, standardize and consolidate CASA's administrative procedures. The amendments make changes to:

- CASA's issue of authorizations for entry into the aviation system.
- CASA's exemptions against the provisions of the regulations.
- CASA's issue of various aviation directions, excluding airworthiness directives.

The amendments also will make CASR Part 11 apply uniformly to administrative procedures under the CAR and the CASR. The key amendments include the following:

- A new, wider definition of an authorization as follows:
 - a.) A civil aviation authorization (defined in the Civil Aviation Act to mean an authorization to undertake a particular activity) other than (i) an AOC; or (ii) a delegation; or (iii) the appointment of an authorized person (but directions or exemptions can be given in relation to AOC holders and delegates).
 - b.) An approval or qualification of a document or thing under these regulations (other than a material, part, process or appliance to which Subpart 21.K applies).
 - c.) A certificate capable of being granted to a person under these regulations.
- A new maximum duration for an exemption from particular regulations (increased from two years to three years).
- New subregulation 11.230(2) changes the maximum duration of an exceptional circumstances exemption from six months to 12 months.
- CAR 308 being repealed (so that only a CASR 11.160 exemption can be given in the future).
- The 12-month time limit on directions has been removed (and a person other than the director can give a CASR 11.245 direction).
- New regulation 11.018 provides that if another provision of the CAR or CASR provides for a document to be in an approved form, CASA may approve a form for that document. The amendment also provides that if CASA has approved a form for a document, that document is not to be taken to be completed unless it is in the approved form and includes all information required by the form.
- CASA is empowered to not commence, or to stop, considering an application for an authorization if requisite information, documents, evidence demonstrations or inspections had not been given or permitted.
- CASA is empowered to ask applicants for authorizations to verify matters by statutory declaration.
- CASA is empowered to impose or vary a condition on an authorization after it has been issued, but not with retro-

spective effect; new regulation 11.067 will enable CASA, if the interests of safety require it, to impose or vary conditions on an authorization after it has been issued. The authorization holder must be given notice of the proposed change and a reasonable time within which to make a submission to CASA about it. CASA would take the submission into account in determining whether it is necessary in the interests of the safety to impose or vary the condition. Imposed or varied conditions would not take effect before the person had been notified of them, that is, they would not take retrospective effect for any authorization holder.

- CASA is empowered to require authorization holders to tell CASA of specified events that might adversely affect aviation safety.

Granting Authorizations

New subregulation 11.055 (1A) sets out what CASA must consider in relation to the application. Thus, CASA may grant the authorization only if:

- The person meets the criteria specified in these regulations for the grant of the authorization; and
- Any other requirements in relation to the person that are specified in these regulations for the grant of the authorization are met; and
- Any other requirements in relation to the thing in respect of which the application is made that are specified in these regulations for the grant of the authorization are met; and
- These regulations do not forbid CASA granting the authorization in the particular case; and
- Granting the authorization would not be likely to have an adverse effect on the safety of air navigation.

New subregulation 11.055 (1B) will provide that if another provision of these regulations provides that this subregulation applies to the granting of the authorization, CASA may grant the authorization only if the requirements of paragraphs (1A) (a) to (d) are satisfied; and granting the authorization will preserve a level of aviation safety that is at least acceptable.

By consolidating Part 11 in the above manner, this has also resulted in amendments to Parts 21, 45, 60, 65, 67, 92, 99, 101, 137, 139, 143, 171, 172, 173, 183, 201, 202 and the CAR.

Accordingly, those officers involved in processing, assessing or making decisions on an application for an authorization should Part 11 in its amended form after June 27, 2011. This document is not a substitute for reading Part 11.

Further, those officers who administer any of the Parts in the preceding paragraph should familiarize themselves with the amendments to those Parts.

Notice of Final Rule Making for Part 11 can be viewed at: www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_100497. □