



**COMMENT RESPONSE DOCUMENT (CRD)
TO NOTICE OF PROPOSED AMENDMENT (NPA) 2008-11**

**for amending the Executive Director Decision No. 2003/13/RM of 14 November 2003
on certification specifications, including airworthiness codes and acceptable means
of compliance, for sailplanes and powered sailplanes (« CS-22 »)**

And

**for amending the Executive Director Decision No. 2003/18/RM of 14 November 2003
on certification specifications, including airworthiness codes and acceptable means
of compliance, for very light aeroplanes (« CS-VLA »)**

"Exits"

Explanatory Note

I. General

1. The purpose of the Notice of Proposed Amendment (NPA) 2008-11, dated 16 May 2008 was to propose an amendment to Decision 2003/13/RM of the Executive Director of the European Aviation Safety Agency of 14 November 2003 on certification specifications, including airworthiness codes and acceptable means of compliance, for sailplanes and powered sailplanes («CS-22») and to propose an amendment to Decision 2003/18/RM of the Executive Director of the European Aviation Safety Agency of 14 November 2003 on certification specifications, including airworthiness codes and acceptable means of compliance, for very light aeroplanes («CS-VLA»).

II. Consultation

2. The draft Executive Director Decision amending Decision N° 2003/13/RM and 2003/18/RM was published on the web site (<http://www.easa.europa.eu>) on 16 May 2008.

By the closing date of 16 August 2008, the European Aviation Safety Agency (the Agency) had received 23 comments from 9 National Aviation Authorities, professional organisations and private companies.

III. Publication of the CRD

3. All comments received have been acknowledged and incorporated into this Comment Response Document (CRD) with the responses of the Agency.
4. In responding to comments, the following standard terminology is used:
 - **Accepted** – The comment is agreed by the Agency and any proposed amendment is wholly transferred to the revised text.
 - **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.
 - **Noted** – The comment is acknowledged by the Agency but no change to the existing text is considered necessary.
 - **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.

5. The Executive Director 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.
6. Such reactions should be received by the Agency not later than 18 January 2009 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	8	<p style="text-align: right;">comment by: <i>FAA</i></p> <p>The Small Airplane Directorate of the Federal Aviation Administration has carefully reviewed this NPA. We support this NPA and concur without further comment.</p>
response		<p><i>Noted</i></p>

comment	9	<p style="text-align: right;">comment by: <i>Aero-Club of Switzerland</i></p> <p>The Aero-Club of Switzerland thinks, it should be left to the market what aircraft and consequently what kind of exits would be offered to the customers.</p> <p>No aircraft will ever be built the engineer having an upside-down landing (or watering) in mind. To assure a 100 % safe construction, fool-proof in addition, to be operated also by a passenger, much weight will be added, to the detriment of the idea.</p> <p>Please do not add new regulations to the existing ones.</p>
response		<p><i>Not accepted</i></p> <p>The Agency would be failing in its legal obligation to establish and maintain a high uniform level of aviation safety in Europe (EC Regulation 216/2008), if a known safety issue was left to market forces. The proposals contained in NPA 2008-11 represent a minimum safety standard that is both relevant and cost effective.</p>

comment	10	<p style="text-align: right;">comment by: <i>Luftfahrt-Bundesamt</i></p> <p>The LBA accepts and supports the contents of the NPA.</p>
response		<p><i>Noted</i></p>

comment	11	<p style="text-align: right;">comment by: <i>Austro Control GmbH</i></p> <p>This NPA is supported by Austro Control.</p>
response		<p><i>Noted</i></p>

A. Explanatory Note - IV. Content of the Draft Decision - Review of Existing Requirements - CS-22

p. 7-8

comment	15	comment by: <i>Royal Danish Aeroclub</i>
	A, IV, 10, c: Exit in turnover position is more or less impossible, and should not be a overall demand to existing aeroplanes and gliders. We do support the idea of having a demand for exits in new constructions in the proposed regulation. Retrofitting of exits in the existing fleet of small aeroplanes and gliders are, realistically seen impossible.	
response	<i>Noted</i> While retroactive action to the existing fleet was proposed (see Section V, RIA option 3), it was concluded that the economic impact was too high and not commensurate with the expected safety benefit. Option 2 has been selected and there is no intention to introduce this rule change retroactively to the existing fleet.	

