# COMMENT RESPONSE DOCUMENT (CRD) TO NOTICE OF PROPOSED AMENDMENT (NPA) 2008-16

**for amending the Executive Director Decision No. 2003/19/RM of 28 November 2003 on acceptable means of compliance and guidance material to Commission Regulation (EC) No 2042/2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks**

***'Fuel Tank Safety'***
***(incorporation of the Critical Design Configuration Control Limitations (CDCCL) into Acceptable Means of Compliance for Part-M, Part-145 and Part-66)***

 

## Explanatory Note

### I. General

1. The purpose of the Notice of Proposed Amendment (NPA) 2008-16, dated 29 May 2008 was to envisage amending Decision 2003/19/RM of the Executive Director of the European Aviation Safety Agency of 28 November 2003[1]. In particular, amendments of the following Annexes of the Decision were envisaged:

   - Annex I to Decision 2003/19/RM - Acceptable Means of Compliance to Part-M
   - Annex II to Decision 2003/19/RM - Acceptable Means of Compliance to Part-145
   - Annex IV to Decision 2003/19/RM - Acceptable Means of Compliance to Part-66

2. This Decision 2003/19/RM had already been modified with Decisions 2007/001/R, 2007/002/R and 2007/003/R[2] of the Agency related to training on Fuel Tank Safety (FTS) following an initial rulemaking task MDM.022. These three Decisions had been subject of concerns in 2007 by stakeholders with some issues particularly on the period of implementation of the training programme. Common views were agreed during a workshop on 23 November 2007[3], especially the proposal of a simpler training programme consisting of a Phase 1 (Awareness training) and a Phase 2 (Detailed training) and implementing dates for each phase.

3. The NPA 2008-16 was published by the Agency to propose new Decisions to cover the issues submitted by the stakeholders during the workshop.

4. A number of 111 comments were received further to the publication of the NPA 2008-16, with some views which go beyond the concerns initially submitted to the Agency. This CRD entails further changes which bring additional practical information for the training for FTS issues.

### II. Consultation

5. The draft Executive Director Decision amending Decision 2003/19/RM was published on the web site (http://www.easa.europa.eu) on 30 May 2008.

   By the closing date of 11 July 2008, the European Aviation Safety Agency ("the Agency") had received 111 comments from 28 National Aviation Authorities, professional organisations and private companies.

### III. Publication of the CRD

6. All comments received have been acknowledged and incorporated into this Comment Response Document (CRD) with the responses of the Agency.

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[1] Decision No 2003/19/RM of the Executive Director of the Agency of 28.11.2003 on acceptable means of compliance and guidance material to Commission Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks. Decision as last amended by Decision 2007/018/R of 18.12.2007.

[2] Decisions 2007/001/R, 2007/002/R and 2007/003/R amending respectively Annex I, II and IV of Decision No 2003/19/RM were published on 13.03.2007 on EASA website, see page Agency Measures – Acceptable Means of Compliance and Guidance Material: http://www.easa.europa.eu/ws_prod/g/rg_amcgm.php

[3] Fuel Tank Safety Training Seminar, 23 November 2007 – Cologne, Germany. See Events web page on EASA web site: http://www.easa.europa.eu/ws_prod/g/g_events.php

7. In responding to comments, a standard terminology has been applied to attest the Agency's acceptance of the comment. This terminology is as follows:

    1. **Accepted** – The comment is agreed by the Agency and any proposed amendment is wholly transferred to the revised text.
    2. **Partially Accepted** – Either the comment is only agreed in part by the Agency, or the comment is agreed by the Agency but any proposed amendment is partially transferred to the revised text.
    3. **Noted** – The comment is acknowledged by the Agency but no change to the existing text is considered necessary.
    4. **Not Accepted** - The comment or proposed amendment is not shared by the Agency

    The resulting text highlights the changes as compared to the current rule.

8. The Agency's Decision will be issued at least two months after the publication of this CRD to allow for any possible reactions of stakeholders regarding possible misunderstandings of the comments received and answers provided. The resulting Decisions will not repeal Decisions 2007/001/R, 2007/002/R and 2007/003/R.

9. Such reactions should be received by the Agency not later than 15 December 2008 and should be submitted using the Comment-Response Tool at http://hub.easa.europa.eu/crt.

## IV. CRD table of comments, responses and resulting text

| (General Comments) | - |
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| comment | *9* comment by: *CAA-Norway*<br><br>The NPA is in general clear and consistent, and will be a good basis for issuing new AMCs to Part-145 and Part-M |
| response | *Noted* |

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| comment | *20* comment by: *soren flensted*<br><br>Dear Sir<br>It should be added that by having attended the courses in accordance with Decisions 2007/001, / 002 or /003 you are also in compliance with this NPA 2008/16 with the exemption of continuation training.<br>Best regards<br>Soren Flensted<br>Flysyn.DK |
| response | *Accepted*<br><br>The text is amended accordingly in both Appendix XII to AMC to Part-M and Appendix IV to AMC to Part-145.<br>Refer to the resulting text in the Appendix B at the end of this CRD. |

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| comment | *70* comment by: *UK CAA*<br><br>**Comment:** It is assumed that all the other changes (over and above those amended by this NPA) to AMC material outlined in Decision Papers 2007/01/R, 2007/02/R & 2007/03/R will be included in the new Decision Papers. On that basis it is recommended that EASA look to provide guidance on compliance times that includes when all the necessary MOE & CAME procedure changes should be accomplished.<br>**Justification:** Failure to do this will provide incomplete guidance.<br>**Proposed Text:** "In addition to the Phase 2 training being carried out all the necessary changes to procedures within the MOE/CAME should be made and implemented by no later than 31 December 2010." |
| response | *Partially accepted*<br><br>Please refer to the answer provided to the comment 75 from the UK CAA regarding the structure of the basic ED Decision 2003/19/RM when amended by ED Decisions.<br>Guidance has been added on compliance times when necessary changes to training programme should be accomplished.<br>However, the competent authorities are in charge of surveying the organisations and their manuals and should specify when these documents should be amended to include the new procedures.<br>Refer also to the answer made to comment 78 from Mr Recchia. |

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| comment | *93* comment by: *CAA-NL*<br><br>General comment.<br>Fuel Tank Safety requires specific attention and therefore specific training. Specific elements should be added to the existing requirements, rather than make new specifications. Requirements for the transition-phase should not remain in force on the long run.<br><br>The approach of fueltank safety training should be identical to the approach of human Factors training. Contents of training required for Part-145 should be identical to the content required by Part-66. Preferably Part-145 should refer to the Part-66 appendices.<br><br>AML-holders can be addressed through the part-66 requirements (appendix I,II and III) and continuation training requirements in 145.A.35 (d)<br><br>Other Part-145 personnel's competency is required through 145.A.30(e). Future AML holders will have received sufficient training as part of their basic training and type training and will not require additional training as per AMC 145.A.30(e). Furthermore future part-147 basic and type training will cover sufficiently the subject. Continuation training will be sufficient for personnel who can demonstrate Part-147 basic knowledge and type training. |
| response | *Partially accepted*<br><br>The subject of Fuel Tank Safety introduces a new concept of CDCCL and as some of these are not maintenance tasks but constraints which need to be respected by the Fuel system when carrying corrective actions, there was a need to explain properly to maintenance personnel.<br>There was no necessity to amend the implementing rules. |

**TITLE PAGE** p. 1

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| comment | *98* comment by: *DGAC France*<br><br>the FRench DGAC has no comment |
| response | *Noted* |

**A. EXPLANATORY NOTE - I. General** p. 3

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| comment | *17* comment by: *Air Berlin*<br><br>We strongly object against these envisaged amendments in total. Amending section 2 material (ED 2007/002/R) which is currently in the phase of being implemented by the affected organisations, is counterproductive, especially if this shall be achieved by other non-binding material. The CDCCL/Fuel Tank Safety issues should be left as they currently are. |
| response | *Not accepted*<br><br>It seems that the initial Decisions 2007/001/R, 2007/002/R and 2007/003/R were not detailed enough on some aspects. The intent of this new NPA is to |

provide some guidance following the concerns raised by NAAs and the Industry following publication of the Agency Decisions on different questions related to aircraft, wording of the Decisions, and training programme. These concerns should be solved with the next Decision. This new NPA does not affect the implementation of the training programme described in the previous Decisions. Having attended the courses in accordance with Decisions 2007/001/R, 2007/002/R or 2007/003/R, you are also in compliance with this NPA 2008-16 with the exception of continuation training.

comment

*18* comment by: *Air Berlin*

Organisations already complying with ED 2007/002/R are being punished by this NPA, as it introduces a number of changes to ED 2007/002/R. Thus, all organisations who already amended their MOE, set up their training schedules and syllabi etc. have to rewrite everything, **AT LEAST** for the changes in wording (for example, "Phase 1" instead of "Level 1" in ED 2007/002/R). On the other hand, hesitant organisations who not yet care about the issue (there are numerous, especially because it's non-binding material) are being rewarded for their behaviour. This will not strengthen acceptance for CDCCL/Fuel Tank Safety at all - it will achieve the opposite. Leave ED 2007/002/R as it is, and rather launch some EASA funded programmes for a better motivation to comply with it (for example, free training).

response

*Partially accepted*

Your comment is correct on the impact on MOE with regard to the description of the training in the MOE. However, the change on the training programme would be minor and could be approved in the MOE by an indirect approval, as provided by 145.A.70(c) and included at next amendment in the exposition.
The "hesitant organisations" which did not carry out the mentioned training programme on CDCCL are not complying with AMC in 145.A.30(e) and 145.A.35(e).
For a good understanding of the principle of an amending decision, please refer to the answer to comment 75 from the UK CAA.
Refer to the resulting text in the Appendix B at the end of this CRD.

**A. EXPLANATORY NOTE - III. Comment response document** p. 4

comment

*42* comment by: *CAA-NL*

Page 4
9
This NPA differs in many details from agreed outcome of the workshop mentioned.
E.g. requirements training NAA, Requirement examination, unchanged basic knowledge requirements etc.
Detailed information is given in the rest of our comments.

Page 4
9
Comments: ‘add concept of FTS definition + CDCCL and limitations in:

- - module 7 maintenance practices

- - model 11 A turbine aeroplanes structures and systems'

Justification: During the workshop mentioned, implementation of FTS in the basic knowledge requirements (Appendix I to Part 66) was discussed. Changes were recommended to Module 7 and Module11. These changes are not incorporated in this NPA. Only by implementing FTS to basic knowledge requirements future technicians are trained on the subjects.

response

*Partially accepted*

With regard to the different comments made:
- training to NAA: the training to the NAA personnel has been modified in order to ask only level 1;
- requirement to an examination: it is right that this was not discussed in the workshop, however, it is needed to achieve the standard of Part-66 on basic knowledge requirements;
- unchanged basic knowledge requirement: the basic knowledge is not changed, because the Agency will introduce in Part-66 at the first opportunity a requirement on basic knowledge, this was proposed by stakeholders and agreed by the Agency;
- addition of changes to modules 7 and 11A: as explained in the previous paragraph of this answer, the Agency plans to introduce such changes together with the Opinion on Part-66 further to the NPA 2007-07.

comment

*75* comment by: *UK CAA*

**Paragraph:** 9
**Page:** 4 of 15
**Comment:** States: 'The agency shall have new decisions superseding the current ones'.
The new decisions do not include as much information as the old ones. An example being 2007/002/R has amendments to AMC 145.A.30 (e) and AMC.145.A.65(b)3. These paragraphs contain good information that has not been included in the new decisions.

response

*Not accepted*

An amending act (i.e. this proposed Decision) does not repeal the original Decision. The new Decision will amend, delete or introduce new text to the Decision 2003/19/RM as last amended (including text introduced to the Decision by way of subsequent amendments). The result is that when a paragraph is not the subject of an amendment, it is not included in the amending act and consequently remains in force unaltered. As AMC 145.A.30 (e) and AMC.145.A.65(b)3 are not subject to amendments they are not mentioned. If, however, a paragraph is amended, for the purposes of clarity, the text to be replaced or deleted would be indicated in strike through, while the text replacing it would be indicated in highlight.

**A. EXPLANATORY NOTE - IV.Content of the draft decision** p. 4-5

comment

*1* comment by: *Francis Fagegaltier Services*

According to CS-E 25 (b)(2), the airworthiness limitations section must also prescribe the mandatory post-flight inspections and maintenance actions associated with any use of either the rated 30-Second OEI or 2-Minute OEI

Power. This seems to be similar to the concept of CDCCL being part of the airworthiness limitations. Similar also to the CS-E 25 (b) sentence on critical parts (« For Engine Critical Parts, this section must also include any mandatory action or limitation for in-service maintenance and repair identified in the Service Management Plan required under CS-E 515. »).

One could wonder why emphasis is placed on CDCCL in Part M / 145 / 66 and not on these engine cases.

response *Noted*

The subject of Fuel Tank Safety introduces a new concept of CDCCL and as some of these are not maintenance tasks but constraints which need to be respected by the Fuel system when carrying corrective actions, there was a need to explain properly to maintenance personnel.

comment *2* comment by: *Francis Fagegaltier Services*

It is noted that to place CDCCL in the airworthiness limitations makes them part of the type design (21A.31 (a)(3)). This implies that any change to CDCCL is approved according to subpart D or E of Part 21. Is this the intent ?

response *Accepted*

Yes, any applicant to a change to CDCCL is considered as a change to design and as a consequence should follow Part-21 subpart D or E.

comment *84* comment by: *Lufthansa Technik AG*

CDCCL and FTS is not planned to be mentionend in Part-145 like this is done with Human Factors and Continuation Training issues. Unless this is not performed legal problems might occur and no level playing filed within EASA countries is given.

response *Not accepted*

The opinion of the Agency is that there is no need to introduce standards of training for CDCCL at the level of the law (in Part-145). The airworthiness limitations linked to CDCCL are however introduced by the TC holders themselves in their maintenance documents, which have to be complied with. Airworthiness Directives have also been issued in some cases by the Agency to enforce the integrity of design aspects.

**A. EXPLANATORY NOTE - V. Regulatory Impact Assessment (RIA)** p. 5

comment *43* comment by: *CAA-NL*

Page 5
V. Regulatory Impact Assessment.
Reference to NPA 22-2005 is made in this para. In NPA 22-2005 the economic impact is considered limited. Is limited the right definition taking into consideration the training costs for all staff of organisations and NAA's?

response *Partially accepted*

The economical aspect of providing training to maintenance and CAMO

organisations is not negligible. However the impact of level 1 training can be considered as limited because it is very short. The level 2 training should be part of the continuing training which is already planned by organisations. The global impact is not very important with regard to the safety aspects.

