



Instructions for Continued Airworthiness - ICA

Markus Janischowsky – PCM & ICA Senior Expert
Alexandru Enache – DOA Section Manager

Your safety is our mission.



CONTENT

- ❑ Introduction
- ❑ Definition
- ❑ Regulatory Framework
- ❑ Guidance Material
- ❑ Compliance Demonstration
- ❑ DOA Aspects
- ❑ Rulemaking Activities
- ❑ Related Question(s) from last workshop, 2014



INTRODUCTION

What are ICA?

ICA are required and provided as **compliance documents** as part of the certification activities; investigation (as requested)

ICA are prepared **in accordance with the applicable type-certification basis**; certification specification and special conditions

ICA ensure type certification **airworthiness standard is maintained** throughout the operational life

ICA enable **inspection, adjustment, lubrication, removal or replacement** of parts and appliances

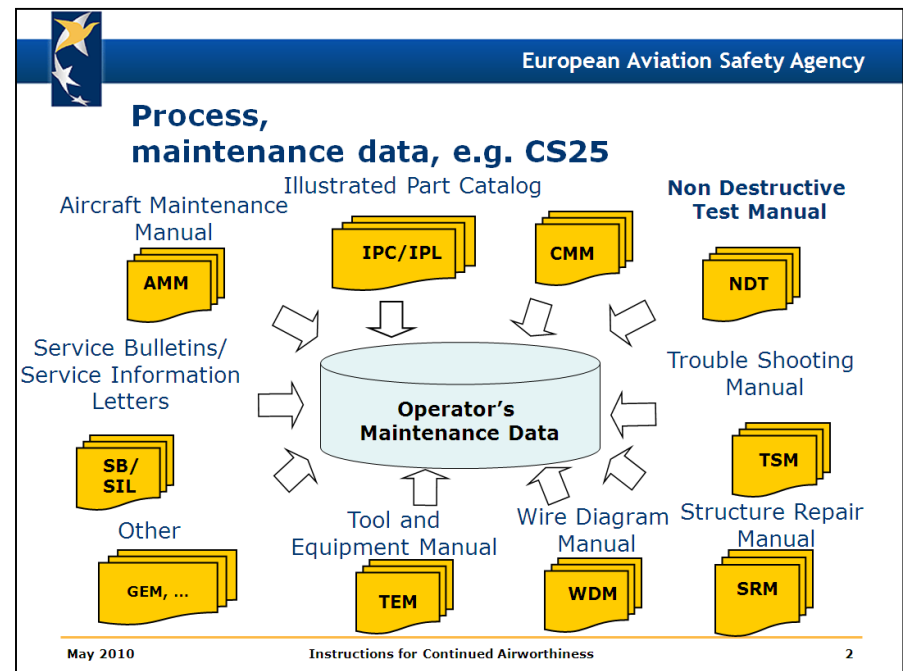
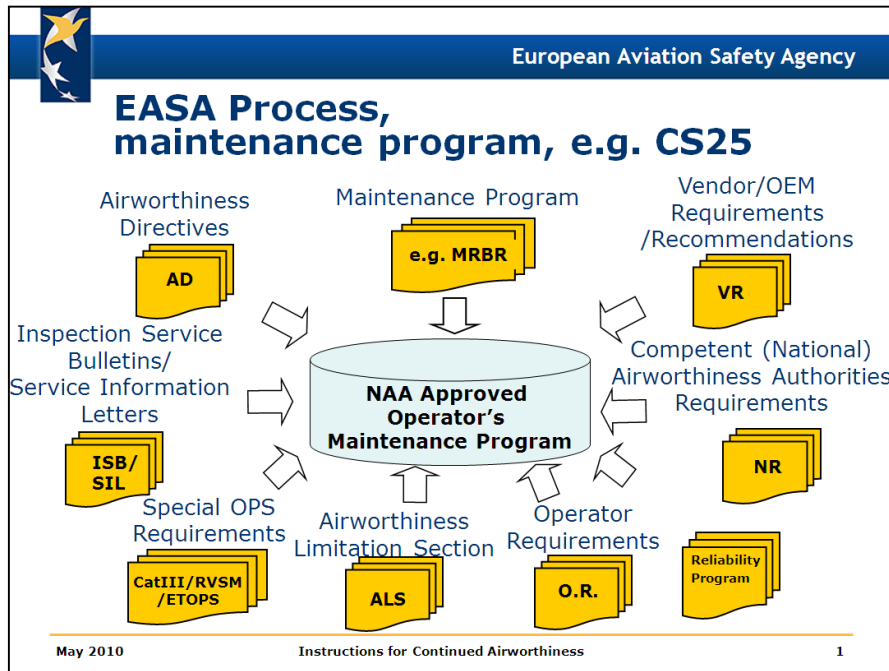
ICA must cover **maintenance and repair** instructions, **servicing** information, **trouble-shooting** and **inspection** procedures



