



## MINUTES OF MEETING

**Subject**

Standard parts in critical installations

**Date**

3 June 2014

**Location**

Youth Hostel Köln-Deutz (across from EASA)  
Room "Barcelona",  
Siegesstr. 5, 50679 Cologne, Germany

**Organised by**

Alain LEROY

EASA Certification Directorate, Head of Products Department

**List of Participants**

|           |   |
|-----------|---|
| Attendees | Aviation Industry: OEM, MRO, operators, suppliers |
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**AGENDA**

1. Welcome and Introduction
2. Occurrences
3. Initiatives with Standard Bodies
4. Parts without EASA Form 1
5. Certification Memorandum (CM) and Continued Airworthiness Review Item (CARI)
6. Conclusion

**Presentations:**

1. Occurrences
2. EASA: An Authority working with Standardisation Bodies
3. Installation of Parts released without an EASA Form1
4. CM and CARI

**MoM Distribution:**

Publication on EASA internet

**Acronyms:**

|      |                                       |
|------|---------------------------------------|
| AD   | - Airworthiness Directive             |
| CAI  | - Certification Action Item           |
| CARI | - Continued Airworthiness Review Item |
| CM   | - Certification Memorandum            |
| CRI  | - Certification Review Item           |
| POA  | - Production Organisation Approval    |
| SIB  | - Safety Information Bulletin         |
| TCH  | - Type Certificate Holder             |
| VLA  | - Very Light Aircraft                 |

## **1. Welcome and Introduction**

*Presented by: Alain LEROY*

EASA is looking towards a more general systematic use of industry standards to be used in the process of demonstrating compliance with EASA regulations and consequently it is important that Standard Parts maintain an acceptable level of integrity, preferably with minimal intervention from EASA. However, if this is not achieved through existing industry processes then EASA will need to be more directly involved in controlling the manufacture and associated quality assurance processes of Standard Parts.

EASA's message to the aerospace community is that it is looking for industry (possibly led by industry groups such as SAE, ASD-STAN and AIA) to find solutions to current issues which are adversely affecting Standard Part integrity. ADs have already been issued and if other unsafe conditions are found to exist then further regulation will be unavoidable.

EASA stressed the two main aspects of this issue which heavily influence each other and should be timely progressed:

- Manufacture supply chain quality assurance and quality control.
- Utilisation of Standard Parts for Critical functions.

FAA and TC participation in this meeting is welcomed as this issue is shared amongst Authorities.

Industry are requested to provide feedback both on the information and proposals presented during the meeting as well as sharing any relevant experience.

## **2. Occurrences**

*Presented by: Lionel TAUSZIG*

Comment: There are problems with obtaining data of fastener reliability (i.e. actual total usage rates) and in cases of incidents involving missing bolts/nuts it can be difficult to identify cause of failure. Therefore sharing the data relating to failed Standard Parts should help industry determine appropriate action.

Another concern is that in the maintenance environment alternative replacement Standard Parts might be easily accessible, so one issue worth considering is that particular usage limitations might not always be observed.

## **3. Initiatives with Standard Bodies**

*Presented by: Eric SIVEL*

Comment: Agreeing and writing industry Standards and compliance to industry Standards are two separate issues. So, EASA should be interested not only in the Standards but also the process leading to certification / declaration of compliance. This should be applied to any aspect of aviation regulation.

Comment / Question: Who verifies compliance with regulations. At present this is done by EASA (and the national competent authorities). However, in the future, though there will continue to be an authority involvement, as Europe moves to a risk based approach not everything will be checked and therefore the industry will need a system to check what isn't checked by the authorities. Accordingly, utilization of ASD CERT / PRI / NADCAP, which already perform this type of function, could become more significant. With respect to Standard Parts, can ASD CERT / PRI / NADCAP expand the scope of their current processes to cover Standard Parts?

Response: Taking the GA road map as an example, we need to make the best use of industry standards and need to show that standards are acceptable. Then EASA should work with industry

to develop a system to ensure that industry has appropriate procedures in place to ensure a satisfactory level of compliance. (This would involve the maximum use of industry standards for simple parts and maybe less for more complex parts and systems.)