A. Explanatory Note - IV. Content of the Draft Decision - Review of Existing Requirements - Envisaged change to CS-VLA

p. 8

comment	7	comment by: <i>Walter Gessky</i>
	The subject as proposed is acceptable for the Austrian Ministry of Transport, Innovation and Technology.	
response	<i>Noted</i>	

A. Explanatory Note - V. Regulatory Impact Assessment - Options

p. 9

comment	16	comment by: <i>Royal Danish Aeroclub</i>
	A, V, 12: Option 2 should be used. We do support the idea of changing the specifications in the future for new certifications and new constructions of small aeroplanes and gliders after CS-22 and CS-VLA.	
response	<i>Noted</i> Option 2 was the selected option and is reflected in these proposals.	

A. Explanatory Note - V. Regulatory Impact Assessment - Impacts

p. 9-10

comment	17	comment by: <i>Royal Danish Aeroclub</i>
	A, V, 14, a, ii: Option 3: A retroactive action would have unknown and large economic	

consequences, which could have a negative effect on the whole GA and air sports. A decrease in the number of active pilots will reduce the future market for manufacturers of aeroplanes, gliders and equipment.

response *Noted*

While retroactive action to the existing fleet was proposed (see Section V, RIA option 3), it was concluded that the economic impact was too high and not commensurate with the expected safety benefit. Option 2 has been selected and there is no intention to introduce this rule change retroactively to the existing fleet.

A. Explanatory Note - V. Regulatory Impact Assessment - Summary and Final Assessment

p. 10

comment

1

comment by: *Light Aircraft Association UK*

The LAA agrees that Option 2 is an appropriate course of action. This can be supplemented, if appropriate, by communications by appropriate bodies (e.g. sporting organisations) recommending to their members that the carriage of a crash axe might be appropriate in some aircraft designs. Mandatory retrospective action is not considered appropriate due to the cost of administering the changes (both to the organisations that would be involved in mandating the changes and the owners who are likely to bear the cost of modification action).

response

Noted

The Agency supports such an approach.

comment

18

comment by: *Royal Danish Aeroclub*

A, V, 15, a:

Option 1: If option 1 is selected, there will be no changes to current situation. This mean that there will be no nex negative effect on economics.

Option 2 should be used, because the new design of CS-VLA with exit from turnover position will on long terms have a positive effect.

No changes in CS-22 designs are accepted unless sufficient documentation for improvement in safety and cost benefit analyses. We do support the idea of clarification in AMC 22.807 as a good idea.

response

Noted

Option 2 has been selected. No retroactive applicability is considered.

B. Draft Decisions - Draft Decision to CS-22 - Book 1 Subpart B Design & Construction - CS 22.807 Emergency Exit

p. 11

comment

2

comment by: *Light Aircraft Association UK*

The LAA agrees with the proposed amendments.

response

Noted

comment	<p><i>12</i> comment by: <i>Transport Canada Civil Aviation Standards Branch</i></p> <p>The proposed wording in CS 22.807 seems to be inconsistent with the wording in the proposed CS-VLA 807 and FAR 23.807 in that it does not refer to a crash attitude.</p> <p>Transport Canada recommends that the wording of CS 22.807 be changed to read:</p> <p>"The cockpit must be so designed that unimpeded and rapid escape in emergency situations during flight and in any normal or crash attitude on the ground is possible..."</p>
response	<p><i>Accepted</i></p> <p>Change is accepted as it is providing further clarification.</p>

resulting text	<p>CS 22.807 Emergency Exit</p> <p>(a) The cockpit must be so designed that unimpeded and rapid escape in emergency situations during flight and in any normal or crash attitude on the ground is possible with the occupant wearing a parachute (See AMC 22.807(a))</p> <p>(b) ...</p>
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B. Draft Decisions - Draft Decision to CS-22 - Book 2 AMC 22.807(a) Emergency Exit	p. 11
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comment	<p><i>3</i> comment by: <i>Light Aircraft Association UK</i></p> <p>The LAA agrees with the proposed amendments.</p>
response	<p><i>Noted</i></p>