INTRODUCTION

What are ICA?

ICA must be provided/made available and form the basis for the operators' locally approved maintenance program and maintenance data



The listing of items makes no claim to be complete



DEFINITION

*“Instructions for Continuing Airworthiness are the instructions and information that are necessary for the continued airworthiness of the aircraft, engine, propeller, parts and appliances, which must be developed and/or referenced by the Design Approval Holder in accordance with the applicable Certification Basis or Standard”**

NOTE: ICAs then need to be furnished and made available in accordance with the applicable regulation.

*Current definition from the trilateral rulemaking discussion with FAA/TCCA/EASA



REGULATORY FRAMEWORK

Basic regulation (EC) No 216/2008, ANNEX I “*Essential requirements for airworthiness referred to in Article 5*” states:

- “...1.d. *Continuing airworthiness*
- 1.d.1. *Instructions for continuing airworthiness ... to ensure ... aircraft type certification airworthiness standard is maintained throughout the operational life*
- 1.d.2. *... to allow inspection, adjustment, lubrication, removal or replacement of parts and appliances ...*
- 1.d.3. *... in the form of a manual, or manuals, as appropriate for the quantity of data must cover maintenance and repair instructions, servicing information, trouble-shooting and inspection procedures, ...*
- 1.d.4. *... must contain airworthiness limitations...”*



REGULATORY FRAMEWORK

According (EU) No. 748/2012, Part 21, 21.A.44 a TC/RTC holder shall undertake the obligations in:

- 21A.3 (report and investigation of occurrences)
- 21A.3B (cooperation with the Agency on ADs)
- 21A.4 (coordination with production)
- 21A.55 (record keeping)
- 21.A.57 (production, update and provision of manuals)
- 21.A.61 (instructions for continued airworthiness; production, update and availability, program for distribution of changes)



REGULATORY FRAMEWORK

Regulation (EU) No 748/2012, 21.A.61 requires

- “a) The holder of the type-certificate or restricted type-certificate shall furnish...instructions for continued airworthiness...upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later...some manual or portion of the instructions for continued airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed..., but shall be available before any of the products reaches the relevant age or flight-hours/cycles...*
- b) In addition, changes to the instructions for continued airworthiness shall be made available to all known operators...on request to any person required to comply...*

A programme showing how changes to the instructions for continued airworthiness are distributed shall be submitted to the Agency.”



REGULATORY FRAMEWORK

21.A.57, 21.A.119 *“Manuals”*

21.A.61 *“Instructions for Continued Airworthiness”* (TC, RTC, Ch)

21.A.107 *“Instructions for Continued Airworthiness”* (minor Ch.)

21.A.120 *“Instructions for Continued Airworthiness”* (STC)

21.A.239 *“Design Assurance System”*

21.A.263 *“Privileges”*+ GM

} Subpart J, DOA

21.A.449 *“Instructions for Continued Airworthiness”* (Repair)

21A.609 *“Obligations of holders of ETSO authorisations”*

CS-25 *“Large Aeroplanes”* Amdt. 12, CS-25.1529, (and CS 25.1729 *“Instructions for Continued Airworthiness ; EWIS”* or SC H-01)*, CS 25 Appendix H

and other related § like CS25.571 *“Damage-tolerance and fatigue evaluation of structure”*, CS25.611 *“Accessibility provisions”*, CS25.671 *“Control systems, general”*, CS25.689 *“Cable Systems-Insp. Provisions”*, CS25.901 *“Powerplant installation”*, CS25.981 *“Fuel tank ignition prevention”*, CS25.1301 *“Function and installation”*, CS25.1309 *“Equipment, systems and installations”*, CS25.1519 *“Weight, centre of gravity and weight distribution”*, CS25.1719 *“Accessibility Provisions; EWIS”*.

