

European Aviation Safety Agency

**Comment Response Document (CRD)
on Consultation paper nr. 13 of 4 August 2003**

**CS-22
Certification Specifications for sailplanes and powered sailplanes**

Foreword to the Comment Response document (CRD)

To give a rapid overview of the CRD, the following keywords were used in responding to comments:

- “Carried”: The proposed amendment is wholly transferred to the revised text.
- “Noted”: The comment is acknowledged and where needed the text has been improved.
- “Deferred”: The comment requires further assessment by the Agency under its future rulemaking programme.
- “Disagreed”: The comment is not shared by the Agency.

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53 / Limbach Flugmotoren

Comment

After a discussion with our engineer team and the accountable manager, our opinion about the construction regulations for our engines is as follows:
We don't mind the JAR 22 regulation being renamed or transformed to EASA-regulations but JAR 22 should stay an independent document. Aviation devices according to JAR22 should be continued. We want to avoid a heightening of the regulations by being modelled on JAR-E. Of course we agree to the progressive standardization but the uncomplicated and simple registration of our engines so far has to be kept.

Response

Noted.

During the consultation for CS-E, CS-P, CS-22, CS-VLA, CS-VLR, the views of the commentators were requested on what is the most appropriate location for the certification specifications to be used for engine and propeller to be installed on powered sailplanes, very light aeroplanes (VLA) and very light rotorcraft(VLR)

The following points should be kept in mind:

The Basic Regulation 1592/2002 requires all products to have a Type Certificate. Engine and propeller of whatever size or design, are defined in the Regulation as products.

It is clear that the levels of safety intended by the current JAR-E (CS-E is based on JAR-E plus CS-22 subpart H plus appendix B of JAR-VLR) are higher than that intended by the engine requirements in JAR-22 and JAR-VLR (Used as the basis for CS-22 and CS-VLR).

It is important both that the Agency maintains this principle of the level of regulation being appropriate to the intended use of the product, and that this is clear to all interested parties.

It is important that the location of the requirements (whether in CS-E or CS-22 etc.) should not affect in any way the rigor with which compliance is both demonstrated and found.

Two solutions were offered:

- 1) To place such certification specifications in the certification specifications for engines (CS-E) and certification specifications for propellers (CS-P) (Consistency of engine and propeller texts being the main rationale).
- 2) To place such certification specifications in the aircraft certification specifications either directly (CS-22 and CS-VLR) or by cross-reference (CS-VLA) (Use of an aircraft system approach being the main rationale).

It should be noted that the issue was only related to the location : the texts were technically unchanged (only editorial changes).

A careful review of received comments does not show a clear majority in favour of one or the other solution. Both Authorities and Interested Parties are divided on the issue.

To find a solution for the first issue of all CS, the following was agreed:

-Solution 2 should be adopted because it complies with the general principle of transformation of JARs into CS (avoiding changes). Currently, the engine and propeller certification specifications for powered sailplane, VLA and VLR are included directly or by cross-reference in the corresponding JAR.

-However, the appendix B of JAR-VLR should be replaced by the corresponding text that was included into the draft CS-E circulated for comments. The latter is considered more adequate as specifications for a separate engine certification (imposed by EU Regulation 1592 and Part 21), avoiding the confusing numerous cross references to aircraft specifications.

56 / Europe Air Sports

Comment

It is the intention of CoreGroup-10 to transfer the requirements for engines in JAR-22 Subpart H to CS-E. According to the Explanatory Memorandum the agency will make the decision on the final location of these requirements after getting all the comments.

Europe Air Sports endorses strongly the recommendation of the Recreational Aviation Steering Group (RASG) as written down in attachment one, Explanatory Memorandum to CS 22, page 6. In paragraph 5 the statements by Core Group 9 and 11 recommend to keep the engine and propeller requirements in CS 22 and leave them out of CS P and CS E.

It is of the greatest concern to Europe Air Sports if JAR-22 is split up into various documents in the EASA domain. JAR-22 has been a very comprehensive document where the requirements for gliders are well interconnected.

Europe Air Sports finds that the actual technical requirements for engines (and propellers) provide a satisfactory level of safety as they are today.

The powered sailplane is a glider. If something is wrong with the engine, it is still a glider, hence we do not need the same requirements as for powered aircraft, but a very simple installation and simple management of the engine.

