# Policy Updates:

## Order 8110.4C Chg 6, STC Compatibility, Flammability by Trace, and Destroyed Aircraft

Presented to: DER Recurrent Seminars

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# Order 8110.4C Change 6

- **Effective Date 3/6/2017**
- **General Objectives**
  - To incorporate approved deviations to the order
  - To incorporate directive feedbacks from public and field offices
    - Both corrections and suggestions for improvement
  - Editorial revisions throughout the whole document.
  - Removal of outdated material
    - This includes removal of material when other current policy and procedures documents covering the same material exist. Directing the readers to those documents.

# STC Compatibility

- **Addressing the Issue**
  - FAA released AC 20-188, *Compatibility of Changes to Type Design Installed on Aircraft,* dated12/9/16
  - Compatibility is ensuring that changes to type design approved separately do not create a safety issue if installed together
  - STC Compatibility not a new issue
    - Can also be referred to as “Layering STCs”

# Past Publications

- **Transport Canada Airworthiness Notices - B045, Edition 1 - 15 May 1998,** *Compatibility of Multiple Modifications*
- **Three NTSB Safety Recommendations**
  - Issued by the Board on May 24, 2012
- **Anchorage ACO flyer***, How Do I Determine Supplemental Type Certificate (STC) Compatibility?*
- **Aircraft Owners and Pilots Association (AOPA)** article "Layering STCs: Understanding and Managing the Risks. November 21, 2013
- **FAA Safety Briefing -** May/June 2014 article *Beware the Frankenplane! The Hidden Dangers of Layering STCs*

# The STC Itself

**8110.4:** For multiple STCs, include the following note:

> "The installer must determine whether this design change is compatible with previously approved modifications."

# FAA Form 337

**NOTICE**

*Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.*

# AC 20-188

- **Promotes awareness**
- **Provides “examples” of *potentially* incompatible STCs to help installers**
- **Promotes owners to review aircraft history**
- **Provides recommendations for sources of information**
  - This includes the design approval holders and designees
- **Focuses on STC; could apply to alterations**

# What Can You Do?

- **AC meant to be a starting point to create awareness**
  - Expected to evolve over time
  - Add cases/information as available
- **Submit feedback form in AC if you have a recommendation**
- **Help installers with technical aspects**
- **Provide approval for data**

# Questions?

- **STC Compatibility Program Manager:**
  - Edward Garino, AIR-111, 404-474-5532
  - edward.garino@faa.gov

# Minor Mods and PMA

- **Policy Statement PS-AIR-21-1601**
  - Signed on Oct. 6th, 2016
  - Rev. D of the Order clarified the definition of a Modification Article as new to the product via a major or minor change
    - Historic precedence has allowed PMAs for mod articles outside the use of a STC (this is NOT new)
  - Onus of utilizing this guidance is on the applicant
    - NOT to be used to subvert a STC project
    - Will not be reliant on any comparative analysis but rather a general analysis only
    - Will NOT be applicable for most modification articles
    - Supplemental ICAs will almost always be required

# Changed Product Rule (CPR)

- **New AC 21.101-1B, *Establishing the Certification Basis of Changed Aeronautical Products***
  - International CPR CIT fourth charter established in September 2013 to update the AC
  - Published on March 11, 2016
  - Harmonized with EASA, FAA, TCCA and ANAC
  - No fundamental change to policy, only clarification
    - Guidance on many situations encountered since last revision
  - Appendix has more pre-determined examples by aeronautical products
    - Substantial, Significant, Not Significant
  - Flow chart for CPR procedures
  - Optional CPR Decision Record

# Changed Product Rule (CPR)

- **Order 8110.48A, How to *Establish the Certification Basis for Changed Aeronautical Products***
  - Published July 21, 2017
  - Order based on the harmonized AC 21.101-1B
  - Delegation language deleted to align with AC
    - Delegation details to be moved to FAA Order 8100.15, *Organization Designation Authorization Procedures*
    - Projects that do not require a program notification letter (PNL) are pre-determined as not significant when properly authorized and managed in accordance with the ODA procedures manual.
- **CPR Training Course will be offered through the FAA Academy next year**

# Questions?

- **CPR Program Manager:**
  - Michael Jewell, AIR-6C1, 202-267-9623
  - michael.jewell@faa.gov

# Scope

- **Reduction of certification costs through the use of trace compliance based on previous FAA approvals**
- **Applies to certain requirements within §§ 23.853, 23.855, 23.1359, 25.853, 25.855, 25.1713, 27.853, 27.855, 27.1365, 29.853, 29.855, and 29.1359**
- **Tests in accordance with:**
  - Part 23, Appendix F, Part I
  - Part 25, Appendix F, Parts I, II, IV, and V

# Scope

- **Applicable to STC applicants tracing to TC approved data only**
- **Addresses**
  - § 21.20, Compliance with applicable requirements
  - § 21.21, Issue of type certificate
  - § Section 21.31, Type design
  - § Section 21.117, Issue of supplemental type certificates

