



“What” are Instructions for Continued Airworthiness, ICA ?

Rulemaking Workshop, Cologne, January 2010



“What” are Instructions for Continued Airworthiness ?

✈ Content

- ✦ Background
- ✦ Legal Context/Requirements
- ✦ Compliance Documents
- ✦ Items for Consideration
- ✦ Summary, Terms of Reference (TOR)

✈ Open Discussion



Background

- ✈ **2008/2009 - FAA and EASA conducted independent ICA compliance surveys mainly on “Large Aeroplanes” products**
- ✦ **ICA definition and availability, expectations...**
 - Have evolved over time
 - Wide variations on **“what”** is considered ICA by Design Approval Holders, DAHs and Authorities
 - Special concern on CMMs being declared ICA (business impact)
 - presently are not applied in a standardized manner by DAHs, FAA and EASA
 - 2005 – First publication of FAA “ICA” Order 8110.54
 - 2009/2010 – Drafting of a EASA check list to support current ICA compliance finding. Planned to be published for public consultation as Certification Memorandum, 1Q 2010



Legal Context/Requirements

✈️ "What" are Instructions for Continued Airworthiness ?

- ✦ ICA are provided as compliance documents during certification activities
- ✦ ICA are prepared in accordance with the applicable type-certification basis, specification
- ✦ ICA ensure type certification airworthiness standard is maintained throughout the operational life
- ✦ ICA form the basis for the operators' approved maintenance data
- ✦ ICA enable inspection, adjustment, lubrication, removal or replacement of parts and appliances



Legal Context/Requirements

- Basic regulation (EC) No 216/2008, ANNEX I *“Essential requirements for airworthiness referred to in Article 5”*
- Basic regulation (EC) No 216/2008 ANNEX IV *“Essential requirements for air operations referred to in Article 8”*
- 21A.61 *“ICA”*, 21A.107 *“ICA (minor change)”*, 21A.120 *“ICA (STC)”*, 21A.449 *“ICA (Repair)”*, 21A.609 *“Obligations of holders of ETSO authorisations”*
- CS 22.1529 CS 23.1529, **CS 25.1529***, CS 27.1529, CS 29.1529, **CS 31HB.82***, CS-E 25, CS-P 40, CS-APU 30, CS-VLA 1529, CS-VLR 1529 **as examples, see next slide*

and their related Appendices, AMC material and other requirements (Part M and 145)



Compliance Documents

→ CS 31HB.82 Instructions for Continued Airworthiness

- (d)(1) *"...description balloon components, systems and installations..."* ▶▶ MM*
- (d)(2) *"...handling instructions..."* ▶▶ MM
- (d)(3) *"...control and operating information..."* ▶▶ MM
- (d)(4) *"...servicing information..."* ▶▶ MM
- (d)(5) *"...maintenance schedule..."* ▶▶ MM
- (d)(6) *"...maintenance instructions..."* ▶▶ MM
- (d)(7) *"...repair instructions..."* ▶▶ MM
- (d)(8) *"...trouble-shooting information..."* ▶▶ MM
- (d)(9) *"...airworthiness limitations..."* ▶▶ MM

*Maintenance Manual is sometimes integrated as part of a Flight Instruction Manual



Compliance Documents

→ CS 25, Appendix H, Instructions for Continued Airworthiness

- H25.3 (a) *"...aeroplane maintenance manual..."* → AMM, (CMM)...
- H25.3(b)(1) *"... scheduling information..."* → MP (MRBR), (CMM), CMP, CPCP...
- H25.3(b)(2) *"... troubleshooting information..."* → AMM, TSM, FIM, (CMM)...
- H25.3(b)(3) *"... removing and replacing..."* → AMM, (IPC), PBM, SPM...
- H25.3(b)(4) *"... other..."* → AMM, WBM...
- H25.3(c) *"... information needed to gain access..."* → AMM, SRM...
- H25.3(d) *"... special inspection techniques..."* → NDT, (CMM)...
- H25.3(e) *"... protective treatments..."* → AMM, SRM...
- H25.3(f) *"... structural fasteners..."* → AMM, SRM...
- H25.3(g) *"... special tools..."* → GEM, TEM...
- H25.4 *"... airworthiness limitations section..."* → ALS, ALI, SLI, LLP, (CMR), ...
- H25.5 *"... EWIS..."* → EZAP, Load Data, WDM, ESPM...



Compliance Documents

➤ **Manuals, of course, are not produced solely for compliance with the applicable ICA requirement, but for numerous other certification requirements (CS 25 as an example):**

- ✦ CS25.571 *"Damage-tolerance and fatigue evaluation of structure"*
- ✦ CS25.603 *"Materials"*
- ✦ CS25.611 *"Accessibility provisions"*
- ✦ CS25.671 *"Control systems, general"*
- ✦ CS25.933 *"Reversing systems"*
- ✦ CS25.981 *"Fuel tank ignition prevention"*
- ✦ CS25.1155 *"Reverse thrust and propeller pitch settings"*
- ✦ CS25.1309 *"Equipment, systems and installations"*
- ✦ CS25.1519 *"Weight, centre of gravity and weight distribution"*
- ✦ CS25.1719 *"Accessibility Provisions; EWIS"*
- ✦ CS25.1729 *"Instructions for Continued Airworthiness; EWIS"*
- ✦ ...