**B. DRAFT DECISIONS - I. Draft Decision on Annex I - AMC to Part-M - AMC M.A.301-5 Continuing Airworthiness Tasks** p. 6

comment

*39* comment by: *Airbus*

Attachment #1

It is suggested to change the text in AMC M.A.301-5 as follows:

Any other continued airworthiness requirement made mandatory by the Agency include TC related Airworthiness Limitations such as: Certification Maintenance Requirements (CMR), Safe Life and Damage Tolerant Airworthiness Limitation Items (ALI) and Fuel Tank System ALI (including Critical Design Configuration Control Limitations -CDCCL)

**JUSTIFICATION:**

1) Following Apx H para 25.4 revision to require identification of fuel tank system limitations, the concept of 'Airworthiness Limitations' is no longer restricted to structural limitations. It is thus necessary to recognize that 'ALI' is a generic term and therefore specific terminology must be used if one or more groups of 'ALI' are to be mentioned. Although 'CMRs' are not officially 'ALIs' (since they have not yet been introduced in Apx H, para 25.4) they are generally considered as Airworthiness Limitations and can be listed with other groups.

To support this rationale, the text is modified to clarify the three groups of ALIs - Safe Life ALIs (corresponding to 'certification life limited parts'), Damage Tolerant ALIs (corresponding to Airworthiness Limitation Items) and Fuel Tank System ALIs.

2) The original text proposal fails to recognize that all limitations arising from Fuel Tank Safety requirements are ALIs. There are two groups of ALI. The first (for which no abbreviation has been developed) are the 'Maintenance and Inspection instructions' and the second are the 'CDCCLs'. Both are ALIs and thus it is incorrect (and misleading) to write '(ALIs, CDCCLs)'.

The flow chart in Appendix C to "Guidance on EASA Fuel Tank Safety Letter", boxes 1.4, 1.4.1 and 1.4.2, indicates that
CDCCLs are ALIs. See attached file.

response

*Partially accepted*

The Agency agrees with the proposal, except that the text in AMC M.A.201(h) and M.A.301-5 makes reference to airworthiness limitations contained in CS-25 Book 1, Appendix H, § H25.1.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*85* comment by: *Lufthansa Technik AG*

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| | As now is clear stated, CDCCL is nothing else than any ALI, why not handling CDCCL items like this ? Why focusing so much on this subject resulting in giving personal involved possibly the feeling other also critical tasks might not that worthy. |
| response | *Accepted*<br><br>Refer to the answer made to the Airbus comment No.39 here above. |

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| comment | *102* comment by: *UK CAA*<br><br>Reference is made to Critical Design Configuration Control Limitations, whereas these are Fuel System ALIs , they are not 'tasks'.<br>Reference to "Airworthiness Limitation Items" should be to "Fuel System Airworthiness Limitation Items". Fuel System Airworthiness Limitation Items include two forms of ALIs which should be defined ie ALIs have the form of a scheduled task (eg inspection and rectification) and CDCCLs are defined safety critical features of the fuel system that must be maintained during maintenance, modification or repair action. It is not clear from this section which aspects of Fuel System ALIs need to be included in the mandatory continued airworthiness requirements.<br>Reference should be made to TGL 47 as, apart from the FAA regulations, as far as we are aware no other EASA/JAA definition for FS ALIs and CDCCLs exists other than within this TGL. |
| response | *Accepted*<br><br>Refer to the answer made to the Airbus comment No.39 here above. |

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| resulting text | *Refer to the resulting text in the Appendix B at the end of this CRD.* |

**B. DRAFT DECISIONS - I. Draft Decision on Annex I - AMC to Part-M - AMC M.A.704 Continuing airworthiness management exposition** p. 6-7

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| comment | *86* comment by: *Lufthansa Technik AG*<br><br>Not agreed. Not value added in adding CDCCL related statement to the CAME. Maintenance Data already include reference to CDCCL's, personal has to be properly trained to any of their tasks and kept uptodate according to existing regulations. |
| response | *Noted*<br><br>It is the opinion of the Agency that it was necessary to provide training also to personnel of CAMO organisations. |

**B. DRAFT DECISIONS - I. Draft Decision on Annex I - AMC to Part-M - AMC M.A.706(f) Personnel requirements - Appendix XII to AMC to M.A.706(f) and M.B.102(c)** p. 8-10

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| comment | *3* comment by: *Swedish Civil Aviation Authority (Luftfartsstyrelsen)* |

Appendix XII to AMC to M.A.706(f) and M.B.102(c) and Appendix IV to AMC 145.A.30(e) and 145.B.10(3)

Phase 2- Detailed training requires a written exam at the end.

It will create an administrative burden, especially for small organisations, to keep, vary and up-date a written exam.

response

*Partially accepted*

The examination at the end of phase 2 training is required to be in line with the standard of Part-66. The number of questions remains open, however the essential elements of the phase 2 course should be covered. It should not imply additional burden to training centres.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*4* comment by: *LRY*

response

*Noted*

It seems that the lack of comment is a mistyping.

comment

*6* comment by: *LRY*

2) phase 2 detailed training

type: .....a multi choise question with ~~four~~ **three** alternative answers,and the pass mark of the examination should be 75%

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

comment

*8* comment by: *CAA-Norway*

2) Phase 2- Detailed training
The examination shall have multiple choice questions with **four** alteranative answers.

This is not to the standard of basic and type training where there is three alternative answers.
Change to three alternative answers

response

*Not accepted*

It is the Agency position that the future Question Central Bank (QCB) built by the Agency for Part-66 will include 4 answers to each question instead of 3 currently. This is the result of a study made by the Agency to build a QCB. The number of 4 answers is selected to minimise the guessing factor.

comment

*10* comment by: *AEA*

**Section:**

This comment applies to several sections
Appendix XII to AMC to M.A.706(f) and M.B.102(c) -
D)General REquirements of Training Courses
3)Continuation Training

and

Appendix IV to AMC 145.A.30(e) and 145.B.10(3)
D)General REquirements of Training Courses
3)Continuation Training
**Comment:**
For level 1 and 2 training, the type and level of training (e-training or classroom-training) is specified, but nothing is said regarding the level of Continuation Training: shall it be given as computer based package as Phase 1 training, or must be given in "appropriate facilities" by an instructor similar to phase 2?
**Proposal:**
Guidelines about the type and level of continuation training are welcomed

response

*Accepted*

Additional instructions for the continuation training are added with regard to the conditions for imparting the course.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*12* comment by: *Gian Andrea Bandieri*

In my opinion the intention to require that awareness training on CDCCL is given to the Accountable Manager of Part 145 AMOs and Part M/G CAMOs is too strong and in some way obliging the AM to spend time on issues that should be dealt with by people at more technical level.
I think that CDCCL training is essentially of technical nature and should be given only to persons playing an active technical role within the organisation. And the Accountable Manager is not among them.
I therefore would like to suggest to cancel the requirement to give CDCCL training to the Accountable Manager

response

*Not accepted*

The regulation already requires that the accountable manager (AM) should be able to demonstrate a basic understanding of Part-145.
Regarding the phase 1 course, it is stated that the course: "Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self study or informative session".
The Agency feels that the level 1 course is well adapted to the AM to get the basic knowledge on CDCCL.

comment

*14* comment by: *Patrick Nocaudie*

In the Appendix XII / Phase 2 / Detailed Training:

In order to be standard with the part 66 type training examination, proposal to limit the number of alternative answers at three (3) instead of four (4)

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

comment

*27* comment by: *Bastian Wroblewski*

Type: Should be a more in-depth internal and external course imparted by an 147 organisation. It should not take ...
An examination sould be required at the end, which should be in form of a mult choice question in english, closed book and with three alternative answers. The pass mark of the examination is 75%. A certificat will be issued.

response

*Not accepted*

It is not required to have such course imparted by a Part-147 approved organisation. The maintenance organisations and the CAMO are usually able to set and provide such course.
However when they feel that it is too demanding, the Agency has no objection that Part-147 organisations or other organisations provide the trainings.
Each organisation may build the course and set the examination in their national language.
Regarding the number of questions, refer to the answer made to the CAA of Norway in comment No.8.

comment

*40* comment by: *Airbus*

Para D)2). Objective 1:

1) Is JAA TGL 47 still considered as a valid document and is it still readily available from either JAA or EASA website?
Suggest replacement of 'JAA Temporary Guidance Leaflet TGL 47' by the reference of the EASA guidance material provided to TC Holders in place of the earlier TGL.

2) Replace '...the concept of Critical Design Configuration Control Limitations CDCCL, Airworthiness Limitation Items (ALI) and using...' by
'... the concept of Fuel tank system Airworthiness Limitation Items (ALI), including Critical Design Configuration Control Limitations (CDCCL) and using...'

**JUSTIFICATION:**

1) TC Holders were required to comply with a specific EASA Fuel Tank Safety Letter that included the intent of the TGL as an attachment titled 'Guidance on EASA Fuel Tank Safety letter (INT/POL/25/12) and its implementation'. This attachment included an Appendix A, B and C which are equivalent to the Appendices in TGL 47.
It would seem logical that any required training is based on the same EASA documentation used by the TC Holders to develop the ICAs.

2) CDCCLs <u>are</u> ALIs. The way it is written in the proposal suggests that either CDCCLs represent 100% of FTS ALIs or that CDCCLs are different from ALIs - both are incorrect interpretations. Fuel tank system ALIs also include 'Maintenance and Inspection Instructions' and presumably the concept of these has to be understood as well.

response

*Noted*

The TGL 47 was published by the Central JAA in 2003 regarding Guidance on interim policy for Fuel Tank Safety.
Today we do not consider it anymore as valid, the instructions have been taken over by:
- measures recommended to TC Holders to issue modifications on standards of aircraft where unsafe conditions have been identified,
- related airworthiness directives,
- EC amendment 707/2006 to amend EC regulation 2042/2003 for operators to make periodic reviews of the maintenance programme to introduce TC holders instructions
- ED Decisions published to issue instructions for training needs to CAMO and operators.
However the TGL 47 and the accompanying "EASA statement policy on the process of developing instructions for maintenance and inspection of Fuel Tank systems ignition source prevention" resumes the whole policy for FTS.

Regarding the comment related to "the concept of Critical Design Configuration Control Limitations CDCCL, Airworthiness Limitation Items (ALI)", this has been taken on board and we suggest to refer to the answer provided by the Agency to comment No. 39

comment

*44* comment by: *CAA-NL*

Page 8
C, Phase 1 + Phase 2 Continuation training.

Comments: NAA personnel involved in oversight should be trained Phase 1 +2 +CT. This seems a good requirement for ARC Inspection staff, but a rather high requirement for staff involved in oversight of MAG organisations.
Phase 2 +CT training could be deleted for NAA staff other than those involved in ARC inspection staff. Phase 1 training is sufficient for staff involved in oversight of organisations.

Justification: Decisions 2007/001, 002: qualification of NAA inspectors was limited to level 1 knowledge only. This was sufficient for NAA- NL.

response

*Accepted*

The requirement for phase 2 training for the NAA is removed.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*45* comment by: *CAA-NL*

Page 9
2) Phase 2 detailed training.

Comments: Having access to aircraft or components seems a rather stringent requirement. Could be deleted from text.
Comment: 'The training should be made in appropriate facilities. Examples of components, systems and parts affected by Fuel Tank Safety (FTS) issues or having access to aircraft or component where typical examples of FTS issues can be shown or the use of pictures, films and practical examples of the maintenance on fuel tank system is recommended.'

Justification: flexibility for the training organisation and a good instruction film

can be more effective than inspecting a used fuel tank.

The training should include....

Comments: Replace *number of repairs* by FTS AD's and modifications.This could be done in a theoretical manner or at least '**sufficient**' manner.
Ad's and modification give a better understanding on fuel tank safety related things than repairs.
'The training should include a representative number of repairs and inspections as required by the AD's and M.A302 maintenance programme showing the necessity of using the manufacturer's data.'

Justification: AD's deals with mod's and repairs and maintenance programs only with inspection.

response

*Accepted*

The "access to aircraft and components to show CDCCL" can reasonably be replaced by a film only when such film is representative of typical default of CDCCL items. The difficulty of the proposal is the availability of such film. However, the AMC has been enlarged to introduce such flexibility.
The "representative number of repairs and inspections as required by M.A.302 ..." is replaced by a "representative number of defaults and associated repairs as required by the TC holder's maintenance data".
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*48* comment by: *Belgian Civil Aviation Authorities*

Regarding the training for the involved personnel of the competent authorities, the Belgian Civil Aviation Authority has followed the actual Fuel Tank Safety course level 1, given by EASA. Its opinion is that this training is meeting the training requirements for performing the airworthiness survey activities of a competent authority.

The detailed training with examination as foreseen in this NPA, is not adapted with regard to the role and the survey tasks performed by the competent authority. Airworthiness surveyors of a competent authority are not maintenance performers and therefore not fully aircraft type rated.

Therefore the Belgian CAA does not agree with the paragraph C) in the proposal providing Phase 1 + Phase 2 training to competent authority personnel, and requests to maintain the level of training as provided by the actual DECISION No 2007/001/R.

response

*Accepted*

The requirement for phase 2 training for the NAA has been removed.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*50* comment by: *AEA*

**Comment**: The 'accountable manager' is required to receive training. It would make more sense that this requirement applies to the Maintenance Postholder only. In the case of Operations & Maintenance the accountable manager is normally a non-technically oriented person. Hence it is recommended that the text 'accountable manager' is replaced with the text 'maintenance potholder'.

**Proposal**: Replace 'accountable manager' with 'maintenance postholder'.

response

*Not accepted*

"All M.A. Subpart G personnel involved in the management and review of the continuing airworthiness of aircraft" is the definition of affected personnel in the modified decisions. Therefore this definition includes the nominated post-holder in M.A.706(b), and the personnel under his responsibility who are in charge of the management and the review of CA.
With regard to the comment on the "Accountable manager", please refer to the answer provided to the comment No.12.

comment

*51* comment by: *AEA*

**Section**: App XII to AMC to M.A 706(f) and M.B.102(c ), F) Approval of training. And similar text in the Appendix to AMC.A30 (e) and 145.B.10(3).
**Comment**: The extent of detail required in the CAME for approval of training need to be clarified. A 'syllabus' should be enough for approval proposes. Recommend the following text: 'For M.A. Subpart G approved organisations the training syllabus for initial and continuation training of personnel is part of the CAME and should be approved through an amendment of this manual.'
This also applies to the similar text in the Appendix to AMC.A30 (e) and 145.B.10(3).