# FAA Order 8110.4C

- **Section 2-6(k) Data Submitted for Approval**
  - (2) FAA personnel may use the applicant's or certificate holder's data for reference or evaluation of any subsequent applicant's submitted data if the information is used solely for that purpose.
  - (3) Provides procedural guidance on the use of a previous applicant's data as a means of compliance for a subsequent applicant (assumes applicant has the data)
    - Must show evidence it was approved by the FAA
    - Must show previous approved data is applicable
    - Provides sufficient substantiation and descriptive data of its own modification
    - Has sufficient engineering data for COS support or multiple STC Situation

# What Is Compliance By Comparative Analysis?

- A means for an applicant to satisfy the § 21.21(b) requirement to submit type design, test reports and computations by showing traceability to previously FAA approved data
- An applicant initiated action
  - Applicant provides sufficient data/analysis to establish traceability
    - Show that the approved design holder's parts complied with the appropriate flammability requirements for the product on which they were installed
    - Applicable aspects of the material, design, use, orientation, and certification basis align between the holder's and applicant's articles

# How Does It Work

- Applicant submits for STC or ASTC design approval
- Applicant & FAA develop compliance checklist
- Applicant provides line item evidence of previously submitted and FAA approved (TC holder) flammability compliance data
  - List of items showing applicability
  - Included as part of the showing of compliance documentation
- Applicant submits other required compliance data
- FAA finds compliance based on submitted data and analysis

# Importance of Evidence

- Compliance by trace is not a waiver of any airworthiness requirement
- Applicant must provide evidence of FAA approval to support request for compliance by trace
- Evidence must be specific enough to minimize or eliminate the need for FAA to access previous compliance data for verification of finding
- Policy details list of required items

# Evidence for Analysis

- **Design holder drawings with rationale that shows applicant's articles are traceable to a previous FAA-approved TC or ATC design**
- **Model/series comparison**
- **Part number**
- **Comparison of Certification basis including special conditions, exemptions, equivalent level of safety findings**
- **Location within aircraft**
- **Determination the original article flammability compliance was not based on a "small part" determination**
- **Determination the material is identical to the approved material**
- **Determination the testing requirements are the same for the applicant's article and the previously approved article**
- **Evidence that no feature or characteristic would make the product unsafe**
- **Determination the original article is not subject to an airworthiness directive (AD) and is free of airworthiness issues**

# Questions?

- **Compliance by Trace Program Manager:**
  - Sue McCormick, AIR-6C1, 425-227-2071
  - Email: susan.mccormick@faa.gov

# Destroyed Aircraft

- **Aircraft owners, aircraft registration certificate holders and repairers have been building aircraft from spare parts and attaching an ID plate of a different aircraft, classified as destroyed by the NTSB or the FAA, to them**
- **The spare parts used in building these aircraft could be from military surplus or salvaged from other destroyed aircraft. Rebuilding of destroyed aircraft poses two issues that the FAA is very concerned of: violation of the regulations and safety of the aircraft**
- **Currently, there is no guidance for FAA employees and the public in how to define an aircraft as destroyed, who can make the determination and how to resolve the dispute of the determination**

# Applicable regulations

**§47.41 Duration and return of Certificate**

- (a) Each Certificate of Aircraft Registration, AC Form 8050-3, issued by the FAA under this subpart is effective, unless registration has ended by reason of having been revoked, canceled, expired, or the ownership is transferred, until the date upon which one of the following events occurs:

  (1) . . . . . .

  (2) The aircraft is totally destroyed or scrapped

**§45.13 Identification data**

. . . . .

- (2)(e) No person may install an identification plate removed in accordance with paragraph (d)(2) of this section on any aircraft, aircraft engine, propeller, propeller blade, or propeller hub other than the one from which it was removed

# Challenge and Solution

**Challenge:**

- § 47.41 does not define the term “Totally Destroyed” nor who has the authority to determine that an aircraft is destroyed

**Solution - an FAA-wide policy via order / advisory circular:**

- Any body having monetary or safety interest in the aircraft can declare an aircraft destroyed, but anyone else can dispute it
- Interested party can submit a repair scheme to ACO to show the aircraft is repairable
- If ACO approves the repair, the aircraft is not destroyed
- To repair an aircraft, at least one of its primary structures must be repairable. Replacing all of an aircraft structure is not a repair but a replacement of the aircraft - § 45.13 prohibits this action
- DER will help Applicant and ACO in developing and approving the repair scheme
- In summary: the condition of the aircraft itself determines whether it is repairable or destroyed

# Current status

- **A draft order and an advisory circular is completed and in circulation for FAA internal review**

# Questions?

- **Destroyed Aircraft Program Manager:**
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- **Telephone: 202-267-1637**