

***European Aviation Safety Agency***

---

**DECISION No 2007/002/R  
OF THE EXECUTIVE DIRECTOR OF THE AGENCY  
of 13 March 2007**

**amending Annex II of Decision N° 2003/19/RM of the Executive Director of the Agency of 28 November 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.**

THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY,

Having regard to Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency<sup>1</sup> (hereinafter referred to as the Basic Regulation), and in particular Articles 13 and 14 thereof,

Having regard to the 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<sup>2</sup>,

Whereas:

- (1) Annex II of Acceptable Means of Compliance to Part-145 of Decision 2003/19/RM is required to be up to date to reflect the need of introducing the concept of Critical Design Control Configuration Limitations (CDCCL).
- (2) To achieve this requirement the text of the Annex II of Acceptable Means of Compliance to Part-145 of Decision 2003/19/RM should be amended accordingly.
- (3) The Agency shall issue certification specifications, including airworthiness codes and acceptable means of compliance, as well as any guidance material for the application of the Basic Regulation and its implementing rules.

---

<sup>1</sup> OJ L 240, 7.9.2002, p. 1. Regulation as last amended by Regulation (EC) No 1701/2003 (OJ L 243, 27.9.2003, p. 5).

<sup>2</sup> OJ L 315, 28.11.2003, p. 1. Regulation as amended by Regulation (EC) No 707/2006 (OJ L 122, 9.5.2006, p. 17).

- (4) The Agency, pursuant to Article 43 of the Basic Regulation and Articles 5(3) and 6 of the rulemaking procedure<sup>3</sup>, has widely consulted interested parties<sup>4</sup> on the matters which are the subject of this Decision and has provided thereafter a written response to the comments received<sup>5</sup>.

HAS DECIDED:

*Article 1*

The Annex II of Acceptable Means of Compliance to Part-145 of Decision 2003/19/RM of the Executive Director of the Agency of 28 November 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, is hereby amended in accordance with the Annex 1 to this Decision.

*Article 2*

This Decision shall enter into force on 20 March 2007.

Done in Cologne, 13 March 2007

P. GOUDOU  
By delegation C. PROBST

---

<sup>3</sup> Decision of the Management Board concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ("rulemaking procedure"), EASA MB/7/03, 27.6.2003.

<sup>4</sup> See: NPA No 22-2005

<sup>5</sup> See: CRD No 22-2005

## Annex 1 to Decision 2007/002/R

*The following paragraphs of Annex II to Decision 2003/19/RM AMC to Part-145 are amended as follows:*

### **AMC 145.A.30(e) Personnel requirements**

*Insert a new paragraph 11:*

11. Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required of maintenance organisations' technical personnel, especially technical personnel involved with the compliance of CDCCL tasks.

EASA guidance is provided for training to maintenance organisation personnel in Appendix IV to AMC to 145.A.30(e) and 145.B.10(3).

### **AMC 145.A.42(b) Acceptance of components**

The EASA Form 1 identifies the eligibility and status of an aircraft component. Block 13 "Remarks" on the EASA Form 1 in some cases contains vital airworthiness related information which may need appropriate and necessary actions.

The receiving organisation should be satisfied that the component in question is in satisfactory condition and has been appropriately released to service. In addition, the organisation should ensure that the component meets the approved data/standard, such as the required design and modification standard. This may be accomplished by reference to the manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be exercised in ensuring compliance with applicable airworthiness directives, ~~and~~ the status of any life limited parts fitted to the aircraft component as well as Critical Design Configuration Control Limitations.

### **AMC 145.A.45(b) Maintenance data**

1. Except as specified in sub-paragraph 5, each maintenance organisation approved under Part-145 should hold and use the following minimum maintenance data relevant to the organisation's approval class rating. All maintenance related Implementing Rules and associated AMCs, approval specifications and Guidance Material, all applicable national maintenance requirements and notices which have not been superseded by an Agency requirement, procedure or directive and all applicable EASA airworthiness directives plus any non-national airworthiness directive supplied by a contracted non-EU operator or customer as well as Critical Design Configuration Control Limitations.

....

#### **AMC 145.A.45(d) Maintenance data**

The referenced procedure should address the need for a practical demonstration by the mechanic to the quality personnel of the proposed modified maintenance instruction. When satisfied the quality personnel should approve the modified maintenance instruction and ensure that the type certificate or supplementary type certificate holder is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances;

- a Where the type certificate / supplementary type certificate holders original intent can be carried out in a more practical or more efficient manner.
- b Where the type certificate / supplementary type certificate holders original intent cannot be achieved by following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.
- c For the use of alternative tools / equipment.

Important note: Critical Design Configuration Control Limitations (CDCCL) are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCL constitutes an aircraft modification that should be approved in accordance with Part-21.

#### **AMC 145.A.45(g) Maintenance data**

1. To keep data up to date a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme. Special attention should be given to TC related data such as certification life limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.

2. ....