**Proposal**: Change the paragraph as follows
'For M.A. Subpart G approved organisations the training syllabus for initial and continuation training of personnel is part of the CAME and should be approved through an amendment of this manual.'

response

*Partially accepted*

The sentence is clarified to state:

For M.A. Subpart G approved organisations the approval of the initial and continuation training programme can be achieved by the change of the CAME exposition. The change of the CAME could be approved through an indirect procedure as provided by M.A. 704(b).

comment

*52* comment by: *AEA*

**Relevant Text:** *Should be a more in-depth internal or external course imparted by an instructor*. (page 9)
**Comment**: Training should not be limited to instructor training, operators may choose to develop / have already developed an electronic form of learning - this should not be ruled out. This is particularly relevant for recurrent training.
It is wholly unnecessary in this day and age to require Overseas Based personnel to come to the main training school to receive training delivered by an instructor which will be, in practical terms, little more than hand outs and Powerpoint presentations. There should be scope for on line or distance learning packages to be approved to satisfy this requirement. Organisations like the Open University provide in depth training on complex issues without the need for compulsory classroom attendance. Post course examinations can be administered on line, and training record can be established.

**Proposal**: Replace the words "....imparted by an instructor" with the words "....delivered by formal classroom instruction or if that is operationally

impractical by a controlled distance learning package approved for the purpose by the Competent Authority".

response

*Accepted*

The option of attending the course at distance with a film has been added.

The "access to aircraft and components to show CDCCL" can reasonably be replaced by a film only when such film is representative of typical default of CDCCL items. The AMC has been amended to introduce such flexibility.

comment

*53* comment by: *AEA*

**Relevant Text:** The training should be made in appropriate facilities containing examples of components, systems and parts affected by Fuel Tank Safety (FTS) issues and having access to aircraft or component where typical examples of FTS issues can be shown. The use of pictures, films and practical examples of the maintenance on fuel tank system is recommended.
**Comment**: Not all operators will have access to relevant components and it is impractical to assume that aircraft will be available for inspection to show typical examples as most affected items are in highly inaccessible parts of the aircraft, which would only be available on heavy D check maintenance. It is too costly to have an aircraft sitting on the ground just for the purposes of training, and any FTS issues may require entry into the tanks to view. In addition there would be an adverse safety effect in using these areas as examples for training by introducing the additional possibility of disturbance to a CDCCL. Pictures and text should be sufficient as examples.

**Proposal**: Amend this paragraph to remove reference to access to aircraft and component and include; 'examples could be shown by pictures and text'.

response

*Accepted*

The "access to aircraft and components to show CDCCL" can reasonably be replaced by a film only when such film is representative of typical default of CDCCL items

Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*54* comment by: *AEA*

**Section**: Appendix XII 2) Phase 2 Detailed training and Appendix IV.
**Page**: 10 and 14

**Relevant Text:** E) Guidelines for preparing the content of Phase 1 and Phase 2 courses.

**Comment**: The guidelines presented below this heading is too detailed for phase 1 'Awareness' training. Guidelines for content of phase 1 and 2 must be separate. The commenter suggests that this section is limited to phase 2, phase 1 guidelines are covered by D) General requirements of the training courses.

**Proposal**: Change header to; 'E) Guidelines for preparing the content of Phase 2 course.'

response

*Accepted*

The guidelines for preparing the content of phase 1 and phase 2 courses are separated in two different paragraphs.

comment

*55* comment by: *AEA*

**Section**: Appendix XII 2) Phase 2 Detailed training & Appendix IV
**Page**: 10 & 14
**Relevant Text:** SFAR 88 of the FAA and JAA Internal Policy INT POL 25/12: reason of these documents, and what was the ultimate goal, margins of fuel system safety improvements (from 10-6 to 10-9, in fact improvement by a factor 100- 1000, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance).
**Comment**: The safety figures shown in brackets derived from the FAA commissioned Sandia report are unsubstantiated and should be removed. Comment also applies to page 14.
**Proposal**: Replace text with; 'SFAR 88 of the FAA and JAA Internal Policy INT POL 25/12: ignition prevention program initiatives and goals; to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance.'

response

*Accepted*

Text of paragraph E) Guidelines for preparing the content of Phase 2 courses is modified to include:
SFAR 88 of the FAA and JAA Internal Policy INT POL 25/12: ignition prevention program initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve Fuel Tank maintenance.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*56* comment by: *AEA*

**Relevant Text**: E) Guidelines for preparing the content of Phase 1 and Phase 2 courses. vii) Flammability reduction systems: reason for their presence, their effects, the hazards of an Flammability Reduction System (FRS) using nitrogen for maintenance, safety precautions in maintenance/working with an FRS.

**Comment**: There are very few flammability reduction systems operating in Europe, this section is only relevant to operators that have aircraft with the system installed. Training on the use of this system should be bespoke and provided when the system is installed. Comment also applies to appendix IV page 14.

**Proposal**: Remove the requirement to provide training on FRM and use of nitrogen. Make the delivery of training regarding NGS systems optional to be included as and when NGS systems are installed.

response

*Accepted*

The text is modified accordingly by replacing the word "know" by "be informed" in the objectives.

comment

*71* comment by: *UK CAA*

**Paragraph:** Appendix XII to AMC M.A.706(f) and M.B.102(c)

**Page No:** 8 of 15
**Comment:** It is noted that competent authority staff will now have to complete Phase 2 and continuation training.
**Justification:** It is not clear what has driven this change when industry management and quality assurance staff are still only to undertake Phase 1 training. This appears to be an inconsistent approach.

response

*Accepted*

The requirement for national authorities to attend the 2 course has been removed. Only phase 1 would be required.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*73* comment by: *UK CAA*

**Paragraph:** Appendix XII
**Page No:** 8 of 9
**Comment:** No timescale proposed for phase 1 training.
**Justification:** New post holders may not have received any training.
**Proposed Text:** Staff that have not received phase 1 training should have completed it within six months of joining the organisation.(Similar timescales should be presented to phase 2 after the required implementation date).

response

*Accepted*

The period for attending the course for newly employed personnel has been added.

comment

*76* comment by: *Austro Control GmbH*

Appendix XII to AMC M.A.706 (f) and M.B.102 (c)

C) Persons from affected organisations who should receive training:

Delete the point with the authority personal

Justification:

In the Decision 2007/002/R, and 2007/003/R is training for NAA personal on a level 1 requested. The NPA requires training on Phase 1 and Phase 2 and continuation training. This is not necessary and the existing Part M Section M.B. 102 (c) Point 1.6 and 1.7 are sufficient. Technical training has never before been mentioned in such detail. If this tendency will be continued, the next steps will be to mention all the Part 66 modules or NDT, ETOPS, Icing, Reliability, etc...

Phase 1 is sufficient for authority personal.

response

*Accepted*

The phase 2 course for the national authorities has been removed.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*78* comment by: *RECCHIA Giuseppe Guido*

**Appendix XII to AMC to M.A.706(f) and M.B.102(c) and Appendix IV to**

**AMC 145.A.30(e) and 145.B.10(3)**

**Paragraph C Phase 1 + Phase 2 + Continuation training**

Competent authority personnel have been added among personnel for which Phase 2 + Continuation training is requested. This change was neither discussed nor agreed during the November, 07 workshop in EASA. As a matter of fact both the Rulemaking Directorate JAN/YMO/ime/R(4) 2008(D)50001 letter circulated on January 2008 and workshop conclusion material were not mentioning any change in respect of authority personnel training requirements. In addition practical elements requested under the Phase 2 Training seems not to be pertinent with the role of authority personnel in respect of the FTS issues and training requirements for NAA should not be more demanding than that required for AMO's quality staff. Awareness phase I Training provided by EASA Approval and Standardisation Directorate to the Authorities (we could say indeed "advanced" Awareness phase I Training i.e. phase II without practical elements) may be considered as providing an adequate level of knowledge on the subject in respect of Authority personnel. Continuation training may be satisfied through self study activities.

**Paragraph D Phase 2 Detailed Training**

This section does not provide guidelines on the expected acceptable duration (in terms of an acceptable range) of the training course complying with objectives and contents laid down in the appendixes. EASA was strongly requested during November 07 workshop in EASA to provide this information by both authority and operator side. This to facilitate standardization and to avoid lengthy discussions with AMO's on the subject (e.g. we have already received proposals by AMOs about level 2 courses of only 4 hours total duration and others even with shorter duration, while other training sources available on the market are providing phase 2 trainings up to two days duration). A possible additional contributing factor to this wide range of proposals may be not to have in the AMC a very detailed syllabus for the phase II training: such a detailed training syllabus should minimise discussions providing a more objective reference in preparing training material.

Standard duration of training courses is a sensitive issue to the extent that, even for training activities which could have been considered as well consolidated since years in EU environment EASA has decided to provide details on expected standard durations (refer to NPA 2007-007): therefore it appears opportune that similar information be also provided for new training requirements on a new subject, training which seems to be considered a contributing elective factor to "*prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection*"

It should be taken into account that duration of the training is a parameter which have a significant impact on:

1. Planning of the training (the longer is the training session duration the longer is the period of time in which all the interested personnel receive the requested phase II training: for large organization this may also have an impact on the capability to comply with ultimate date of December 2010)
2. Training (direct and indirect) costs and operations, in particular for large organization (the longer is the training session duration the higher are direct and indirect costs and operational impacts to be afforded to ensure that the all the interested personnel receive the requested phase

II training)

This situation is sharpened by the fact that the expected support by aircraft manufacturer (strongly recommended by EASA) in providing or preparing such a training material is still missing.

**Paragraph F - Approval of training**
During the workshop it was stated that training courses need not be approved by the NAA even though both the Rulemaking Directorate JAN/YMO/ime/R(4) 2008(D)50001 letter and the NPA at issued is saying that those training are approved through the revision of MOE. Therefore we believe that *details on the type of information related to FTS training to be provided in the MOE* are to be specified in the AMC material otherwise the two statements (workshop conclusions and NPA contents) appears to be potentially in conflict.

response

*Partially accepted*

The requirement for phase 2 training to the authority has been removed.
It has been added that the continuation training may be attended similarly than the phase 2 training. Refer to final text in the Decision.

Guidance for the duration of phase 2 course has also been added.

Additional instructions are provided on how the courses can be approved by making reference to the amendment of the syllabus of training in the expositions.
The information provided during the workshop stating that the content of the training programme does not need to be "directly" approved by the authorities, remains correct, because the approval could be done through an amendment of the MOE, as said in the letter of the Agency to the NAAs. This amendment to the MOE can be done by an amendment to the training programme and this could be approved in the MOE through indirect approval.

Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*80* comment by: *Fredrik Lubbe Lundberg*

Why shall there be four alternative answers on the examination when we are using three alternatives on examinations in Part-66 and Part-147?

response

*Noted*

Refer to the answer made to the CAA of Norway in comment No.8.

comment

*81* comment by: *Fredrik Lubbe Lundberg*

When doing the Phase 2 (detailed training) who can be an instructor? Where can the instructor have his/her training?

response

*Noted*

Criteria for the instructor have been added in paragraph Level of Phase 2.

comment

*82* comment by: *Walter Gessky*

Appendix XII to AMC M.A.706 (f) and M.B.102 (c)

Delete the point with the authority personal
C) Persons from affected organisations who should receive training:
Phase 1 + Phase 2 + Continuation training:

- All M.A. Subpart G personnel involved in the management and review of the continuing airworthiness of aircraft specified in paragraph A);

- ~~All competent authority personnel involved in the oversight of aircraft specified in paragraph A) and in the oversight of M.A. Subpart G organisations specified in paragraph B).~~

**Justification:**
In the Decision 2007/002/R, and 2007/003/R level 1 training for NAA personal is requested. The NPA requires training in Phase 1 and Phase 2 and continuation training.
Part M Section M.B. 102 (c) Point 1.6 and 1.7 regulates the authority staff training sufficiently and fuel tank safety has to be included in the trainings schedule. Technical training has never before been regulated in such a detail.

response

*Accepted*

The paragraph requiring the competent authority to attend the phase 2 training has been removed.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*87* comment by: *Lufthansa Technik AG*

concerning C): The M.A. subpart G personnel should be put under Phase 1 Awareness training. This would be adequate and levelled to other critical task training.

concerning D) 3):no continuation training for M.A. subpart G personnel required (see above).
No reference in the CAME necessary.

concerning F) no approval specifically for CDCCL training by amending the CAME necessary. Training of relevant personnel will include CDCCL issues like many other issues.

response

*Partially accepted*

The M.A. Subpart-G personnel is already mentioned in C) which requires them to attend the Phase 1 + Phase 2 + Continuation training.

This paragraph does not introduce a new concept of continuation training, as a recurrent training is already mentioned in the Appendix VI to AMC M.A.704 CAME (ref to the Training policy in 0.3 Management of personnel).

The paragraph related to the approval of the training programme in F) has been modified.

Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*94* comment by: *CAA-NL*

Page 8 and page 12 A)
EC 2042/2003 uses a slightly different definition of **"Large Aircraft"** form

decision 2003/11/RM's definition of "**large Aeroplanes**", this is confusing.

Describing the affected aircraft should be based on the 2042 definition.

Suggest to either

- extend the applicability to all "large aircraft" as defined in 2042 (>5700 + multi-engined helicopters) or
- start with "large aircraft" and exclude some: "large aircraft excluding helicopters, commuter aeroplanes and aeroplanes with less than 30 passengers or payload of less then 3402 kg (7500 lbs)".

As reminder the definitions are:
**2042/2004**: '**large aircraft'** means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5 700 kg, or
a multi-engined helicopter.

**2003/11/RM**: **'Large aeroplane'** means an aeroplane of more than 5700 kg (12 500 pounds) maximum certificated take-off weight. The category 'Large Aeroplane' does not include the commuter aeroplane category (For commuter aeroplane category, see CS 23.1 and CS 23.3).

response

*Not accepted*

This definition based on aeroplanes as defined per Decision 2003/11/RM still fits, the Agency sees no reason to modify it.
A definition based on aircraft as per 2042/2003 would be more complicated.
The effectivity of helicopters is unchanged: helicopters are not affected.

To be noted: the definition of aeroplane effectivity has been modified to include in addition to the previous definition:

- ...
- Large aeroplanes (CS-25) as defined in Decision 2003/11/RM of the Executive Director of the Agency which refer to CS-25 at amendment 2 or later in their certification basis.

comment

*95* comment by: *CAA-NL*

Page 9 and 13 2) give details on the training and the examination. Part-66 and Part-147 give detailed requirements for training and examination. Where possible Part-145 AMC should refer to these requirements and only deviate from it with good reason (and explanation).

E.g. Part-66 Appendix II and III give examination standards: three alternatives and 75% pass mark. This NPA uses four alternatives, which makes it harder to achieve 75%.

Propose to refer to Part-66 and 147 for training and examination standards or at least require three alternatives instead of four.