Comment: It could be possible for less complex aircraft to rely more on industry Standards. In the US the first step was to reduce the involvement of FAA to allow industry to increase oversight, however, in Europe the amount of regulation is still comparatively high. If EASA allows use of industry Standards but then applies further additional rules for verifying compliance, this could result in a more complex system than what we have currently.

Response: EASA does not want to increase the level of authority involvement for monitoring / controlling this issue and would be happy for industry to organize a method for controlling this situation. However, EASA needs to ensure that industry has appropriate minimum standards and associated methods of inspection. Note: EASA does not currently intend to apply new regulations on GA. This is seen to be primarily a TCH / supplier issue. First EASA wants to find a solution to the supplier issue and would welcome ideas from industry how this can best be achieved.

Question: How should industry handle the situation as detailed in the existing SIB? – A plan is needed to identify what actions are necessary along with an associated method of implementation. Industry need to be able to clearly determine what constitutes a safety significant installation warranting addition action to control Standard Part integrity. A definition should be provided.

Response: This question was not linked to the supply chain. EASA would like TC holders to provide more information on this subject, which could help to define critical installations.

Response: We need to consider further which applications should require a part with POA / Form 1 release and where the use of a Standard Part with simply a Certificate of Conformity would be acceptable.

Question: One concern is that there are already numerous initiatives, however proper definitions of Critical Part and Critical Installation are needed. This lack of clarity is confusing for the industry.

Response: Defining criticality in design is part of a later presentation entitled "*Parts Without EASA Form 1*". It is understood that commercial parts have a different definition in addition to the existing CS definitions for Critical Parts.

Question: Does EASA think that industry is out of control with respect to control and use of Standard Parts?

Response: If there are too many failing parts then this is a question that must be asked. However, EASA would not say that the situation is out of control, more that the control mechanisms in place may need to be more robust.

Question: The problem is not with the Standard but in producing parts which conform with the Standard. How should industry fix this problem? Approving suppliers could be one solution but this is not a top down approach, as proposed by EASA. There is no single solution to the problem and it is not clear how industry can fix this problem globally.

Response: It seems necessary to find a system which can complement what existing OEMs currently carry out. EASA believes that mechanisms already exist and that expansion of the scope of these activities could provide a solution

## LUNCH

#### **4. Parts without EASA Form 1**

*Presented by: Boudewijn DEUSS*

Comment: Thousands of sail planes are produced for which many parts do not need a Form 1. Regarding the new proposed classification system for the criticality of parts, we should consider how the part can be released and also the level of complexity of the aircraft and the way these aircraft are used.

Part 21 states now that the designer will determine the level of criticality. The flexibility offered by the proposed procedure would allow a wider range of system processes for controlling quality of these parts.

Comment: The issues relating to Standard Parts are understood. The short term action is to ensure an acceptable level of conformance of Standard Parts with existing Standards. This presentation seems to be a longer term approach to address this issue.

Also, manufacturers are careful when declaring that something is "critical" as if there is an accident involving the part this might affect liability. (Can be commercially undesirable to identify parts as critical)

#### **5. Certification Memorandum (CM) and Continued Airworthiness Review Item (CARI)**

*Presented by: Richard MINTER*

Comment: The CM is considered guidance to industry with respect to affected requirements like XX.601 and XX.602. The CRIs mentioned in the presentation are "Method Of Compliance" and not Special Conditions.

Question: Sail planes are exempted from the proposed CM. Is this the only category of aircraft which is exempted?

Response: The purpose of the CM is to better clarify the intention of existing regulations like XX.601 and XX.602. Whether the CM can be relaxed for VLA can be considered as part of the method of how the CM will be released and applied.

Question: There is an assumption that information in the Certification Memo is appropriate, however, the concepts of classification are not as familiar for the smaller aircraft industry. Also, though the CARI could be a challenge to the whole industry, it could possibly be disproportionately challenging (burdensome) to the small aircraft industry.