#### **AMC 145.A.50(a) Certification of maintenance**

*Insert a new paragraph 3*

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.65(b)(3) Safety and quality policy, maintenance procedures and quality system**

*Insert a new paragraph 4:*

4. The maintenance organisation should ensure that when carrying out a modification, repair or maintenance, Critical Design Configuration Control Limitations are not compromised; this will require the development of appropriate procedures where necessary by the maintenance organisation. The maintenance organisation should pay particular attention to possible adverse effects of any wiring change to the aircraft, even

a change not specifically associated with the fuel tank system. For example, it should be common practice to identify segregation of fuel gauging system wiring as a Critical Design Configuration Control Limitation.

Maintenance organisations can prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection. Training should be provided to end indiscriminate routing and splicing of wire and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a Critical Design Configuration Control Limitation. EASA guidance is provided for training to maintenance organisation personnel in an Appendix IV to be added to AMC to Part-145.

The maintenance of ignition prevention features is necessary for the inherent safety and reliability of an aircraft's fuel tank system. The aircraft cannot be operated indefinitely with the failure of an ignition prevention feature. The failure will have a direct adverse effect on operational safety. It could prevent the continued safe flight and landing of the aircraft or cause serious or fatal injury to the occupants. The fuel system review required will identify ignition prevention features of the design. The failure of any of these features may not immediately result in an unsafe condition, but it may warrant certain maintenance to support continued airworthiness.

#### **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.

....

*Modify paragraph 1.6 of AMC 145.B.10(3):*

#### **AMC 145.B.10 (3) Competent authority – Qualification and training**

1.6 knowledge of maintenance standards, including Fuel Tank Safety (FTS) training as described in Appendix IV to AMC to 145.A.30(e) and 145.B.10(3).

*Insert a new Appendix IV to AMC to Part-145:*

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

### **Fuel Tank Safety training**

This appendix includes general instructions for providing training on Fuel Tank Safety issues.

#### **1. Levels of training**

##### **Level 1 Familiarisation training**

**Objectives:**

The attendant should, after the completion of the training:

1. be familiar with the basic elements of the fuel tank safety 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.

The familiarisation training should include a presentation of bulletins/notices, short videos or CD material, poster campaigns, etc.

##### **Level 2 Detailed training**

**Objectives:**

The attendant should, after the completion of the training:

1. know the history and the theoretical and practical elements of the subject, have an overview of Special Federal Aviation Regulations (SFARs) from 14 CFR SFAR 88 of the FAA and of JAA TGL 47, be able to give a detailed description of the concept of CDCCL, Airworthiness Limitations Items (ALI) and using theoretical fundamentals and specific examples,
2. have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.
3. have detailed information on how the above items affect the aircraft in the scope of the activity of the organisation or in the fleet.
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.

##### **Continuing training**

The interval between continuing training shall be established by the Maintenance organisation, but should not exceed two years.

The continuing training shall include knowledge on evolution of material, tools, documentation and manufacturer's or competent authority's directives.

2. The personnel directly involved in Fuel Tank Safety (FTS) systems shall be qualified according to the following table:

Organisation	Personnel	Level of knowledge	Continuing training
Aircraft and component maintenance organisations	Personnel in aircraft and component shop maintenance organisations involved in maintenance task planning, all personnel carrying maintenance tasks on aircraft or components classified as Fuel Tank Safety items, support staff and certifying staff	2	Yes
	Management, quality assurance personnel and auditors, personnel in charge of stores, and any personnel not directly involved in maintenance activities as required by the organisation	1	Not required
NAA	Management, inspectors and auditors.	1	Not required

### 3. General requirements

The training shall be carried out at the earliest for the personnel needing level 1 training. Nevertheless, the training for the personnel needing level 2 training has to be carried out before any maintenance task is commenced on an aircraft or a component.

The training should be made in appropriate facilities containing examples of components, systems and parts affected by 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 shall include a representative number of repair and inspections as required by the maintenance programme showing the necessity of using the manufacturer's data.

### 4. Characteristics of the training

The following characteristics shall be taken into consideration when the level 1 or 2 training programmes are being established:

- a) understanding of the background and concepts of fuel tank safety as developed during the last 10 years, and

- b) how in maintenance organisations mechanics can recognise, interpret and handle the improvements that have been made or are being made during fuel tank system maintenance,
- c) awareness of any hazards working on the Fuel System, and especially with a Flammability Reduction System using nitrogen.

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

- i) The theoretical background behind the fuel tank safety: 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 and accident investigations and their conclusions,
- iii) SFARs from 14 CFR 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<sup>-6</sup> to 10<sup>-9</sup>, in fact improvement by a factor 100-1000, to identify unsafe conditions and to correct them, to systematically improve fuel tank 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,
- v) Where relevant information can be found by the mechanics and how to use and interpret this information (maintenance manuals, component maintenance manuals)
- vi) Fuel Tank Safety and 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: 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.