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

It is the number of questions which is calculated to achieve the score of 75%, not the number of answers in each question.

comment

*96* comment by: *CAA-NL*

Page 10 and 14 3) require continuation training at **"intervals of two years".** To be consistent with part-145.A.35 (d) the continuation training should be required in "**each two years period**".

response

*Accepted*

Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*101* comment by: *Transport Canada Civil Aviation Standards Branch*

**Appendix XII to AMC to M.A.706(f) and M.B.102(c), para. E)c).**

It is indicated in this paragraph that the course content should take into consideration "awareness of any hazards working on the fuel system, and especially [FRS] using nitrogen." It is not necessarily clear in this sentence what the specific hazards being referenced are, assuming that the inference is to the dangers of nitrogen asphyxiation, and not a general statement relating to any potential inert gas that may be used in lieu of nitrogen (e.g. halon). Although the dangers of nitrogen asphyxiation are well known in other industries, aviation workers, and especially the staff preparing the training course material, may be less aware. For that reason, perhaps a special emphasis should be made on the 'nitrogen' in that sentence, rather than what might be otherwise read as 'dangers of FRS'. It could also perhaps be noted that, while it is widely known that exposure to excessive amounts of nitrogen inside equipment/tanks can result in rapid onset asphyxiation and death, people present in the immediate area of openings of equipment/tanks being purged on nitrogen are also at risk, where the oxygen concentration near the opening can be reduced to dangerously low levels. Asphyxiation may be so rapid that individuals may not even be aware of their displaced oxygen environment prior to becoming unconscious.

This comment also applies to Appendix IV to AMC 145.A.30(e) and 145.B.10(3)

response

*Noted*

The intent of the training was to emphasise on the risk using nitrogen.
The text remains unchanged.

comment

*104* comment by: *UK CAA*

**Paragraph**
Appendix XII to AMC to M.A.706(f) and M.B.102(c) - para E) c) iii)
(Also applicable to Appendix IV to AMC145.A.30(e) and 145.B.10(3))

**Comment**
The reference to "margins of fuel system safety improvements from 10-6 to 10-9.." is not understood. It is suggested that these numbers are removed.

**Justification**
The rate of catastrophic accidents from fuel tank explosions was of the order of

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| | 10-8 before SFAR 88 and INT/POL/25/12. What improvements have been achieved by SFAR and 88/INT/POL/25/12 are not entirely known, which is why flammability reduction is being pursued to ensure a rate better than 10-9. It is suggested that these numbers are removed. |
| response | *Accepted*<br><br>The figures have been removed.<br>Refer to the resulting text in the Appendix B at the end of this CRD. |

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| comment | *106* comment by: *UK CAA*<br><br>**Paragraph**<br>Appendix XII to AMC to M.A.706(f) and M.B.102(c) - para E) c) iii)<br>(Also applicable to Appendix IV to AMC145.A.30(e) and 145.B.10(3))<br><br>"INT/POL 25/12" means 'interim' policy not 'internal' policy. |
| response | *Accepted*<br><br>Mistyping error corrected. |

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| comment | *108* comment by: *UK CAA*<br><br>**Paragraph**<br>Appendix XII to AMC to M.A.706(f) and M.B.102(c) - para D) 2) 'Objectives' 1<br>(Also applicable to Appendix IV to AMC145.A.30(e) and 145.B.10(3))<br><br>Is it intended that the training only covers CDCCLs and not Fuel Systems ALIs? |
| response | *Accepted*<br><br>Text modified. |

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| resulting text | *Refer to the resulting text in the Appendix B at the end of this CRD.* |

**B. DRAFT DECISIONS - II. Draft Decision on Annex II - AMC Part-145 -AMC 145.A.45(e) Maintenance data** p. 11

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| comment | *22* comment by: *KLM Engineering & Maintenance*<br><br>Comment: Propose to delete new AMC 145.A. 45 (e). The identification of work cards with a CDCCL note has not been agreed upon in the run-up to this NPA. It has been agreed by all parties that a reference to the AMM/CMM would suffice , which is already common practice.<br>Note: apart from the above comment we would like to indicate that the word "updated" is not appropriate in rulemaking texts since it reflects a temporary action . |
| response | *Partially accepted*<br><br>The opinion of the Agency is that making reference to CDCCL in task cards or worksheets should not be under-estimated. The text has been modified to |

explain better that CDCCL should be referred to only where the task cards and worksheets shall make precise reference to the particular maintenance tasks or tasks contained in such maintenance data.
Refer to the amended AMC 145.A.45(e).

comment

*41* comment by: *Airbus*

No concern on wording but request consideration be given to the addition of the following sentence:

Compliance with this requirement may be based entirely on CDCCL information contained in documentation supplied by the TC Holder provided that the aircraft configuration has not been modified / altered / repaired following instructions not provided by the TC Holder.

**JUSTIFICATION:**

Since first publication of CDCCLs it has proved impractical for operators to comply with subject requirement. It is impossible to be compliant with both the list of CDCCLs written in the TC Holder's ALS / AMM and the requirement to identify all CDCCLs in accomplishment instructions written on workcards / worksheets. This is due to time delays in updating the Limitations Section and the AMM. Without the addition of the proposed sentence, this requirement implies that the operator cannot rely on the TC Holder's list of tasks that contain CDCCLs since it is unlikely to be 100% complete. This imposes an unrealistic burden on the maintenance organization and is unjustified in situations where regular revisions of TC Holder material are published. This situation arises because CDCCLs are included in non-scheduled task procedures that are introduced / modified / deleted more frequently than procedures associated with scheduled tasks.

For further clarification (if needed), two situations can arise:

1) ALS
The list of CDCCLs is unlikely to change. However, the list of AMM references containing CDCCLs that is provided in the ALS may, between revisions,:
a) omit references added in recent AMM revisions
b) include references deleted from recent AMM revisions
c) include references to procedures relocated under a different AMM reference
It is recalled that the AMM is a customized document with different revision cycle options available to customers - they are thus not all updated at the same time. It is impossible to simultaneously update AMM and ALS documents.

2) AMM
The identification of CDCCLs within accomplishment procedures requires an engineering assessment (it cannot be automated). As a result either
a) a conservative approach is taken and CDCCLs are identified in the initial issue and then possibly removed after engineering analysis or
b) the identification is added in the revision following the one that introduced / modified the task.

In summary, though the mandatory CDCCL itself does not change, the identification of the location of each CDCCL in the AMM does change. TC Holders commit to regular updates of AMMs and ALS documentation but at any

particular instant the AMM will not identify 100% of the locations of each of the CDCCLs. Thus if the operator is required to be 100% compliant he must assume the AMM (which he uses to establish his jobcards) is incomplete/incorrect and perform a full engineering assessment himself. This is considered unreasonable (as well as being difficult without a full understanding of the criteria).

response

*Partially accepted*

The text of AMC 145.A.45(e) has been modified to soften the means of compliance.

comment

*57* comment by: *AEA*

**Relevant Text:**
A new AMC 145.A.45(e) is added:
AMC 145.A.45(e) Maintenance data
The maintenance organisation should ensure that work cards and work sheets including Critical Design Configuration Control Limitation (CDCCL) are properly updated and identified with such limitations.

**Comment**: Updating job cards to reference CDCCL items would impose a significant burden on operators, would incur significant costs to update 100's of job cards and is not in line with other safety related AMM requirements, for example MRBR category 5 / 8 tasks are not referred to on job cards.
The identification of work cards with a CDCCL note has not been agreed upon in the run-up to this NPA. It has been agreed by all parties that a reference to the AMM/CMM would suffice, which is already common practice: all maintenance is carried out in accordance with the AMM which detail CDCCL's in the relevant sections.
Note: apart from the above comment we would like to indicate that the word "updated" is not appropriate in rulemaking texts since it reflects a temporary action.

**Proposal**: Remove the requirement to include CDCCL's on job cards.

response

*Partially accepted*

As similar request was proposed in comment No.22 from KLM Engineering and Maintenance. See the answer provided by the Agency to this comment No.22.

comment

*99* comment by: *ENAC, Italy, Production and Maintenance Directorate*

It is urgent to recommend a minimum duration for the level 2 training.
Also it is necessary to have a detailed syllabus (at least for level 2)

response

*Accepted*

A minimum duration has been added.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*100* comment by: *ENAC, Italy, Production and Maintenance Directorate*

Enac recommends to add CDCCL elements also in the syllabus of basic module 11A of Annex 1 to Part 66

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| response | *Accepted*<br><br>Please refer to the answer provided by the Agency to comment No.42 from the CAA-NL. |

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| resulting text | *Refer to the resulting text in the Appendix B at the end of this CRD.* |

**B. DRAFT DECISIONS - II. Draft Decision on Annex II - AMC Part-145 - AMC 145.A.50(a) Certification of maintenance** p. 11

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| comment | *16* comment by: *SAMCO*<br><br>AMC 145.A.50(a)3 should be removed and added as AMC under 145.A.55(a)<br>It is not required that the CRS is marked with "CDCCL task" as the marking could also be done on underlying maintenance recordsand/or sign off sheets.<br>145.A.55(a) specifies the requirment for recording details of the maintenance carried out thus proving that the requirments have been met to issue the CRS.<br>The text specified in the proposed text in AMC 145.A.50(a)3 falls clearly under this 145.A.55(a) requirement |
| response | *Accepted*<br><br>AMC 145.A.50(a) has been removed from the text. |

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| comment | *23* comment by: *KLM Engineering & Maintenance*<br><br>Comment: we propose to delete this amendment of AMC 145.A.50 (a). We do not agree that the correct configuration is maintained and ensured by marking maintenance records with "CDCCL task". |
| response | *Accepted*<br><br>AMC 145.A.50(a) has been removed from the text. |

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| comment | *58* comment by: *AEA*<br><br>**Relevant Text:** At any scheduled or unscheduled maintenance task carried out to a fuel system feature classified as a Critical Design Configuration Control Limitation (CDCCL) and before release to service, the maintenance records should reflect that the correct configuration is maintained and ensured. This should be done by the marking: "CDCCL task".<br><br>**Comment**: The AMM states which are CDCCL tasks and aircraft can only be released in accordance with AMM and in an approved configuration. It would be a significant maintenance cost to put this into release documentation and would be a burden in training, implementation and auditing with no foreseeable benefit. We do not agree that the correct configuration is maintained and ensured by marking maintenance records with "CDCCL task". A procedure of this kind would not be in accordance with industry maintenance practices. |

**Proposal**: Remove the requirement to mark tasks 'CDCCL task'.

response

*Accepted*

AMC 145.A.50(a) has been removed from the text.

resulting text

*Refer to the resulting text in the Appendix B at the end of this CRD.*

**B. DRAFT DECISIONS - II. Draft Decision on Annex II - AMC Part-145 - AMC 145.A.70(a) Maintenance organisation exposition** p. 11

comment

*24* comment by: *KLM Engineering & Maintenance*

Comment: KLM E&M does not agree. Propose to delete this amendment to AMC 145.A.70(a). Because Maintenance Program, Maintenance Manual, instructions etc are identified with CDCCL's and on top of that relevant functionaries are trained in how to handle CDCCL's, we see limited value in adding texts to the MOE related to CDCCL's. Existing regulations already require that the MOE procedures ensure that maintenance personnel is always properly trained to work according to approved data.

response

*Partially accepted*

Refer to the answer made by the Agency to the comment No.59 from AEA.

comment

*59* comment by: *AEA*

**Relevant Text:** *The exposition should contain information as applicable, on how the maintenance organization complies with Critical Design Configuration Control Limitations (CDCCL) instructions for large aeroplanes as defined in Decision 2003/11/RM of the Executive Director of the Agency6 (CS-25) and certified after 1 January 1958 with a maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more and for fuel system components installed on such aircraft when maintenance data are affected by Critical Design Configuration Control Limitation (CDCCL).*
*The exposition should state how the completion of CDCCL is traced*.

**Comment**: CDCCL's are concepts, zones and areas. There are no CDCCL tasks, only tasks involving work on areas or installations that are CDCCL's.
Maintenance Program, Maintenance Manual, instructions etc are identified with CDCCL's and on top of that relevant functionaries are trained in how to handle CDCCL's, we see limited value in adding texts to the MOE related to CDCCL's. Existing regulations already require that the MOE procedures ensure that maintenance personnel are always properly trained to work according to approved data.
'CDCCL's are brought to the attention of maintenance personnel by training and through approved documentation such as the AMM. All tasks are certified as being performed IAW approved documentation such as the AMM, SB or other such vehicle, so it is the source documents that need to demonstrate compliance. therefore compliance to a CDCCL' can only be shown by not disturbing and by following the AMM. It is therefore not possible to write procedures in the exposition to show compliance or trace CDCCL's.

**Proposal**: The exposition should only refer to how compliance is shown that appropriate training on Fuel Tank Safety is in place, and is being delivered to the required and appropriate personnel.

response

*Partially accepted*

The Agency agrees that reference to which aircraft/component is concerned can be removed.
However, regarding the paragraph already in the text in the previous decisions, this subject had not been part of the concerns brought by industry at the workshop in November 2007, therefore the Agency will consider only the burden linked to the paragraph AMC 145.A.45(e) and remove the statement in the MOE on how the completion of CDCCL is traced.
As explained in the comment, if the MOE already explains how procedures ensure that maintenance personnel are properly trained to work according to approved data, the Agency agrees that there is nothing more to add in the MOE on how to show compliance on CDCCL.

comment

*79* comment by: *RECCHIA Giuseppe Guido*

It should be better clarified that these subject are also applicable to maintenance organisation with rating C9 in addition to maintenance organisation with rating A1. This in line with the content of paragraph **V. Regulatory Impact Assessment (RIA)** of the draft NPA (***Organisations****: Organisations maintaining or managing the continuing airworthiness of these aircraft (including workshop maintenance of fuel system components, rating C9) should pay attention to the instructions for continuing airworthiness issued by Type-Certificate (TC) or Supplementary Type Certificate (STC) holders and equipment manufacturers, to determine whether their aircraft or systems of the aircraft are affected by CDCCLs. When the aircraft/systems are affected, adequate training should be provided by these organisations.)*

For example:

AMC 145.A.70(a) Maintenance organisation exposition

…….. (omissis)

The exposition should contain information as applicable, on how the maintenance organisation ***(holding A1 and/or C9 rating)*** complies with Critical Design Configuration Control Limitations (CDCCL) instructions for large aeroplanes as defined in Decision 2003/11/RM of the Executive Director of the Agency6 (CS-25) and certified after 1 January 1958 with a maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more and for fuel system components installed on such aircraft when maintenance data are affected by Critical Design Configuration Control Limitation (CDCCL).

response

*Noted*

It is already clearly explained in both Appendixes to this NPA in paragraph B) Affected Organisations, that components are also affected by the training programme.
This is also explained in the FAQ No.42 on the Rulemaking web page on the Agency web site.