Response: Depending on the final text of the CM, industry actions and current discussions, EASA needs to consider carefully how the CM / CARI could be applied in a proportionate manner, as resource is limited in both industry and EASA.

Question: For engines there is already a critical part definition – however, based on the CM does this mean that nuts and bolts can also become critical parts?

Response: Normally the answer for engines will be no, though some aircraft do currently use standard parts in critical installations.

Question: Will these actions be required by a CRI for new designs and will it also be applied consistently outside Europe? Will CM be a precursor to new rules (i.e. repeated use of CRIs)?

Response: Yes, a CRI or CAI will be used to address the subject and will be applied consistently irrespective of state of design. It may eventually lead to some rulemaking changes, however this may be limited to the AMC and may be different for different products.

Question: It seems that EASA has decided to continue with issue of the CM. As a pre-requisite to this requirement industry need to know what can and what can't be identified as critical? This approach could be difficult when writing manuals. Industry would like assurance that this will be implemented in a rationale and proportionate way. The issue of defective parts is normally addressed via the company's continued airworthiness process, so the quality assurance and quality control of Standard Parts manufacturers needs to be addressed.

Response: EASA believes that the criticality of part function should still be considered when considering the use of Standard Parts. EASA believes that the CM is best solution in short term. Ensuring the parts are meeting the standard is a complementary action.

Question: There are indirect references to defective Standard Parts in the Safety Information Bulletin. On one side some people are worried about Standard Parts, yet there is specific information published by FAA where a particular risk has been identified. Does EASA plan to issue a list of parts where problems have been found or will it take the position that all Standard Parts should be treated as suspect?

Response: EASA will issue ADs where particular safety concerns are identified. EASA understands that reporting may not always occur for low criticality applications. EASA has and will update the SIB with information on significant findings and actions.

Response: EASA is working hard with FAA. We want to make the minimum intervention necessary to achieve an acceptable level of airworthiness. So if there is a lower target risk level, then the criticality will be lower and maybe no EASA involvement is necessary.

Question: How should the CM be implemented for new projects? This is complex as the applicant must consider single load path and multiple load path application with both hazardous and catastrophic effect.

Response: The level of integrity of multiple fastener joints can be less than that of single load path critical parts. The question is what level of reliability is required, and do the QA / QC controls applied to the part achieve the level of reliability necessary for the function of the part identified in the Safety Assessment. In addition, if one fastener is found defective, there is an increased likelihood that other fasteners may also be defective if they are from the same batch. So this dependence needs to be accounted for when considering Common Cause Failures.

Question: A statement was made that "redundancy is not a mitigation". This would be a big problem for existing designs.

Response: When Standard Parts production is poor then redundancy won't necessarily prevent failure. So, if production issues are resolved then redundancy will work more effectively. However, when considering a single load path critical part, a higher level of integrity will generally be required.

Question: Should multiple load path non-fatigue loaded applications still need to be assessed regarding whether Standard Parts are good enough?

Response: Perhaps more guidance is needed for different applications of fasteners. Some particular aircraft types, part applications, Standard Part specifications or manufacturer may represent a higher risk and require different levels of controls to be put in place. (Note: Certain failure modes, e.g. hydrogen embrittlement, are not always dependent on external loading)

## **6. Conclusion**

*Presented by: Alain LEROY*

The primary issue is how to find an effective method to reduce the frequency with which manufacturers manufacture and release parts that do not conform to the appropriate Standards. EASA does not want over-regulate the manufacture and use of Standard Parts and is therefore looking to industry to propose solutions. For actions that EASA needs to take, they should endeavor to be proportionate regarding the airworthiness risk involved.

We can consider that Standard Part quality control is the root cause of this problem and that if industry can improve Standard Part quality control then the problem will be significantly reduced. Once improved Standard Part quality has been achieved EASA will again have confidence in the position of DOA's regarding the safety of particular applications.

However, EASA believes that the issues highlighted regarding both the application of Standard Parts and manufacturing control should be progressed in parallel in order to achieve an effective solution.

The Chair thanked everyone for attending.

The meeting closed at 16:00 hrs on 03/06/2014