* Pending Certification Basis



GUIDANCE MATERIAL

For CS-25 (unlike e.g. for CS-27/29) there is currently no general comprehensive guidance material, AMC available, however, a number of AMC material on specific topics:

AMC Appendix H 25.4(a)(3) and 25.5	Instructions for Continued Airworthiness Airworthiness Limitations Section Electrical Wiring Interconnection System Instructions for Continued Airworthiness
AMC 20-20	Continuing Structural Integrity Programme
AMC 20-21	Programme to Enhance Aeroplane Electrical Wiring Interconnection System (EWIS) Maintenance
AMC 20-23	Development of Elect. Std. Wiring Practices documentation.
AMC 20-29	Composite Aircraft Structure Maintenance Practice.
AMC 25-19	Certification Maintenance Requirements
AMC 25.981	Fuel tank ignition prevention



COMPLIANCE DEMONSTRATION

The compliance demonstration with the applicable requirements for ICA is typically a mixture of manual(s), statements and procedures.

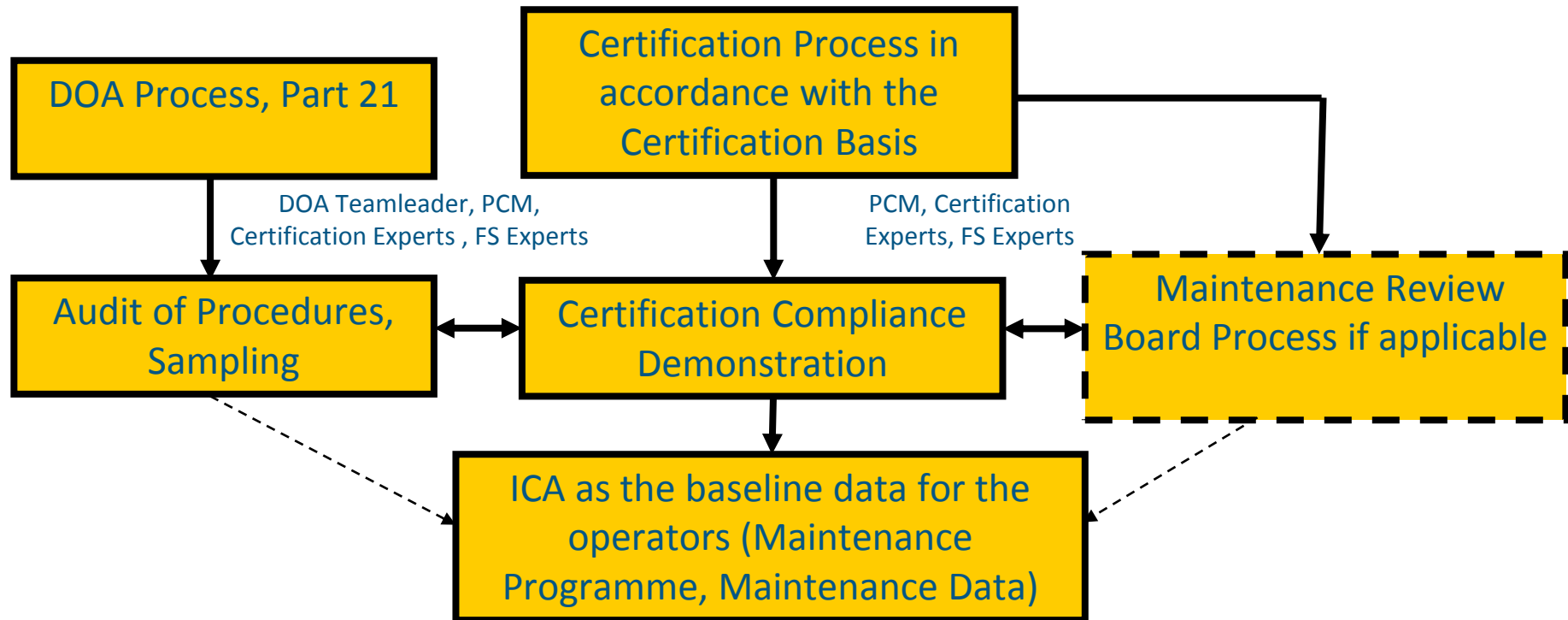
A specific ICA compliance plan and systematic checklist approach is recommended - the applicant should provide an overview / a list of ICA deliverables (means of compliances) to EASA.