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| comment | *88* comment by: *Lufthansa Technik AG*<br><br>Not agreed. Not value added in adding CDCCL related statement to the MOE. Maintenance Data already include reference to CDCCL's, personal has to be properly trained to any of their tasks and kept uptodate according to existing regulations. |
| response | *Partially accepted*<br><br>Refer to the answer made by the Agency to the comment No.59 from AEA. |

| | |
|---|---|
| resulting text | *Refer to the resulting text in the Appendix B at the end of this CRD.* |

**B. DRAFT DECISIONS - II. Draft Decision on Annex II - AMC Part-145 - Appendix IV to AMC 145.A.30(e) and 145.B.10(3)** p. 12-14

| | |
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| comment | *5* comment by: *LRY*<br><br>2) phase 2 detailed training<br><br>type: .....a multi choise question with ~~four~~ **three** alternative answers,and the pass mark of the examination shuold be 75% |
| response | *Not accepted*<br><br>Refer to the answer made to the CAA of Norway in comment No.8. |

| | |
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| comment | *7* comment by: *CAA-Norway*<br><br>2) Phase 2- Detailed training<br>The examination shall have multiple choice questions with **four** alteranative answers.<br><br>This is not to the standard of basic and type training where there is three alternative answers.<br>Change to three alternative answers |
| response | *Not accepted*<br><br>Refer to the answer made to the CAA of Norway in comment No.8. |

| | |
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| comment | *11* comment by: *AEA*<br><br>**Comment:**<br>For level 1 and 2 training, the type and level of training (e-training or classroom-training) is specified, but nothing is said regarding the level of Continuation Training: shall it be given as computer based package as Phase 1 training, or must be given in "appropriate facilities" by an instructor similar to phase 2?<br>**Proposal:**<br>Guidelines about the type of continuation training are welcomed. |

**Section**:
Appendix XII to AMC to M.A.706(f) and M.B.102(c) -
D)General Requirements of Training Courses
3)Continuation Training
and
Appendix IV to AMC 145.A.30(e) and 145.B.10(3)
D)General Requirements of Training Courses
3)Continuation Training

response

*Accepted*

Guidelines regarding continuation training have been added.

comment

*13* comment by: *EAMTC*

Phase 2 - Detailed training:
Type: The NPA asks for 4 alternative answers pass mark 75%.
To stay in line with common type training regulations it should read "3 alternative answers"

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

comment

*15* comment by: *Patrick Nocaudie*

In the Appendix IV/ Phase 2 / Detailed Training:

In order to be standard with the part 66 type training examination, proposal to limit the number of alternative answers at three (3) instead of four (4)

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

comment

*19* comment by: *Air Berlin*

Re-naming or re-organising the "Levels" (1+2) as defined by ED 2007/002/R into "Phases", like suggested by the NPA, is nonsense, especially as it creates additional bureaucratic burden for organisations who already implemented ED 2007/002/R. They need to rewrite their documents without any safety benefit.

The same applies to the sudden change in the peer groups for the training. As to our understanding, there is ABSOLUTELY no need to make any change to the table on page 7 of 8 in ED 2007/002/R. This table addresses the needs very well, while the proposed changes are overdoing it.

response

*Not accepted*

It is the opinion of the Agency that the term "phase" is more adapted than the term "level" because the training should be provided in progressive steps, explained here by the "phases".
The Appendix IV to AMC to Part-145 is clearer than the tables in the Decision 2007/002/R, therefore the Agency prefers keeping the latest proposal. The intent of both proposals is identical.
Please take note that a student having attended the Level 1 Familiarisation

course in compliance with ED decision 2007/001/R Appendix XII is already in compliance with this paragraph 1, and the one who has attended the Level 2 Detailed training course in compliance with ED decision 2007/001/R Appendix XII is already in compliance with this paragraph 2 with the exception of continuation training.
This has been added in both Appendixes to AMC to Part-M and to Part-145.

comment

*21* comment by: *Marshall Aerospace*

The normal standard under Part 147 is for multiple choice questions to be limited to three alternative questions. Should we not follow the standards allready set under Part 66/147 document as approved by EASA.

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

comment

*25* comment by: *KLM Engineering & Maintenance*

General comment: EASA Part 145 organisations have properly trained and qualified personnel to perform maintenance. Whenever new (technical ) issues arise with a "need to know" , such as the Fuel Tank Safety issue, the organisation will train its personnel appropriately. Existing regulations have ensured that the Part 145 organisations have the proper processes and procedures in-place for training. And that is auditable.
The problem we have with fuel tank safety training is that it has been made quite specific in Part 145. We oppose this development. The performance of proper maintenance must be ensured by following agreed and approved processes and procedures using qualified personnel making use of approved data. This is already organized. This is fundamental. And this is your guarantee for the delivery of safe products after maintenance.
Secondly, as a rulemaking body , by putting specific emphasis on Fuel Tank Safety Training you may eventually not get what you want , and maybe you even get the reverse. Because by highlighting Fuel Tank Safety it may be implicitly understood that other tasks, other systems are less important and require less scrutiny during the performance of maintenance. This may show up to be very counterproductive , and eventually quite unsafe.

response

*Not accepted*

The opinion of the Agency is that CDCCL needs a specific training to Part-145 personnel as described in the Appendix IV to AMC to Part-145. It should not be accepted that CDCCL are considered as already included in the general training of personnel. In addition it was agreed during the workshop that training should be provided for CDCCL items.
The training provided for CDCCL should explain that this is in addition to other training and does not diminish the importance of other consideration of maintenance.

comment

*26* comment by: *KLM Engineering & Maintenance*

*C) Persons from affected organisations who should receive training:*
~~*Phase 1 only:*~~

- ~~*The accountable manager, the group of persons representing the*~~

~~*maintenance management structure of the organisation, the quality manager and the staff required to quality monitor the organisation.*~~

~~*Phase 1 + Phase 2 + Continuation training:*~~

- *All personnel required to ~~plan,~~ perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A).*
- *All competent authority personnel involved in the oversight of Part-145 approved maintenance organisations specified in paragraph B).*

Comment: KLM E&M is of the opinion that the handling of CDCCL 's warrants the same treatment as e.g. critical tasks , duplicate inspections etc for which maintenance management structure also does not receive training. In our opinion this eliminates the need for Phase 1 training .
Moreover, Fuel Tank Safety training is a rather technical training which in our view would mainly apply to personnel in close vicinity of aircraft , engines and components. Personnel in staff environment , including Accountable Manager, Quality Assurance personnel, Engineering but also planners are already initially and continually trained and made aware under **AMC 145.A.30(e) (6) and (7).**

response

*Not accepted*

Although we agree that CDCCL warrants the same treatment as e.g. critical tasks, duplicate inspections etc., the opinion of the Agency is that knowledge on CDCCL should be imparted to the CAMO and maintenance organisation personnel, but with some degree of training depending on the position of the person in the organisations.
The result of this is that there is a need to keep the phase 1 and phase 2.

The title of the Appendix IV attached to AMC to Part-145 is linked to AMC 145.A.30(e) and 145.B.10(3), as requested in the comment.

comment

*28* comment by: *Bastian Wroblewski*

Type: Should be a more in-depth internal and external course imparted by an 147 organisation. It should not take ...
An examination sould be required at the end, which should be in form of a mult choice question in english, closed book and with three alternative answers. The pass mark of the examination is 75%. A certificat will be issued.

response

*Not accepted*

A similar request was made in the comment No. 27, please refer to the answer of the Agency to this comment.

comment

*31* comment by: *KLM Engineering & Maintenance*

*F) Approval of training*
*For Part-145 approved organisations the training of personnel is part of the Maintenance Organisation Exposition (MOE) and should be approved through an amendment of the manual.*

Comment: approval of training is not performed by an amendment of the MOE. Approval of training of personnel is already generically ratified via the

relationship MOE/MTOE .

response

*Noted*

The details on how the maintenance programme for initial and continuation training is approved have been modified in the Appendixes in paragraph F) Approval of the training.
Refer also to the answer made to comment 78 from Mr Recchia.

comment

*32* comment by: *KLM Engineering & Maintenance*

*D) General requirements of the training cours~~e~~*
*~~1) Phase 1 - Awareness~~*
*~~The training should be carried out before the person starts to work without supervision.~~*
*~~Type: Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self study or informative session. Signature of the reader is required to ensure that the person has passed the training.~~*
*~~Level: It should be a course at the level of familiarisation with the principal elements of the subject.~~*
*~~Objectives:~~*
*~~The attendant should, after the completion of the training:~~*
*~~1. Be familiar with the basic elements of the fuel tank safety issues.~~*
*~~NPA 2008-16 29 May 2008 Page 13 of 15~~*
*~~2. Be able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non conformities.~~*
*~~3. Be able to use typical terms.~~*
~~Content:~~
~~Following the guidelines described in paragraph E).~~

*~~2~~ 1 ) ~~Phase 2~~ - Detailed training*
*Type: Should be an ~~more~~ in-depth internal or external course imparted by an instructor. It should not take the form of a training bulletin, or other self study. An examination should be required at the end, which should be in the form of a multi choice question with four alternative answers, and the pass mark of the examination should be 75%.*
*Level: It should be a detailed course on the theoretical and practical elements of the subject.*
*The training should be made in appropriate facilities containing examples of components, systems and parts affected by Fuel Tank Safety (FTS) issues and having access to aircraft or component where typical examples of FTS issues can be shown. The use of pictures, films and practical examples of the maintenance on fuel tank system is recommended.*
*The training should include a representative number of repairs and inspections as required by the maintenance programme showing the necessity of using the manufacturer's data.*
*A flexible period may be allowed by the competent authorities to allow organisations to set the necessary courses and impart the training to the personnel, taking into account the organisation's training schemes/means/practices. ~~This period should not extend beyond 31 December 2010.~~*
Comment: We have proposed to delete Phase 1 training deleted (see previous comment under C ). Therefore in this paragraph we delete all reference to Phase 1 training. Furthermore it is not appropriate to mention dates in

rulemaking texts. Compliance dates must be communicated in documents that enforce new rulemaking.

response

*Not accepted*

Please refer to the answer of the Agency to comment No.26.

comment

*33* comment by: *KLM Engineering & Maintenance*

~~*3) Continuation training*~~
~~*Continuation training should be provided at intervals not exceeding two years. This training should be described in the Maintenance Organisation Exposition (MOE).*~~
~~*The continuing training should include any new instruction issued related to the material, tools, documentation and manufacturer's or competent authority's directives.*~~

Comment: continuation training and CT interval as descibed above is already a standard requirement in 145.A.35 (d) and (e). Paragraph has no added value and should therefore be deleted.

response

*Not accepted*

Please refer to the answer of the Agency to comment No.26.

comment

*34* comment by: *KLM Engineering & Maintenance*

*Objectives:*
*The attendant should, after the completion of the training:*
*1. know the history of events due to fuel tank safety issues and the theoretical and practical elements of the subject,* ~~*have an overview of the FAA regulations known as SFAR (Special FAR) 88 of the FAA and of JAA Temporary Guidance Leaflet TGL 47,*~~ *be able to give a detailed description of the concept of Critical Design Configuration Control Limitations CDCCL, Airworthiness Limitations Items (ALI) and using theoretical fundamentals and specific examples;*

Comment: KLM E&M believes it is not adviseable to burden maintenance personnel with with the history of SFAR's and TGL's, but to confront them with the outcome and how that translates into their daily work.

response

*Partially accepted*

It is not required to have a detailed knowledge of FAA regulations known as SFAR (Special FAR) 88 of the FAA and of JAA Temporary Guidance Leaflet TGL 47. The word "overview" has been added.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*35* comment by: *KLM Engineering & Maintenance*

~~*4. understand and carry out activities with the use of manufacturer and regulatory authority data providing instructions on design and maintenance, such as Service Bulletins, Airworthiness Directives, Aircraft Maintenance Manual, Component Maintenance Manual etc.;*~~
~~*5. use easily the manufacturer's documentation from various sources and apply corrective action where appropriate;*~~
~~*6. identify the components or parts or the aircraft subject to FTS from the*~~

~~*manufacturer's documentation, plan the action or apply a Service Bulletin and an Airworthiness Directive.*~~

Comment: Items 4, 5 and 6 are fully covered by generic procedures required by existing Part 145 regulations. There is no need to repeat these for fuel systems.

response

*Partially accepted*

Agreed for paragraphs 4 and 5 only. Paragraph 6 relates to the particular nature of CDCCLs and should remain.

comment

*36* comment by: *KLM Engineering & Maintenance*

*E) Guidelines for preparing the content of ~~Phase 1 and Phase 2~~ ~~courses~~. the course*
*The following guidelines should be taken into consideration when the ~~phase 1 or 2 training programmes~~ ~~are being~~ training program is established:*
*a) understanding of the background and the concept of fuel tank safety ~~as developed during the last 10 years,~~*

Comment: "as developed during the last 10 years". Does this remain 10 years or is it 15 years in 5 years time? Better leave this out.

response

*Accepted*

Agreed that this paragraph affects only phase 2, and to remove reference to the period of 10 years.

comment

*37* comment by: *KLM Engineering & Maintenance*

~~*iii) SFAR 88 of the FAA and JAA Internal Policy INT POL 25/12: reason of these documents, and what was the ultimate goal, margins of fuel system safety improvements (from 10-6 to 10-9, in fact improvement by a factor 100- 1000, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance),*~~

Comment: We are stil of the opinion that it is not adviseable to burden maintenance personnel with the history of SFAR's and TGL's, but to confront them with the outcome and how that translates into their daily work. (By the way : From 10-6 to 10-9 is an improvement by a factor of 1000, not 100-1000).

response

*Partially accepted*

Text modified.

comment

*38* comment by: *KLM Engineering & Maintenance*

~~*iv) Explain the concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations and CDCCL,*~~

Comment: same comment as under deleted iii) : We are stil of the opinion that it is not adviseable to burden maintenance personnel with the history of SFAR's and TGL's, but to confront them with the outcome and how that translates into their daily work.

response

*Partially accepted*

A "briefly" explanation of these concepts has been added.

comment

*40* ❖ comment by: *Airbus*

Para D)2). Objective 1:

1) Is JAA TGL 47 still considered as a valid document and is it still readily available from either JAA or EASA website?
Suggest replacement of 'JAA Temporary Guidance Leaflet TGL 47' by the reference of the EASA guidance material provided to TC Holders in place of the earlier TGL.

2) Replace '...the concept of Critical Design Configuration Control Limitations CDCCL, Airworthiness Limitation Items (ALI) and using...' by
'... the concept of Fuel tank system Airworthiness Limitation Items (ALI), including Critical Design Configuration Control Limitations (CDCCL) and using...'