Items for Consideration

→ ICA as a mean to keep a product "airworthy"

✦ Aspect of "safety"

✦ Aspect of "keeping the design standard"

- Basic regulation (EC) No 216/2008, ANNEX I *"Essential requirements for airworthiness referred to in Article 5"* and 21A.183 *"Issue of certificates of airworthiness"*

- An aircraft is considered airworthy, if it conforms to an approved design, conforms to a certificate that has been issued in accordance with the relevant certification basis

✦ Aspect of "responsibility"



Items for Consideration

- **CS 22.1529 CS 23.1529, ..., CS-VLR 1529 and their related Appendices, AMC material provide details what should be contained in the ICA**
 - ✦ Distinguish “non-mandatory” information, manuals and “mandatory” approved information, Airworthiness Limitations. Refer also to agenda item *“Approval status of ICA- Level of Agency verification/approval ?”*
 - ✦ However leaves room for individual interpretation on the extent when the ICA can be considered “complete”
- **“what” are ICA cannot be a simple tick list of manuals to be produced**
 - ✦ Apart from manuals/sections which are defined by regulation, like the “Airworthiness Limitations”, DAH organize individually their range of manuals.
 - DAH may decide to segregate information dedicated to a specific subject from a principle manual or may have integrated certain information in a principle manual



Items for Consideration

- For different Certification Specifications, the amount of technical publication produced by DAHs deviates significantly



CS25, CS23, C29, CS27, CS-E, CS-APU, CS-VLA, CSVLR, CS22, CS 31HB, CS-P, CS-ETSO



- ✦ in accordance with the technical complexity
- ✦ but also due to different “expectations”
 - ICA, technical publications produced for STCs are also of interest
- ✦ however, regulatory requirements are very similar
- ✦ Status of “voluntarily” produced Manuals
 - ICA status required?
 - “Simple” task may have an airworthiness impact (if incorrectly done), e.g. cleaning tasks
 - May a Manual contain both ICA and not ICA related information?



Items for Consideration

✈️ Operational requirements in relation to maintenance data versus ICA

refer also to agenda item *"Use of ICAs and other maintenance data by operators / MROs"*

- ✦ Certification and operational requirements must fit together
 - maintenance data = ICA or approved data or acceptable data (by administrator) ?
- ✦ Changes introduced (2002 and 2003) in Part M and Part 145 in respect of the definition of *"maintenance data"*, M.A.401, 145.A.45
- ✦ *"Component maintenance"* M.A.502
- ✦ Regulatory differences with the FAA rules

✈️ What are the consequences of Manuals considered not being ICA?

- ✦ 21A.61 *"ICA need to be made available"*
 - refer also to agenda item *"When do ICA need to be available? To whom should ICA be made available?"*
- ✦ What are the operational consequences?
 - refer also to agenda item *"Use of ICAs and other maintenance data by operators / MROs"*



Items for Consideration

→ How can, on operational side, an ICA be identified?

- ✦ No consistent identification (to the operator/MRO) is currently used
 - Use of the TCDS *"Service Documentation"*
 - Use of the statement: *"The technical content of this document is approved under the authority of DOA nr. [EASA]. J. [xyz]."*
 - refer also to agenda item *"Role of DOA and AP-DOA: privileges for ICAs issuance and approval"*
 - Other possibilities to provide a means of ICA identification (to the operational world)?
 - "ICA Marker" / statement / Publications Index
- ✦ "Authorized/Unauthorized" supplier publications
 - see also next topic



Items for Consideration

- ➔ **Technical documentation provided by suppliers for an appliance (without an individual design approval)**
 - ✦ Responsibility of the technical content
 - ✦ Authorization/acknowledgement of these documents
 - Currently not recognized as ICA by DAH
 - ICA status required? Refer also to agenda item *“Use of ICAs and other maintenance data by operators / MROs”*?
 - Which information from the Suppliers is considered ICA and how is it supplied?
 - FAA order 8110.54 and EASA draft ICA checklist state:
 - » ICA: by reference in “top-level” ICA of the DAH
 - » Non-ICA: if “top-level” ICA contain discard/replacement action, only, but, can they then be used for component maintenance, are they maintenance data?
 - Is it then integrated in the DAH ICA or directly supplied by Supplier documentation (as for e.g. in CMM and VSB) ?



Items for Consideration

→ Use of Service documentation (e.g. SB) as ICA or to make ICA available

- ✦ DAH can use their customer service documents as a method of making changes to ICA available and to deliver them in a timely manner
- ✦ Some are used to raise the awareness and summarize/highlight procedures from other manuals, ICA
 - not a “source document”

→ Consideration for harmonization with other regulations, e.g. FAR

Refer also to agenda item *“Coordination / cooperation with other authorities”*

- ✦ Differences should be minimized where possible
- ✦ DAH has to satisfy different “national” regulations
- ✦ Economic impact for the industry, but also for the Authorities
- ✦ Most restrictive regulation has usually to be applied



Items for Consideration

→ Specific Items:

- ✦ The advanced use of electronic data modules which can not necessarily be associated to a “manual organization”
- ✦ Use of Standard Practice Manuals (SPM) as a general answer to comply with the requirements in relation to ICA
 - Inappropriate use of SPM procedures where not applicable **and appropriate**
 - Room for operators’ interpretation
- ✦ The situation of manuals like IPC or IPL part of the ICA
- ✦ Maintenance Planning Document (MPD) and Task Card or Job Instruction Cards (JIC)
 - Are usually generated to provide customized information
 - Usually summarize procedures from other manuals, ICA
 - (not a “source document”)



Summary, Terms of Reference (TOR)

✈️ What is the content of ICA ?

- ✦ Is the definition included in appendix H? Are all definitions provided in regulations consistent ?
- ✦ Does it include CMMs? IPC? Wiring diagram? SB, etc ?
- ✦ How far do ICAs need to be controlled by TC holder/STC holder/TSO holder. Case of the supplier (link with DOA privilege ?)
- ✦ What is the status of maintenance data which is not ICA ?



Open Discussion

Thank you for your attention,

**please place your comments and
questions!**