Within this overview the applicant should define if/when those documents are to be delivered to EASA (e.g. before TC or post TC, entry into service/first certificate of airworthiness) *and* if they are for information, review and acceptance or approval.



COMPLIANCE DEMONSTRATION

ICA compliance is typically a multi-panel/standardization activity, specific compliance plans, CRIs/CAIs, Maintenance Review Board (if applicable) activities may need to be referenced in an ICA compliance plan to be complete.





COMPLIANCE DEMONSTRATION Manuals

H25.3 (a) “...aeroplane maintenance manual...”

H25.3 (a)(1) to (2) “...introduction...description...”

H25.3 (a)(3) “... basic control ...”

H25.3 (a)(4) “...servicing...”

H25.3(b)(1) “... scheduling information...”

H25.3(b)(2) “... troubleshooting information...”

H25.3(b)(3) “... removing and replacing...”

H25.3(b)(4) “... other...”

H25.3(c) “... information needed to gain access...”

H25.3(d) “... special inspection techniques...”

H25.3(e) “... protective treatments...”

H25.3(f) “... structural fasteners...”

H25.3(g) “... special tools...”

H25.4 “... airworthiness limitations section...”

H25.5 “... EWIS...”

AMM, (CMM)...

AMM, SDS, WDM

AMM, SDS

AMM, SDS, EMM

MRP (MRBR), (CMM), QRM...

AMM, TSM, FIM, (CMM)...

AMM, IPC, SPM...

AMM, WBM...

AMM, SRM...

NDT, (CMM)...

AMM, SRM, CM...

AMM, SRM...

GEM, TEM...

ALS, ALI, SLI, LLP, CMR, FSL...

SD, ELA, WDM, ESPM...

Example Only



DOA ASPECTS

In general, Design Approval Holders (e.g. TC Holders) are requested to demonstrate their design capability.

Most of the time this demonstration is done by holding a **Design Organisation Approval (DOA)** – ref. Part 21 / Subpart J.

In order to obtain a DOA an applicant shall demonstrate that it has established and is able to maintain a ***Design Assurance System*** (organisational structure, responsibilities, procedures & resources)

The Design Assurance System is covering the complete range of activities which contributes to the initial issuance of a design approval as well as to its continued airworthiness. These activities include those related to ICA.



In respect of ICA, the Design Assurance System should cover:

(ref. to GM No. 1 to 21.A.239(a))

- Preparation and updating of all maintenance instructions needed for continued airworthiness in accordance with relevant certification basis:
 - establish the list of all documents it is producing to comply with the Appendix referred in CS xx.1529 ...
 - define procedures and organisation (structure, responsibilities, staff competences...) to produce and issue these documents
- Distribution to all affected operators and involved authorities



For ICA issuance, the DOA may elect to use the a DOA privilege 21.A.263(c)

In this case, additional guidance material is available to define the content of DAS elements the DOA has to put in place (content of procedures):

(GM 21.A.263(c)(3))

- Preparation
- Verification of technical consistency with corresponding design data
- Verification of the feasibility in practical applications
- Authorised signatories

The ICA issued under 21.A.263(c) will contain the following statement:

“The technical content of this document is approved under the authority of DOA ref. EASA.21J.[xxxx].”