**JUSTIFICATION:**

1) TC Holders were required to comply with a specific EASA Fuel Tank Safety Letter that included the intent of the TGL as an attachment titled 'Guidance on EASA Fuel Tank Safety letter (INT/POL/25/12) and its implementation'. This attachment included an Appendix A, B and C which are equivalent to the Appendices in TGL 47.
It would seem logical that any required training is based on the same EASA documentation used by the TC Holders to develop the ICAs.

2) CDCCLs are ALIs. The way it is written in the proposal suggests that either CDCCLs represent 100% of FTS ALIs or that CDCCLs are different from ALIs - both are incorrect interpretations. Fuel tank system ALIs also include 'Maintenance and Inspection Instructions' and presumably the concept of these has to be understood as well.

response

*Noted*

The TGL 47 was published by the Central JAA in 2003 regarding Guidance on interim policy for Fuel Tank Saftey.
Today we do not consider it anymore as valid, the instructions have been taken over by:
- measures recommended to TC Holders to issue modifications on standards of aircraft where unsafe conditions have been identified,
- related airworthiness directives,
- EC amendment 707/2006 to amend EC regulation 2042/2003 for operators to make periodic reviews of the maintenance maintenance programme to introduce TC holders instructions
- ED Decisions published to issue instructions for training needs to CAMO and operators.
However the TGL 47 and the accompanying "EASA statement policy on the process of developing instructions for maintenance and inspection of fuel tank systems ignition source prevention" resumes the whole policy for FTS.

Regarding the comment related to "the concept of Critical Design Configuration Control Limitations CDCCL, Airworthiness Limitation Items (ALI)", this has

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| | been taken on board and we suggest to refer to the answer provided by the Agency to comment No. 39 |

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| comment | *46* comment by: *CAA-NL*<br><br>Page 12<br>C, Phase 1 + Phase 2 Continuation training.<br><br>Comments: NAA personnel involved in oversight should be trained Pase 1 +2 +CT. This seems rather high requirement for staff involved in oversight of 145 organisations.<br>Phase 2 +CT training could be deleted for NAA staff, Phase 1 training is sufficient for staff involved in oversight.<br><br>Justification: Decisions 2007/001, 002: qualification of NAA inspectors was limited to level 1 knowledge only. This was sufficient for NAA- NL. |
| response | *Accepted*<br><br>Phase 2 training no more provided to competent authority staff. |

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| comment | *47* comment by: *CAA-NL*<br><br>Page 13<br>2) Phase 2 detailed training.<br><br>Comments: Having access to aircraft or components seems a rather stringent requirement. Could be deleted from text.This could be done in a theoretical manner or at least '**sufficient**' manner.<br><br>Comment: 'The training should be made in appropriate facilities. Examples of components, systems and parts affected by Fuel Tank Safety (FTS) issues or having access to aircraft or component where typical examples of FTS issues can be shown or the use of pictures, films and practical examples of the maintenance on fuel tank system is recommended.'<br>Justification: flexibility for the training organisation and a good instruction film can be more effective than inspecting a used fuel tank.<br><br>The training should include....<br>Replace *number of repairs* by FTS AD's and modifications.<br>Ad's and modification give a better understanding on fuel tank safety related things than repairs.<br><br>'The training should include a representative number of repairs and inspections as required by the AD's and M.A302 maintenance programme showing the necessity of using the manufacturer's data.'<br><br>Justification: AD's deals with mod's and repairs and maintenance programs only with inspection. |
| response | *Partially accepted*<br><br>The requirement to get access to aircraft has been replaced with<br><br>• the use of film, pictures and practical examples on FTS is recommended; or |

- by attending a course at distance with a film when such film meets the intent of the objectives and content here below.

Regarding what should be included in the training, the Agency has selected to provide the objectives only.

comment

*60* comment by: *AEA*

**Relevant Text:**
D) General requirements of the training courses - 1) Phase 1 - Awareness - Objectives
*The attendant should, after completion of training*:

**Comment**: As phase one training can be and in most cases may be delivered by CBT or information cascade, there may not necessarily be a course to attend, and therefore by definition there may not be any attendees.

**Proposal**: Replace the word "Attendees" with the words "Training Recipient" or "Trainee".

response

*Accepted*

comment

*61* comment by: *AEA*

**Relevant Text:**
Appendix IV to AMC 145.A.30(e) and 145.B.10(3)- Objectives
*1. know the history of events due to fuel tank safety issues and the theoretical and practical elements of the subject, be able to give a detailed description of the concept of Critical Design Configuration Control Limitations CDCCL, Airworthiness Limitations Items (ALI) and using theoretical fundamentals and specific examples;*

**Comment:** We believe it is not advisable to burden maintenance personnel with the history of SFAR's and TGL's, but to confront them with the outcome and how that translates into their daily work.

response

*Accepted*

Alleviations have been introduced in the Objectives.

comment

*62* comment by: *AEA*

**Comment**: EASA Part 145 organisations have properly trained and qualified personnel to perform maintenance. Whenever new (technical) issues arise with a "need to know" , such as the Fuel Tank Safety issue, the organisation will train its personnel appropriately. Existing regulations have ensured that the Part 145 organisations have the proper processes and procedures in-place for training. And that is auditable.
The problem we have with fuel tank safety training is that it has been made quite specific in Part 145. We oppose this development. The performance of proper maintenance must be ensured by following agreed and approved processes and procedures using qualified personnel making use of approved

data. This is already organized. This is fundamental. And this is your guarantee for the delivery of safe products after maintenance.
Secondly, as a rulemaking body, by putting specific emphasis on Fuel Tank Safety Training you may eventually not get what you want, and maybe you even get the reverse. Because by highlighting Fuel Tank Safety it may be implicitly understood that other tasks, other systems are less important and require less scrutiny during the performance of maintenance. This may show up to be very counterproductive, and eventually quite unsafe.

response

*Noted*

The subject of Fuel Tank Safety introduces a new concept of CDCCL and as some of these are not maintenance tasks but constraints which need to be respected by the Fuel system when carrying corrective actions, there was a need to explain properly to maintenance personnel.

comment

*63* comment by: *AEA*

**Section**: B. DRAFT DECISIONS - II. Draft Decision on Annex II - AMC Part-145 - Appendix IV to AMC 145.A.30(e) and 145.B.10(3) -C) Persons from affected organisations who should receive training: - phase 1 only

**Comment:** the handling of CDCCLs warrants the same treatment as e.g. critical tasks, duplicate inspections etc for which maintenance management structure also does not receive training. In our opinion this eliminates the need for Phase 1 training.
Moreover, Fuel Tank Safety training is a rather technical training which in our view would mainly apply to personnel in close vicinity of aircraft, engines and components. Personnel in staff environment , including Accountable Manager, Quality Assurance personnel, Engineering but also planners are already initially and continually trained and made aware under **AMC 145.A.30(e) (6) and (7).**

response

*Not accepted*

The opinion of the Agency is that the definition of personnel affected by the training as follows:

- All personnel required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A).

is adequate to define the personnel who needs to be informed of particular nature of CDCCL.
Referring only to training called by 145.A.30(e) is insufficient as the aim of these AMC is to remind the particular nature of Fuel Tank Safety ALI with regard to maintenance.

comment

*64* comment by: *AEA*

**Relevant Text:**
D) General requirements of the training courses - 2) Phase 2 - Detailed training
*A flexible period may be allowed by the competent authorities to allow organisations to set the necessary courses and impart the training to the personnel, taking into account the organisation's training*

*schemes/means/practices. This period should not extend beyond 31 December 2010.*
**Comment**: It is not appropriate to mention dates in rulemaking texts.
**Proposal**: Compliance dates must be communicated in documents that enforce new rulemaking.

response

*Accepted*

Instructions have been added to when the training courses should be imparted.

comment

*65* comment by: *AEA*

**Section:** Appendix IV to AMC 145.A.30(e) and 145.B.10(3) -D
General Requirements of the training courses- 2) Phase 2 Detaled traiing- Objectives
**Page:** 13
**Comment:** Items 4, 5 and 6 are fully covered by generic procedures required by existing Part 145 regulations. There is no need to repeat these for fuel systems

response

*Partially accepted*

See corrected text and refer to answer to comment No.35 from KLM E&M.

comment

*66* comment by: *AEA*

**Relevant Text:**
3)Continuation Training
Continuation training should be provided at intervals not exceeding two years. This training should be described in the Maintenance Organisation Exposition (MOE).
The continuing training should include any new instruction issued related to the material, tools, documentation and manufacturer's or competent authority's Directives.

**Comment:** continuation training and CT interval as described above is already a standard requirement in 145.A.35 (d) and (e).

**Proposal:** delete paragraph.

response

*Not accepted*

It is correct that continuation training (CT) and CT interval is already a standard requirement in 145.A.35 (d) and (e), but this paragraph adds specificities of CDCCL.

comment

*67* comment by: *AEA*

**Section:**
E) Guidelines for preparing the content -a)

**Relevant Text:** The following guidelines should be taken into consideration when the phase 1 or 2 training programmes are being established:
a) understanding of the background and the concept of fuel tank safety as developed during the last 10 years,

**Comment:** Does this remain 10 years or is it 15 years in 5 years time?

**Proposal:** delete sentence "during the last 10 years"

response

*Accepted*

*Refer to the resulting text in the Appendix B at the end of this CRD.*

comment

*68* comment by: *AEA*

**Relevant Text:**
Appendix IV to AMC 145.A.30(e) and 145.B.10(3)- F) Approval of training
For Part-145 approved organisations the training of personnel is part of the Maintenance Organisation Exposition (MOE) and should be approved through an amendment of the manual.

**Comment:** approval of training is not performed by an amendment of the MOE. Approval of training of personnel is already generically ratified via the relationship MOE/MTOE.

response

*Noted*

Refer to answer made to comment 31 from KLM E&M.

comment

*72* comment by: *UK CAA*

**Paragraph:** Appendix IV to AMC 145.A.30(e) and 145.B.10(3)
**Page No:** 12 of 15
**Comment:** It is noted that competent authority staff will now have to complete Phase 2 and continuation training.
**Justification:** It is not clear what has driven this change when industry management and quality assurance staff are still only to undertake Phase 1 training. This appears to be an inconsistent approach.

response

*Accepted*

Phase 2 training to competent authority has been removed.
Refer to the resulting text in the Appendix B at the end of this CRD.

comment

*74* comment by: *UK CAA*

**Paragraph:** Appendix IV
**Page No:** 12 of 15
**Comment:** As above no time scale for phase 1 training.
**Justification:** New post holders may not have received training.
**Proposed Text:** Staff that have not received phase 1 training should have completed it within six months of joining the organisation.

response

*Accepted*

Agreed, text modified accordingly.

comment

*77* comment by: *RECCHIA Giuseppe Guido*

**Appendix XII to AMC to M.A.706(f) and M.B.102(c) and Appendix IV to AMC 145.A.30(e) and 145.B.10(3)**

**Paragraph C Phase 1 + Phase 2 + Continuation training**

Competent authority personnel have been added among personnel for which Phase 2 + Continuation training is requested. This change was neither discussed nor agreed during the November, 07 workshop in EASA. As a matter of fact both the Rulemaking Directorate JAN/YMO/ime/R(4) 2008(D)50001 letter circulated on January 2008 and workshop conclusion material were not mentioning any change in respect of authority personnel training requirements. In addition practical elements requested under the Phase 2 Training seems not to be pertinent with the role of authority personnel in respect of the FTS issues and training requirements for NAA should not be more demanding than that required for AMO's quality staff. Awareness phase I Training provided by EASA Approval and Standardisation Directorate to the Authorities (we could say indeed "advanced" Awareness phase I Training i.e. phase II without practical elements) may be considered as providing an adequate level of knowledge on the subject in respect of Authority personnel. Continuation training may be satisfied through self study activities.

**Paragraph D Phase 2 Detailed Training**

This section does not provide guidelines on the expected acceptable duration (in terms of an acceptable range) of the training course complying with objectives and contents laid down in the appendixes. EASA was strongly requested during November 07 workshop in EASA to provide this information by both authority and operator side. This to facilitate standardization and to avoid lengthy discussions with AMO's on the subject (e.g. we have already received proposals by AMOs about level 2 courses of only 4 hours total duration and others even with shorter duration, while other training sources available on the market are providing phase 2 trainings up to two days duration). A possible additional contributing factor to this wide range of proposals may be not to have in the AMC a very detailed syllabus for the phase II training: such a detailed training syllabus should minimise discussions providing a more objective reference in preparing training material.

Standard duration of training courses is a sensitive issue to the extent that, even for training activities which could have been considered as well consolidated since years in EU environment EASA has decided to provide details on expected standard durations (refer to NPA 2007-007): therefore it appears opportune that similar information be also provided for new training requirements on a new subject, training which is considered a contributing elective factor to "*prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection*"

It should be taken into account that duration of the training is a parameter which have a significant impact on:

1. Planning of the training (the longer is the training session duration the longer is the period of time in which all the interested personnel receive the requested phase II training: for large organization this may also have an impact on the capability to comply with ultimate date of December 2010)
2. Training (direct and indirect) costs and operations, in particular for large organization (the longer is the training session duration the higher are direct and indirect costs and operational impacts to be afforded to ensure that the all the interested personnel receive the requested phase

II training)

This situation is sharpened by the fact that the expected support by aircraft manufacturer (strongly recommended by EASA) in providing or preparing such a training material is still missing.

**Paragraph F - Approval of training**

During the workshop it was stated that training courses need not be approved by the NAA even though both the Rulemaking Directorate JAN/YMO/ime/R(4) 2008(D)50001 letter and the NPA at issued is saying that those training are approved through the revision of MOE. Therefore we believe that *details on the type of information related to FTS training to be provided in the MOE* are to be specified in the AMC material otherwise the two statements (workshop conclusions and NPA contents) appears to be potentially in conflict.

response

*Noted*

Refer to answer provided in comment 78 from ENAC or to comment 31 to KLM A&M.

comment

*83* comment by: *Luftfahrt-Bundesamt*

1. Taking into account the importance of the subject „fuel tank safety", this issue should also be considered in the regulation itself (Part-M, Part-66 or Part-145) like requirements of a similar level (e.g. human factors training or continuation training) and is not permitted to be considered in the AMC only.