Some of the big differences to other aircraft is the weight-span problem of sailplanes, the need of "soarability" and the way of using them like landing in a field. This leads to special and sometimes lower requirements in order to maintain the present level of safety within gliding. This is an important argument to have the requirements for the engines together with the rest of the requirements.

We are especially concerned, that being put in CS-E and CS-P the requirements will be influenced in future by the

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requirements for other aircraft developed by non-glider experts.

Therefore Europe Air Sports strongly recommends the Agency to have all glider requirements such as for the engines are put together in CS-22 and not split out over CS-22 and CS-E and CS-P.

Europe Air Sports appreciates the opportunity to comment on the draft CS-E rules and will be ready any time to elaborate on their arguments,

Response

Noted.

During the consultation for CS-E, CS-P, CS-22, CS-VLA, CS-VLR, the views of the commentators were requested on what is the most appropriate location for the certification specifications to be used for engine and propeller to be installed on powered sailplanes, very light aeroplanes (VLA) and very light rotorcraft(VLR)

The following points should be kept in mind:

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It is important both that the Agency maintains this principle of the level of regulation being appropriate to the intended use of the product, and that this is clear to all interested parties.

It is important that the location of the requirements (whether in CS-E or CS-22 etc.) should not affect in any way the rigor with which compliance is both demonstrated and found.

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-Solution 2 should be adopted because it complies with the general principle of transformation of JARs into CS (avoiding changes). Currently, the engine and propeller certification specifications for powered sailplane, VLA and VLR are included directly or by cross-reference in the corresponding JAR.

-However, the appendix B of JAR-VLR should be replaced by the corresponding text that was included into the draft CS-E circulated for comments. The latter is considered more adequate as specifications for a separate engine certification (imposed by EU Regulation 1592 and Part 21), avoiding the confusing numerous cross references to aircraft specifications.

61 / CAA UK

Comment

Regulation (EC) No 1592/2002 Annex 1 Essential Requirements for Airworthiness and Differences therein with Certification Specifications

It has been identified that the proposed Certification Specification may not address all of the Essential Requirements (ERs) relating to airworthiness and full compliance with the ERs is not automatically assured. The ERs appear to have been written for aircraft engaged in commercial air transportation and as such there is no background or substantive data for such a sudden move towards much more stringent requirements for other classes of aircraft, particularly for light aircraft, rotorcraft and gliders. It is presumed that it was not the objective of EASA to be unable to accept the current certification codes for those aircraft.

No allowance is made in the ERs for alleviations for small aircraft, unlike for example ER 1.c.3, which does so for system fail safety. It is of course natural to demand higher safety levels for larger aircraft carrying more people. It is accepted accidents have occurred to light aircraft due to such as bird strike and accidental damage and the underestimation of loading conditions. It is also recognised that improvement in some of these areas has been previously sought, however it was understood that it was intended that the regulation would not effect major change in the current certification standards. Additionally it is believed that compliance with the ERs would raise significant issues with foreign Civil Aviation Authorities for any validation project of a type of aircraft in the identified classes.

Response

Noted. Official position to be defined together with the Commission.

61 / CAA UK

Comment

I support the RASG view that the engine and propeller requirements should remain in Subpart H and J respectively.

Response

Noted. However the review group was informed that the formal CAA-UK comment is opposite to the one recorder here. On the issue the following consideration is made:

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The following points should be kept in mind:

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It is important that the location of the requirements (whether in CS-E or CS-22 etc.) should not affect in any way the rigor with which compliance is both demonstrated and found.

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63 / CAA, Sweden

Comment

LFV supports the proposal to maintain the engine and propeller requirements in CS-22 on the basis of arguments expressed by the RASG and CG 9 and 11.

In addition, there is no reason why a separate type certificate for an engine or a propeller could not be issued based on the CS-22 Subpart H and J requirements to fulfill the EASA Basic regulation.

Response

Noted.

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Para. Subpart H & J

25 / LBA

Comment

We like to strongly underline the position of the LBA, supporting that Subparts H and J shall stay in CS-22 and not be transferred into CS-E and CS-P requirements. The reasons are clearly given under items 5. (Position of the Recreational Aviation Steering Group RASG) and 6. (CG-9 and CG-11 support the RASG position) of Attachment 1 to Consultation-Paper No. 13/2003-08-04

Response

Noted.

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B1-SUB E-CS22.903

Para.