comment	<p><i>13</i> comment by: <i>Transport Canada Civil Aviation Standards Branch</i></p> <p>There appears to be an inconsistency between CS 22.807 and the proposed AMC 22.807(a). The CS requires that the cockpit be designed to allow unimpeded and rapid escape and this requirement seems to apply to all sailplanes and all cases. However, the AMC seems to imply that the requirement only applies in the case of an inverted position if a life threatening post-crash hazard, e.g. fire, is likely to exist. This in turn implies that CS 22.807 does not apply to non-powered sailplanes since (as stated in Section 10.c of the NPA) "without an engine and fuel system fitted, there is no additional fire hazard." While an extremely rapid escape might not be essential in the absence of a life threatening post-crash hazard, surely there should be a provision for an escape in the inverted position in all cases, consistent with the requirement of CS 22.807. Someone could easily die of injuries, exposure to the elements, etc, if they were unable to escape and were left trapped in the</p>
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inverted position for an extended period of time.

The 3rd and 4th paragraphs of the AMC are somewhat repetitive but are inconsistent at the same time. Both the 3rd and 4th paragraphs indicate it would be acceptable to provide for the use of a crash axe but while the 3rd paragraph indicates that it would not be necessary to consider wearing a parachute in that event, the 4th paragraph makes no mention of a parachute. In addition to indicating that it is acceptable to provide a crash axe, the 4th paragraph indicates that specific design features, such as a weak point, would be acceptable yet the 3rd paragraph make no mention of those features. Reading the two paragraphs, it is not entirely clear what alternative approaches would be acceptable.

If we understand the intent correctly, we recommend that the wording of AMC be changed to read:

"When assessing ground escape, the possibility of the aircraft coming to rest in an inverted (turnover) position should be determined.

If it is determined that a design is not susceptible to turnover, then no further action is necessary. If however turnover remains a distinct possibility or is questionable, provisions should be made in the basic design to allow the occupants to make a rapid escape from a turnover position.

As an alternative to provisions within the basic design, it is acceptable if qualified escape equipment (e.g. crash axe) or specific design features on the canopy (e.g. identified weak point) are provided that would permit the occupant(s) to make a rapid escape from the inverted position. In such a case, it would not be necessary to consider the wearing of a parachute, as escape could be made more rapid if the occupant(s) released their parachute(s) prior to egress rather than attempt to enlarge an escape opening or risk getting entangled."

response *Partially accepted*

1st part - Accepted. The essential requirements of the basic regulation (EC 216/2008) paragraph 2.c.2, states that "*provisions must be made to give occupants every reasonable chance of ... quickly evacuating the aircraft ... in the event of an emergency landing on land or water*". To meet the essential requirements, the text of AMC 22.807(a) is therefore amended to delete the dependence on an assessment of post-crash hazards.

2nd part - Partially Accepted. The 4th paragraph was intended to give examples of how the previous paragraphs could be applied to an aircraft incorporating a canopy. However, to avoid being too prescriptive and to aid clarity the text is re-written.

comment 20

comment by: UK CAA

Paragraph: AMC 22.807 (a)

Comment:

The AMC should address the installation and stowage of escape equipment such that the equipment does not hazard the crew (e.g. hitting the pilot on the head upon crash impact).

response *Not accepted*

Covered under the existing provision of 22.561(d)

comment

22

comment by: UK CAA

Paragraph: B, I

Comment:

The proposed AMC 22.807(a) mentions 'qualified' escape equipment (e.g. crash axe). There is no definition of 'qualified' or how this is demonstrated.

Justification:

Although crash axes, or crowbars, are required to be provided in larger aircraft there is no requirement for them to be approved and no demonstration of their use. Either the word 'qualified' should be explained, for example by requiring test to show that the canopy can be broken, or the word should be omitted.

response

Accepted

While the intent is already covered under CS 22.1301(a)(1) "*be of a kind and design appropriate to its intended function*", it is considered appropriate to give further advice on the acceptance of escape equipment in the AMC.

resulting
text

AMC 22.807(a) Emergency Exit

When assessing ground escape, the possibility of the aircraft coming to rest in an inverted (turnover) position should be determined.

If it is determined that an aircraft design is not susceptible to turnover, then no further action is necessary. If however turnover remains a distinct possibility or is questionable, provisions should be made in the basic aircraft design to allow the occupants to make a rapid escape from a turnover position. This may include the design of the emergency exit or fuselage, the use of materials which are readily breakable or by installing weak points in the fuselage or canopy.