2. According to paragraph C) staff from affected organizations "required to quality monitor the organization" is only required to have phase 1 training. On the contrary, 145-inspectors of the authority who also have to verify if the organization is in compliance with PART-145, are required to have phase 2 training. What is the reason for this differentiation? As for this authority personnel an aircraft type-based knowledge is not needed, phase 1 training should be sufficient. Moreover, it is not possible to train an inspector on a phase 2 level for all types of aircraft included in the approval of the organization he/she is responsible for.
Conclusion: 145-inspectors have to be trained on the same level (i.e. phase 1) as required for the personnel of the affected organizations, monitoring the quality system of the organization (auditors).

response

*Partially accepted*

The requirements for receiving training and continuation of training are already in the rule for personnel of CAMO and for certifying staff of Part-145 organisation.
The subject of Fuel Tank Safety introduces a new concept of CDCCL and as some of these are not maintenance tasks but constraints which need to be respected by the Fuel system when carrying corrective actions, there was a need to explain properly to maintenance personnel.
It has been agreed by the Agency that phase 2 training would be removed for the staff of competent authority.

comment

*89* comment by: *Lufthansa Technik AG*

FTS training is to specific in AMC Part-145. Proper maintenance is ensured and audited based on approved processes and procedures using qualified and

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| | authorised personnel by the Part-145 Maintenance Organisation and fully under the responsibility of that Organisation.<br>It is the wrong way here to implement specific maintenance requirements and not taking care for other similar cases!!! |
| response | *Not accepted*<br><br>The subject of Fuel Tank Safety introduces a new concept of CDCCL and as some of these are not maintenance tasks but constraints which need to be respected by the Fuel system when carrying corrective actions, there was a need to explain properly to maintenance personnel. |

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| comment | *90* comment by: *Lufthansa Technik AG*<br><br>concerning C): Hundreds of persons have already been trained following the requirements of ED 2007/002/R by means of receiving an NAA approved FTS training according to an detailed schedule.<br>Now we have new schedule, new training requirements.<br>How to handle the already trained persons to comply with the proposed new AMC ?<br>How to explain to that personnel the changes in EASA decisions concerning FTS ?<br>How big is the burden of costs for the AMO as far as "re-training" is required ? What is the value added ?<br>What do we as AMO expect next in FTS matters from EASA ?<br>Without satisfying answers, this NPA is unacceptable. |
| response | *Partially accepted*<br><br>The following sentence has been added in the Appendix IV to AMC 145.A.30(e) and 145.B.10(3): "The persons who have already attended the Level 2 Detailed training course in compliance with ED Decision 2007/002/R Appendix IV is already in compliance with this paragraph 2 with the exception of continuation training". This should respond to the concern expressed in this comment. |

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| comment | *91* comment by: *Lufthansa Technik AG*<br><br>No management training necessary as CDCCL could be treated like ALI, ADs, duplicate inspections, etc. were management also does not have to perform specific training. |
| response | *Not accepted*<br><br>The accountable manager, the group of persons representing the maintenance management structure of the organisation, the quality manager and the staff required to quality monitor the organisation should attend only a phase 1 training, which is an awareness on the subject of Fuel Tank Safety. |

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| comment | *92* comment by: *Lufthansa Technik AG*<br><br>concerning F): Not agreed. No value added in adding CDCCL related statement to the MOE. Maintenance Data already include reference to CDCCL's, personal has to be properly trained to any of their tasks and kept uptodate according to existing regulations. |

response

*Partially accepted*

The text for approval of continuation of training has been modified. Refer to the answer made to comment 78 to Mr Recchia or to comment 31 from KLM E&M.

comment

*94* ❖ comment by: *CAA-NL*

Page 8 and page 12 A)
EC 2042/2003 uses a slightly different definition of **"Large Aircraft"** form decision 2003/11/RM's definition of "**large Aeroplanes**", this is confusing.

Describing the affected aircraft should be based on the 2042 definition.

Suggest to either

- extend the applicability to all "large aircraft" as defined in 2042 (>5700 + multi-engined helicopters) or
- start with "large aircraft" and exclude some: "large aircraft excluding helicopters, commuter aeroplanes and aeroplanes with less than 30 passengers or payload of less then 3402 kg (7500 lbs)".

As reminder the definitions are:
**2042/2004**: '**large aircraft'** means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5 700 kg, or
a multi-engined helicopter.

**2003/11/RM**: **'Large aeroplane'** means an aeroplane of more than 5700 kg (12 500 pounds) maximum certificated take-off weight. The category 'Large Aeroplane' does not include the commuter aeroplane category (For commuter aeroplane category, see CS 23.1 and CS 23.3).

response

*Not accepted*

This definition based on aeroplanes as defined per Decision 2003/11/RM still fits, the Agency sees no reason to modify it.
A definition based on aircraft as per 2042/2003 would be more complicated.
The effectivity of helicopters is unchanged: helicopters are not affected.

To be noted: the definition of aeroplane effectivity has been modified to include in addition to the previous definition:

- ...
- Large aeroplanes (CS-25) as defined in Decision 2003/11/RM of the Executive Director of the Agency which refer to CS-25 at amendment 2 or later in their certification basis.

comment

*95* ❖ comment by: *CAA-NL*

Page 9 and 13 2) give details on the training and the examination. Part-66 and Part-147 give detailed requirements for training and examination. Where possible Part-145 AMC should refer to these requirements and only deviate from it with good reason (and explanation).

E.g. Part-66 Appendix II and III give examination standards: three alternatives

and 75% pass mark. This NPA uses four alternatives, which makes it harder to achieve 75%.

Propose to refer to Part-66 and 147 for training and examination standards or at least require three alternatives instead of four.

response

*Not accepted*

Refer to the answer made to the CAA of Norway in comment No.8.

It is the number of questions which is calculated to achieve the score of 75%, not the number of answers in each question.

comment

*96* ❖ comment by: *CAA-NL*

Page 10 and 14 3) require continuation training at **"intervals of two years".** To be consistent with part-145.A.35 (d) the continuation training should be required in "**each two years period**".

response

*Accepted*

Text is modified accordingly.

comment

*103* comment by: *UK CAA*

Is it intended that the training only covers CDCCLs and not Fuel Systems ALIs?

response

*Accepted*

Text modified accordingly.

comment

*105* comment by: *UK CAA*

**Paragraph**
Appendix XII to AMC to M.A.706(f) and M.B.102(c) - para E) c) iii)
(Also applicable to Appendix IV to AMC145.A.30(e) and 145.B.10(3))

**Comment**
The reference to "margins of fuel system safety improvements from 10-6 to 10-9.." is not understood. It is suggested that these numbers are removed.

**Justification**
The rate of catastrophic accidents from fuel tank explosions was of the order of 10-8 before SFAR 88 and INT/POL/25/12. What improvements have been achieved by SFAR and 88/INT/POL/25/12 are not entirely known, which is why flammability reduction is being pursued to ensure a rate better than 10-9. It is suggested that these numbers are removed.

response

*Accepted*

The reference to margins of fuel system safety improvements from 10-6 to 10-9 has been removed.

comment

*107* comment by: *UK CAA*

**Paragraph**

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| | Appendix XII to AMC to M.A.706(f) and M.B.102(c) - para E) c) iii)<br>**(Also applicable to Appendix IV to AMC145.A.30(e) and 145.B.10(3))**<br><br>"INT/POL 25/12" means 'interim' policy not 'internal' policy. |
| response | *Accepted*<br><br>Mistyping in the text has been modified accordingly. |

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| resulting text | *Refer to the resulting text in the Appendix B at the end of this CRD.* |

**B. DRAFT DECISIONS - III. Draft Decision on Annex IV - AMC Part-66** p. 15

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| comment | *97* comment by: *CAA-NL*<br><br>page 15 AMC 66.A.45(d)<br><br>This AMC should be included in Appendix III rather than as separate AMC.<br><br>Propose to add to the introduction module in Appendix III:<br><br>5 Time limits/maintenance checks<br>6 Dimensions/Areas (weights MTOW etc)<br>7 Lifting and Shoring<br>8 Levelling and weighing<br>9 Towing and taxiing<br>10 Parking/mooring, Storing & Return to Service<br>11 Placards and Markings<br>12 Servicing<br>Standard practices - only type particular<br>**Critical aspects, CDCCL's, Fuel tank safety** |
| response | *Not accepted*<br><br>It is the opinion of the Agency that the information in AMC to 66.A.45(d) is enough.<br>It is not the purpose of the Appendix III to Part-66 to be amended for each particularities of aircraft type. |

**B. DRAFT DECISIONS - III. Draft Decision on Annex IV - AMC Part-66 - AMC 66.A.45(d) Type / task training and ratings** p. 15

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| comment | *29* comment by: *Bastian Wroblewski*<br><br>Theoretical and practical training should also take into account critical aspects such as Critical Design Configuration Control Limitations and Wiring Practises. |
| response | *Accepted*<br><br>The Appendix I to Part-66 'Basic knowledge syllabus" shall be modified to introduce the CDCCL aspects. |

comment

*30* comment by: *KLM Engineering & Maintenance*

Comment: A certain amount of concern is building within KLM E&M with respect to the increasing amount of regulatory material put in Part 145 regarding personnel training and what personnel needs to know in order to be allowed to perform its duties (to the detriment of the contents of Part 66). We feel that the driver behind this is the intent that a larger part of the Part 145 personnel count than just the Certifying Staff has demonstrably received training and is therefore "certified" to perform certain maintenance activities. This phenomenon first materialized under the Part 145.A.30(e) , Human Factors Competence. Whilst KLM E&M then understood and accepted the rationale behind the Human Factors Competence rulemaking, we see the phenomenon now extended to the Fuel Tank Safety rulemaking.
KLM E&M does not agree with this development. Unlike Human Factors competence, Fuel Tank Safety training is a very technical oriented training and therefore does not differ from other technical training. And in our opinion it is mainly the Certifying Staff that has to take the full load of this training.
What type of technical training comes next that will receive the same treatment as the Fuel Tank Safety training ? We would very much like to urge EASA to undo this unwanted and unnecessary development.
For the moment, with regards to AMC 66.A.45(d) Type/task training and ratings, we would like to make a plea for embodiment of Guidance in Part 66 on Fuel Tank Safety Training since we view our Certifying Staff as crucial personnel in the accomplishment of Fuel Tank Safety related tasks. This would then imply that , when absolutely necessary, the Part 145 must reflect additional requirements for Fuel Tank Safety (training) for non-certifying staff only . And we would like to keep the embodiment of such requirements in Part 145 as minimal as possible for the reasons explained above.

response

*Not accepted*

The Appendix to AMC 145.A.30(e) and 145.B.10(3) does not limit the training to certifying staff, as the description of personnel affected by phase 2 and continuation training is described as follows:
Phase 1 + Phase 2 + Continuation training:

- All personnel required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A).

comment

*69* comment by: *AEA*

A certain amount of concern is building up with respect to the increasing amount of regulatory material put in Part 145 regarding personnel training and what personnel needs to know in order to be allowed to perform its duties (to the detriment of the contents of Part 66). We feel that the driver behind this is the intent that a larger part of the Part 145 personnel count than just the Certifying Staff has demonstrably received training and is therefore "certified" to perform certain maintenance activities. This phenomenon first materialized under the Part 145.A.30(e) , Human Factors Competence. Whilst we then understood and accepted the rationale behind the Human Factors Competence rulemaking, we see the phenomenon now extended to the Fuel Tank Safety rulemaking.
KLM E&M does not agree with this development. Unlike Human Factors competence, Fuel Tank Safety training is a very technical oriented training and

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| | therefore does not differ from other technical training. And in our opinion it is mainly the Certifying Staff that has to take the full load of this training.<br>What type of technical training comes next that will receive the same treatment as the Fuel Tank Safety training ? We would very much like to urge EASA to undo this unwanted and unnecessary development.<br>For the moment, with regards to AMC 66.A.45(d) Type/task training and ratings, we would like to make a plea for embodiment of Guidance in Part 66 on Fuel Tank Safety Training since we view our Certifying Staff as crucial personnel in the accomplishment of Fuel Tank Safety related tasks. This would then imply that the Part 145 must reflect additional requirements for Fuel Tank Safety (training) for non-certifying staff only. |
| response | *Not accepted*<br><br>The Appendix to AMC 145.A.30(e) and 145.B.10(3) does not limit the training to certifying staff, as the description of personnel affected by phase 2 and continuation training is described as follows:<br>Phase 1 + Phase 2 + Continuation training:<br>All personnel required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A). |

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| resulting text | *Refer to the resulting text in the Appendix B at the end of this CRD.*<br>***N.B.*** *The resulting text in the Appendix B at the end of this CRD is not commentable. Any reactions to the resulting text should be placed here.* |

## Appendix A - Attachments

flowchart.pdf
Attachment #1 to comment #39

## Appendix B – Resulting Text

### I. Decision on Annex I - AMC to Part-M

*AMC M.A.201(h) is amended as follow:*
**AMC M.A.201 (h) Responsibilities**

...
4. An operator should therefore have adequate knowledge of the design status (type specification, customer options, airworthiness directives (AD), airworthiness limitations contained in CS-25 Book 1, Appendix H, paragraph H25.1, fuel tank system airworthiness limitations including Critical Design Configuration Control Limitations (CDCCL), modifications, major repairs, operational equipment) and required and performed maintenance. The status of aircraft design and maintenance should be adequately documented to support the performance of the quality system.
...

*AMC M.A.301-5 is amended as follows:*
**AMC M.A.301-5 Continuing Airworthiness Tasks**

...

Any other continued airworthiness requirement made mandatory by the Agency includes TC related requirements such as: certification maintenance requirements (CMR), certification life limited parts, airworthiness limitations contained in CS-25 Book 1, Appendix H, paragraph H25.1, fuel tank system airworthiness limitations including ~~Airworthiness Limitation Items (ALI) Critical Design Configuration Control Limitations (~~CDCCL~~)~~, etc.

*AMC M.A.501(b) is amended as follows:*
**AMC M.A.501(b) Installation**

...
3. The person referred to under M.A.801 or the M.A. Subpart F approved maintenance organisation should be satisfied that the component in question meets the approved data/standard, such as the required design and modification standards. This may be accomplished by reference to the TC holder or manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be exercised in ensuring compliance with applicable ADs and the status of any service life limited parts fitted to the aircraft component. ~~as well as compliance with Critical Design Configuration Control Limitations~~.

*Paragraph 7 of AMC M.A.501(d) is removed as follows:*
**AMC M.A.501(d) Installation**

….
~~7. When using raw or consumable material on an aircraft or component near, or adjacent to, or that directly impacts an identified Critical Design Configuration Control Limitation item, it should be ensured that the CDCCL has not been compromised.~~

*AMC M.A.706(f) is amended as follows:*
**AMC M.A.706(f) Personnel requirements**

Additional training in ~~Fuel Tank Safety (~~FTS~~)~~ as well as associated inspection standards and maintenance procedures should be required of continuing airworthiness management organisations' technical personnel, especially the ~~those technical support~~ staff involved with the management of CDCCL, Service Bulletin assessment, work planning and maintenance programme management. EASA guidance is provided for training to Continuing Airworthiness Management Organisations' continuing airworthiness personnel in Appendix XII to AMC to M.A.706(f) and M.B.102(c).