RULEMAKING ACTIVITIES

2008/2009 - FAA and EASA conducted independent ICA compliance surveys mainly on “Large Aeroplanes” products which triggered the EASA Rulemaking task MDM.056 “Instructions for Continued Airworthiness” (Kick-off meeting in December 2009).

(What/When/To Whom)

The task is now* at Phase 2 after trilateral discussions with FAA and TCCA. The task is split into 5 subtasks.

The rest of the issues described in the Status Report 12D54544 and not covered under any of the above-mentioned subtasks will be addressed in the future, for instance how maintenance data (ICA and non-ICA) is used by operators/maintenance organisations and who can introduce changes

*Current ToR at Issue 4, 15/05/2013 <http://easa.europa.eu/document-library/terms-of-reference/tor-mdm056-rmt0252>



➤ Subtask 1:

Definition and identification of ICA

- Type of information instead type of manual
- Not to enforce a specific selection/range of manuals, names and their abbreviations, with the exception of manuals/sections which are defined by regulation, like the Airworthiness Limitations
- In most cases there are more than just one manual produced to provide the required information. To facilitate the compliance finding, an applicant should provide an overview of the publications and manuals produced

Responsibility of the DAH for the control of ICA below the product level

- Discussion on the control of CMM (if ICA) still on-going.



RULEMAKING ACTIVITIES

Where the list of ICA approved/accepted for a particular product, part, etc., will be identified and made known to operators

- Proposal to add AMC to identify one set of complete instructions for continued airworthiness as a direct reference in the TCDS or indirect reference (the check of the completeness of the ICA must be possible)
- Discussion on transfer from “privilege” to use approval statement (21.A.263 (c) 3) to “obligation”, tagging ICA)

Completeness of ICA (Timely Availability)

- “To have the possibility to delay ICA” versus “To satisfy the Agency’s expectation of ICA at time of approval, EIS”

Certification

- The meaning of approved/accepted
- How this is shown (letter, approval, etc.)



➤ Subtask 2

(Affects not only DAHs but also operators, maintenance organisations, CAMOs)

Availability of ICA (to owners, operators, maintenance organizations, etc.)

- To make the provisions of 21.A.61 (107, 120...) referring to owner and operators also applicable to the lessee
- To add that the DAH shall make ICA available on request also to the competent authority responsible for verifying conformity with instructions for continued airworthiness
- Guidance material for 21.A.61 (107, 120...) on “Any other person required to comply”

➤ Subtask 3, cancelled



➤ Subtask 4

Acceptance/approval of ICAs by other than the authority

- Clarify ICA as part of “type certificate” not only “type design”
- Introduction of changes to ICA as changes to type certificate without changing design
- Classification of ICA (minor, major) for eligible to be changed without changing the design (“stand-alone ICA”)
- Privilege minor changes to ALS
- Depending on discussion above:
 - to include in Part-M (M.A.302, M.A.401) the option to accept/take into account alternate maintenance instructions provided by a DOA (deviation from ICA coming from DOA).
 - Clarify rule/AMC NAA on how AMP can be approved with deviations from ICA



► Subtask 5

Certification Maintenance Requirements (CMR)

- » Starting point of this subtask is FAA AC 25-19A
- » The CMR ** concept is no longer retained
- » The CCMR selection process is still under discussion
 - » Latent for life failures?
 - » Dual failures combination in Major failure condition where no MRBR task exists?
- » The CMR selection process is still under discussion
 - » How accommodating CCMR by MRBR task while protecting System Safety Assessments (SSA) assumptions in service?
 - » Complex failures combination (three or more failures combinations)?



- *Why are parts and appliances affected by an AD not removed from the Illustrated Parts Catalogue (IPC) by the TC Holder?*
 - According (EU) No. 748/2012, Part 21, 21.A.44 a TC/RTC holder shall undertake the obligations in:
 - 21.A.57 (production, update and provision of manuals)
 - 21.A.61 (instructions for continued airworthiness; production, update and availability, program for distribution of changes)
 - The Design Assurance System should cover (ref. to GM No. 1 to 21.A.239(a)):
 - Preparation and updating of all maintenance instructions

[refer also to page 7 and 15]



Thank you for your attention,
questions?