As an alternative to provisions within the basic aircraft design, it is acceptable to install qualified escape equipment (e.g. crash axe) that would permit the occupant(s) to make a rapid escape from the inverted position. In such a case, it would not be necessary to consider the wearing of a parachute, as escape could be made more rapid if the occupant(s) released their parachute(s) prior to egress rather than attempt to enlarge an escape opening or risk getting entangled. In order to qualify escape equipment, it must be shown by test or by similarity with previous tests, that the equipment can perform its intended function.

comment

4

comment by: Light Aircraft Association UK

The LAA agrees with the proposed amendments.

response

Noted

B. Draft Decisions - Draft Decision to CS-VLA - Book 1 Subpart D Design & Constructions - CS-VLA 807 Emergency exits

p. 12

comment	5	comment by: <i>Light Aircraft Association UK</i>
	The LAA agrees with the proposed amendments.	
response	<i>Noted</i>	

B. Draft Decisions - Draft Decision to CS-VLA - Book 2 AMC VLA 807(a) Emergency Exits

p. 12

comment	6	comment by: <i>Light Aircraft Association UK</i>
	The LAA agrees with the proposed amendments.	
response	<i>Noted</i>	

comment	14	comment by: <i>Transport Canada Civil Aviation Standards Branch</i>
	<p>The wording of the proposed AMC VLA 807(a) states that the inverted position should be considered probable "unless otherwise justified". Transport Canada believes that the meaning of "unless otherwise justified" may be unclear since EASA has stated in the NPA that it "sees no justification why [turnover in a crash] should not be equally applicable to aeroplanes in the VLA category." If EASA wants to clearly impose the turnover requirement, we recommend the wording in the AMC be changed to:</p> <p>"When considering crash attitudes, the inverted... "</p> <p>If EASA's intent is to allow some leeway, then we recommend that wording similar to that used in the proposed AMC CS 22.807 be used for consistency, i.e.:</p> <p>"Unless it is determined that a design is not susceptible to turnover, the inverted position (turnover) should be considered probable."</p>	
response	<p><i>Partially accepted</i></p> <p>The intent here was to allow some alleviation if the applicant could establish that turnover was improbable. The second of the recommended texts is accepted.</p> <p>Other changes added to further align CS-VLA with CS-22.</p>	

comment	19	comment by: <i>Royal Danish Aeroclub</i>
	<p>General:</p> <p>Royal Danish Aeroclub do support the proposal as described in NPA 2008-11. We have no further comments to the proposal.</p>	
response	<i>Noted</i>	

comment	21	comment by: UK CAA
	<p>Paragraph: AMC VLA.807 (a) Comment: The AMC should address the installation and stowage of escape equipment such that the equipment does not hazard the crew (e.g. hitting the pilot on the head upon crash impact).</p>	
response	<p><i>Not accepted</i></p> <p>Covered under the existing provision of VLA.561(c).</p>	

comment	23	comment by: UK CAA
	<p>Paragraph: B, II Comment: The proposed AMC VLA.807(a) mentions 'qualified' escape equipment (e.g. crash axe). There is no definition of 'qualified' or how this is demonstrated. Justification: Although crash axes, or crowbars, are required to be provided in larger aircraft there is no requirement for them to be approved and no demonstration of their use. Either the word 'qualified' should be explained, for example by requiring test to show that the canopy can be broken, or the word should be omitted.</p>	
response	<p><i>Accepted</i></p> <p>While the intent is already covered under CS 22.1301(a)(1) "<i>be of a kind and design appropriate to its intended function</i>", it is considered appropriate to give further advice on the acceptance of escape equipment in the AMC.</p>	

resulting text	<p>AMC VLA 807(a) Emergency Exits</p> <p>Unless it is determined that a design is not susceptible to turnover, the inverted position (turnover) should be considered probable. If escape in an inverted position is not obvious or is questionable, provisions should be made in the basic aircraft design to allow the occupants to make a rapid escape from a turnover position. This may include the design of the emergency exit or fuselage, the use of materials which are readily breakable or by installing weak points in the fuselage or canopy.</p> <p>As an alternative to provisions within the basic aircraft design, it is acceptable to install qualified escape equipment (e.g. crash axe) that would permit the occupant(s) to make a rapid escape from the inverted position. In order to qualify escape equipment, it must be shown by test or by similarity with previous tests, that the equipment can perform its intended function.</p>
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