*Appendix XII is replaced by the following text:*

**Appendix XII to AMC to M.A.706(f) and M.B.102(c)**

Fuel Tank Safety (FTS) training

This appendix includes generalities and instructions for providing training on FTS issues.

**A) Effectivity:**

- Large aeroplanes as defined in Decision 2003/11/RM of the Executive Director of the Agency (CS-25) and certified after 1 January 1958 with a maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more, and
- Large aeroplanes (CS-25) as defined in Decision 2003/11/RM of the Executive Director of the Agency which refer to CS-25 at amendment 1 or later in their certification basis.

**B) Affected organisations:**

- M.A. Subpart G approved organisations involved in the continuing airworthiness management of aeroplanes specified in paragraph A).
- Competent authorities responsible for the oversight of aeroplanes specified in paragraph A) as required by M.B.704 or for the oversight of the M.A. Subpart G approved organisations specified in this paragraph B).

**C) Persons from affected organisations who should receive training:**

Phase 1 only:

- The accountable manager, the quality manager and quality department personnel.

- All competent authority personnel involved in the oversight of aircraft specified in paragraph A) and in the oversight of M.A. Subpart G organisations specified in paragraph B).

Phase 1 + Phase 2 + Continuation training:

- Personnel of the M.A. Subpart G personnel involved in the management and review of the continuing airworthiness of aircraft specified in paragraph A);

**D) General requirements of the training courses**

Phase 1 – Awareness

The training should be carried out before the person starts to work without supervision but not later than 6 months after joining the organisation. The persons who have already attended the Level 1 Familiarisation course in compliance with Decision 2007/001/R Appendix XII are already in compliance with Phase 1.

Type: Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self study or informative session. Signature of the reader is required to ensure that the person has passed the training.

Level: It should be a course at the level of familiarisation with the principal elements of the subject.

Objectives:

The trainee should, after the completion of the training:

1. Be familiar with the basic elements of the FTS issues.
2. Be able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non conformities.
3. Be able to use typical terms.

Content: The course should include:

- a short background showing examples of FTS accidents or incidents;
- the description of concept of FTS and CDCCL;
- some examples of manufacturers documents showing CDCCL items;
- typical examples of FTS defects;
- some examples of TC holders repair data;
- some examples of maintenance instructions for inspection.

Phase 2 - Detailed training

A flexible period may be allowed by the competent authorities to allow organisations to set the necessary courses and impart the training to the personnel, taking into account the organisation's training schemes/means/practices. This flexible period should not extend beyond 31 December 2010.

The persons who have already attended the Level 2 Detailed training course in compliance with Decision 2007/001/R Appendix XII is already in compliance with Phase 2 with the exception of continuation training.

Staff should have received Phase 2 training by 31 December 2010 or within 12 months of joining the organisation, whichever comes later.

Type: Should be a more in-depth internal or external course imparted by an instructor. It should not take the form of a training bulletin or other self study. An examination should be required at the end, which should be in the form of multiple choice questions with four alternative answers, and the pass mark of the examination should be 75%.

Level: It should be a detailed course on the theoretical and practical elements of the subject.

The training may be made either:

- in appropriate facilities containing examples of components, systems and parts affected by FTS issues. The use of films, pictures and practical examples on FTS is recommended; or
- by attending a distance course including a film when such film meets the intent of the objectives and content here below.

The duration of the course for Phase 2 should be set to cover the content and objectives but should not be less than 2 full days .

The instructor should be very familiar with the data mentioned in the Objectives and Content in E).

Objectives:

The attendant should, after the completion of the training:

- have knowledge of the history of events related to FTS issues and the theoretical and practical elements of the subject, have an overview of the FAA regulations known as SFAR (Special FAR) 88 of the FAA and of JAA Temporary Guidance Leaflet TGL 47, be able to give a detailed description of the concept of fuel tank system ALI (including CDCCL, and using theoretical fundamentals and specific examples;
- have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner;
- have detailed knowledge on how the above items affect the aircraft;
- be able to identify the components or parts or the aircraft subject to FTS from the manufacturer's documentation;
- be able to plan the action or apply a Service Bulletin and an Airworthiness Directive.

Content: Following the guidelines described in paragraph E).

Continuation training:

The organisation should ensure that the continuation training is performed in each two years period. The syllabus of the training programme referred to in the Training policy of the Continuing Airworthiness Management Exposition (CAME) should contain the additional syllabus for this continuation training.

The continuation training may be combined with the Phase 2 training in a classroom or at distance.

The continuing training should be updated when new instruction are issued which are related to the material, tools, documentation and manufacturer's or competent authority's directives.

**E) Guidelines for preparing the content of Phase 2 courses.**

The following guidelines should be taken into consideration when the Phase 2 training programme is being established:

a) understanding of the background and the concept of FTS,

b) how the mechanics can recognise, interpret and handle the improvements in the instructions for continuing airworthiness that have been made regarding fuel tank system,

c) awareness of any hazards when working on the fuel system, and especially when the Flammability Reduction System using nitrogen is installed.

Paragraphs a) b) and c) above should be introduced in the training programme addressing the following issues:

i) The theoretical background behind the risks of FTS: the explosions of mixtures of fuel and air, the behaviour of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc., the 'fire triangle', - Explain 2 concepts to prevent explosions:

(1) ignition source prevention; and

(2) flammability reduction.

ii) The major accidents related to FTS, the investigations and their conclusions,

iii) SFAR 88 of the FAA and JAA Interim Policy INT POL 25/12: ignition prevention program initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance,

iv) Explain briefly the concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations items and CDCCL,

v) Where relevant information can be found and how to use and interpret this information in the various Instructions for Continuing Airworthiness (MRB, MPD, SB, AMM, CMM …),

vi) Fuel Tank Safety (FTS) during Maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc.,

vii) Flammability Reduction Systems (FRS) when installed: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,

viii) Recording maintenance actions, recording measures and results of inspections.

The training should include a representative number of examples of defects and the associated repairs as required by the TC/STC holders maintenance data.

**F) Approval of training**

For M.A. Subpart G approved organisations the approval of the initial and continuation training programme can be achieved by the change of the CAME exposition. The modification of the CAME could be approved through an indirect procedure as required by M.A. 704(b). The necessary changes to the CAME to meet the content of this decision should be made and implemented at the time requested by the competent authority.

## II. Decision on Annex II - AMC Part-145

*A new AMC 145.A.45(e) is added:*

**AMC 145.A.45(e) Maintenance data**

The maintenance organisation should transcribe accurately the maintenance data onto such work cards or worksheets or make precise reference to the particular maintenance tasks or tasks contained in such maintenance data making reference to the CDCCL where applicable.

*AMC 145.A.50(a) is amended as follows:*

…

~~3. At any scheduled or unscheduled maintenance task carried out to a fuel system feature classified as a Critical Design Configuration Control Limitations (CDCCL) and before release to service, the maintenance records shall reflect that the correct configuration is maintained and ensured. This should be done by the marking: "CDCCL task".~~

*AMC 145.A.70(a) is amended as follows:*

**AMC 145.A.70(a) Maintenance organisation exposition**

The following information should be included in the maintenance organisation exposition:

The information specified in 145.A.70(a) sub - paragraphs (6) and (12) to (16) inclusive, whilst a part of the maintenance organisation exposition, may be kept as separate documents or on separate electronic data files subject to the management part of said exposition containing a clear cross reference to such documents or electronic data files.

The exposition should contain the information, as applicable, specified in this AMC. The information may be presented in any subject order so long as all applicable subjects are covered. Where an organisation uses a different format, for example, to allow the exposition to serve for more than one approval, then the exposition should contain a cross reference Annex using this list as an index with an explanation as to where in the exposition the subject matter can be found.

The exposition should contain information as applicable, on how the maintenance organisation complies with ~~Critical Design Configuration Control Limitations (~~CDCCL~~)~~ instructions.

~~The exposition should state how the completion of CDCCL is traced.~~

…

*Appendix IV to AMC 145.A.30(e) and 145.B.10(3) is replaced by the following text:*

**Appendix IV to AMC 145.A.30(e) and 145.B.10(3)**

Appendix IV

Fuel Tank Safety (FTS) training

This appendix includes generalities and instructions for providing training on FTS issues.

**A) Effectivity:**

- Large aeroplanes (CS-25) as defined in Decision 2003/11/RM of the Executive Director of the Agency and certified after 1 January 1958 with a maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more, and
- Large aeroplanes as defined in Decision 2003/11/RM of the Executive Director of the Agency (CS-25) which refer to CS-25 at amendment 1 or later in their certification basis.

**B) Affected organisations:**

- Part-145 approved maintenance organisations involved in the maintenance of aeroplanes specified in paragraph A) and fuel system components installed on such aeroplanes when the maintenance data are affected by CDCCL.
- Competent authorities responsible for the oversight of the Part-145 approved organisations specified in this paragraph B).

**C) Persons from affected organisations who should receive training:**

Phase 1 only:

- The accountable manager, the group of persons representing the maintenance management structure of the organisation, the quality manager and the staff required to quality monitor the organisation.
- All competent authority personnel involved in the oversight of Part-145 approved maintenance organisations specified in paragraph B).

Phase 1 + Phase 2 + Continuation training:

- All personnel required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A).

**D) General requirements of the training courses**

Phase 1 – Awareness

The training should be carried out before the person starts to work without supervision, but not later than 6 months after joining the organisation. The persons who have already attended the Level 1 Familiarisation course in compliance with Decision 2007/002/R Appendix IV is already in compliance with Phase 1.

Type: Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self study or informative session. Signature of the reader is required to ensure that the person has passed the training.

Level: It should be a course at the level of familiarisation with the principal elements of the subject.

Objectives:

The trainee should, after the completion of the training:

1. Be familiar with the basic elements of the FTS issues.
2. Be able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non conformities.
3. Be able to use typical terms.

Content: The course should include:

- a short background showing examples of FTS accidents or incidents;
- the description of concept of FTS and CDCCL;
- some examples of manufacturers documents showing CDCCL items;
- typical examples of FTS defects;
- some examples of TC holders repair data;
- some examples of maintenance instructions for inspection.

Phase 2 - Detailed training

A flexible period may be allowed by the competent authorities to allow organisations to set the necessary courses and impart the training to the personnel, taking into account the organisation's training schemes/means/practices. This flexible period should not extend beyond 31 December 2010.

The persons who have already attended the Level 2 Detailed training course in compliance with Decision 2007/002/R Appendix IV is already in compliance with Phase 2 with the exception of continuation training.

Staff should have received Phase 2 training by 31 December 2010 or within 12 months of joining the organisation, whichever comes later.

Type: Should be a more in-depth internal or external course imparted by an instructor. It should not take the form of a training bulletin, or other self study. An examination should be required at the end, which should be in the form of multiple choice questions with four alternative answers, and the pass mark of the examination should be 75%.

Level: It should be a detailed course on the theoretical and practical elements of the subject.

The training may be made either:

- in appropriate facilities containing examples of components, systems and parts affected by FTS issues. The use of films, pictures and practical examples on FTS is recommended; or
- by attending a distance course including a film when such film meets the intent of the objectives and content here below.

The duration of the course for Phase 2 should be set to cover the content and objectives but should not be less than 2 full days.

The instructor should be very familiar with the data mentioned in the Objectives and Content in E).

Objectives: The attendant should, after the completion of the training:

- have knowledge of the history of events related to FTS issues and the theoretical and practical elements of the subject, have an overview of the FAA regulations known as SFAR (Special FAR) 88 of the FAA and of JAA

Temporary Guidance Leaflet TGL 47, be able to give a detailed description of the concept of fuel tank system ALI (including CDCCL, and using theoretical fundamentals and specific examples;

- have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner;
- have detailed knowledge on how the above items affect the aircraft;
- be able to identify the components or parts or the aircraft subject to FTS from the manufacturer's documentation;
- be able to plan the action or to apply a Service Bulletin and an Airworthiness Directive.

Content: Following the guidelines described in paragraph E).

Continuation training

The organisation should ensure that the continuation training is required in each two years period. The syllabus of the training programme referred to in 3.4 of the Maintenance Organisation Exposition (MOE) should include the additional syllabus for this continuation training.

The continuation training may be combined with the Phase 2 training in a classroom or at distance.

The continuing training should be updated when new instruction are issued which are related to the material, tools, documentation and manufacturer's or competent authority's directives.

**E) Guidelines for preparing the content of Phase 2 courses.**

The following guidelines should be taken into consideration when the Phase 2 training programme are being established:

a) understanding of the background and the concept of FTS,

b) how the mechanics can recognise, interpret and handle the improvements in the instructions for continuing airworthiness that have been made regarding fuel tank system,

c) awareness of any hazards when working on the fuel system, and especially when the Flammability Reduction System using nitrogen is installed.

Paragraphs a) b) and c) above should be introduced in the training programme addressing the following issues:

i) The theoretical background behind the risk of FTS: the explosions of mixtures of fuel and air, the behaviour of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc., the 'fire triangle', - Explain 2 concepts to prevent explosions:

(1) ignition source prevention; and

(2) flammability reduction.

ii) The major accidents related to FTS, the investigations and their conclusions,

iii) SFAR 88 of the FAA and JAA Interim Policy INT POL 25/12: ignition prevention program initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance),

iv) Explain the briefly concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations items and CDCCL,

v) Where relevant information can be found and how to use and interpret this information (aircraft maintenance manuals, component maintenance manuals, Service Bulletins …),

vi) Fuel Tank Safety (FTS) during Maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc.,

vii) Flammability Reduction Systems (FRS) when installed: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,

viii) Recording maintenance actions, recording measures and results of inspections.

The training should include a representative number of examples of defects and the associated repairs as required by the TC/STC holders maintenance data.

**F) Approval of training**

For Part-145 approved organisations the approval of the initial and continuation training programme can be achieved by the change of the MOE exposition. The modification of the MOE could be approved through an indirect procedure as required by 145.A.70(c). The necessary changes to the MOE to meet the content of this decision should be made and implemented at the time requested by the competent authority.

## III. Decision on Annex IV - AMC to Part-66

*AMC 66.A.45(d) is amended as follows:*

**AMC 66.A.45(d) Type / task training and ratings**

...

3. Theoretical and practical training should also take into account critical aspects such as Fuel Tank Safety (FTS) airworthiness limitation items (ALI) including Critical Design Configuration Control Limitations (CDCCL).

~~EASA guidance is provided for training in Appendix IV to AMC to 66.A.45(d).~~

...

*Appendix IV to AMC to 66.A.45(d) is removed.*