75 / DGAC, France

Comment

CS-22 contains in 903/905 something like : the engine / prop must be type certificated in accordance with subpart H / J.

This conflicts with 21A.21 (d) which already imposes the TC to the engine and the propeller prior to certification of the aircraft and with 21A.17 (a)(1) which specifies that the certification basis of the engine/prop is a decision of the Agency.

In addition, this text imposes an undue limit to the engine manufacturer : an engine having a "JAR-E" type certificate should be allowed for installation in a sailplane.

Response

Noted.

The text of the requirement is improved to be more clear and to be consistent with CS-VLA and CS-VLR, and now reads as follows: "The engine must meet the requirements of Subpart H."

The requirements of Subpart H contain the minimum and it is explained in AMC 22.1801 that engines certified under CS-E are accepted as complying with Subpart H.

B1-SUB E-CS22.905

Para.

75 / DGAC, France

Comment

CS-22 contains in 903/905 something like : the engine / prop must be type certificated in accordance with subpart H / J.

This conflicts with 21A.21 (d) which already imposes the TC to the engine and the propeller prior to certification of the aircraft and with 21A.17 (a)(1) which specifies that the certification basis of the engine/prop is a decision of the Agency.

In addition, this text imposes an undue limit to the engine manufacturer : an engine having a "JAR-E" type certificate should be allowed for installation in a sailplane.

Response

Noted.

The text of the requirement is improved to be more clear and to be consistent with CS-VLA and CS-VLR, and now reads as follows: "The propeller must meet the requirements of Subpart J."

The requirements of Subpart J contain the minimum and it is explained in AMC 22.1901 that propellers certified under CS-P are accepted as complying with Subpart J.

Para.

76 / Schempp-Hirth, Germany

Comment

We Suggests that the Subparts H and J stay in CS-22 and that this points not be transferred into CS-E and CS-P requirements.

We recommend further that the competence of the LBA and the EASA Study-group (air frame) will be in the new constellations resp. organisation structure the same like it was in the past, because they show a professional work. In case of the LBA we like to point particularly that the most sailplane manufacturer are in Germany and that this very good working Situation resp. relation between the companies and the LBA was very fruitful and professional in the past.

Response

Noted.

During the consultation for CS-E, CS-P, CS-22, CS-VLA, CS-VLR, the views of the commentators were requested on what is the most appropriate location for the certification specifications to be used for engine and propeller to be installed on powered sailplanes, very light aeroplanes (VLA) and very light rotorcraft(VLR)

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Para. Book 1 General Comments

61 / CAA UK

Comment

Please note the suggested editorial changes given below:

Part A - Book 1:

- 1) Page 1-B-1 CS 22.21 - The note 'Flight tests required in this Subpart B do not constitute all the flight testing necessary to show compliance with JAR-22' has been deleted and is not included under Book 2.
- 2) Page 1-B-6 CS 22.161 – paragraph (c)(4) has merged with (c)(3) and needs to be on a separate line.
- 3) Page 1-B-7 Column 2
 - a) The marginal line and P denoting requirements for powered sailplanes should be deleted from the header block.
 - b) 'CS 22.175 (continued)' at the top of column 2 should be changed to 'CS 22.177 (continued)'
- 4) Page 1-B-8 Column 1 - 'CS 22.207 (continued)' should be changed to 'CS 22.201 (continued)'
- 5) Page 1-B-8 Column 2 - 'CS 22.221 (continued)' should be changed to 'CS 22.207 (continued)'
- 6) Page 1-B-10 CS 22.255(e) the text for this paragraph does not use the standard format but has been centre aligned.
- 7) Page 1-C-1 CS 22.307 - The note 'Structural requirements contained in Subpart C do not constitute all the structural requirements necessary to show compliance with JAR-22' has been deleted and is not included under Book 2.
- 8) Page 1-C-4 Column 2 - 'CS 22.335 (continued)' should be deleted.
- 9) Page 1-C-7 Column 2 - 'CS 22.397 (continued)' should be changed to 'CS 22.399 (continued)'
- 10) Page 1-C-8 CS 22.423 – 'See AMC 22.423' needs to be right justified.
- 11) Page 1-C-8 Column 2 definition of de/da – the formatting needs to be corrected.
- 12) Page 1-C-10 CS 22.477 - Title for this paragraph needs to be left justified.
- 13) Page 1C-12 Column 1 'CS 22.583 (Continued)' and Column 2 'CS 22.593 (Continued)' need to be deleted.
- 14) Page 1D-2 Column 1 'CS 22.629 (Continued)' needs to be deleted.
- 15) Page 1D-3 Column 2 'CS 22.685 (Continued)' needs to be deleted.
- 16) Page 1D-5 Column 1 'CS 22.711 (Continued)' and Column 2 'CS 22.721 (Continued)' need to be deleted.
- 17) Page 1D-7 Column 1 'CS 22.779 (Continued)' should be changed to 'CS 22.771 (Continued)' and Column 2 'CS 22.780 (Continued)' should be changed to 'CS 22.777 (Continued)'
- 18) Page 1D-8 Column 1 'CS 22.785 (Continued)' should be changed to 'CS 22.779 (Continued)' and Column 2 'CS 22.788 (Continued)' should be deleted.
- 19) Page 1D-8 CS 22.780 - table has been split in two and should be merged into one table.
- 20) Page 1-D-9 CS 22.831 – marginal line and P is missing from paragraph (b).
- 21) Page 1-D-9 CS 22.857 – marginal line and P is missing from paragraph (a).
- 22) Page 1-E-3 Column 2 'CS 22.975 (Continued)' needs to be deleted.
- 23) Page 1-E-4 Column 1 'CS 22.995 (Continued)' needs to be deleted.
- 24) Page 1-E-7 CS 22.1191 – 'See AMC 22.1191(c)' needs to be right justified.
- 25) Page 1-F-1 CS 22.1305
 - a) marginal line is missing from second line.
 - b) 'See AMC 22.1305(i)' needs to be added at the end of this requirement.
- 26) Page 1-F-1 CS 22.1322 'Authority' should be changed to 'Agency'.
- 27) Page 1-F-2 CS 22.1361 – marginal line is missing from last two lines of paragraph (a).
- 28) Page 1-G-2 - Header block is missing.
- 29) Page 1-G-3 Column 2 'CS 22.1557 (Continued)' should be changed to CS 22.1545 (Continued)'.
 - 30) Page 1-G-3 CS 22.1553 – marginal line and P is missing from this requirement.
 - 31) Page 1-G-4 - Header block is missing.
 - 32) Page 1-G-4 Column 2 'CS 22.1583 (Continued)' should be changed to CS 22.1557 (Continued)'.
 - 33) Page 1-G-5 CS 22.1583 – marginal line and P is not required for paragraph (2) as this requirement is applicable to both sailplanes and powered sailplanes.
 - 34) Page 1-G-6 - Header block is missing.
- 35) Page 1-G-6 CS 22.1585
 - a) sub-paragraph (i) a marginal line and P need to be added.
 - b) Subparagraph (m), the marginal line should be deleted from this paragraph as this requirements is applicable to both sailplanes and powered sailplanes.
- 36) Page 1-H-1 CS 22.1801 'See AMC 22.1801' should be right justified.
- 37) Page 1-J-1 CS 22.1901 'See AMC 22.1901' should be right justified.
- 38) Page App F-2 it is not clear which manoeuvre in the table this note refers to as no manoeuvres have been marked with an asterisk.
- 39) Page App. K-2 Paragraph 2.2. (a) - the line break between '...the aerotow initially' and 'is in stabilised level flight...' should be deleted.
- 40) Page App. K-2 Paragraph 2.2. (a)(3) – the word spacing needs adjustment.
- 41) Page App K-4 Paragraph 4 – 'See AMC 22 appendix K paragraph 4' needs to be left aligned to match the rest of the text in the Appendix.

Response

Part A - Book 1:

- 1) Noted. A policy decision was taken to remove notes wherever possible. Part 21 identifies requirements for flight testing.
- 2) Carried.
- 3)
 - a) CS are regulatory material issued by the Agency and require a certain degree of quality and formality in the drafting. The suggested marking "P" in the margin does not fit with this approach. A more user-friendly text may be published by external publishers.
 - b) Noted. However, the suggested reference to "continued..." will be removed throughout all CS for consistency.
- 4) Noted. However, the suggested reference to "continued..." will be removed throughout all CS for consistency.
- 5) Noted. However, the suggested reference to "continued..." will be removed throughout all CS for consistency.
- 6) Noted. This will be corrected.
- 7) Noted. A policy decision was taken to remove notes wherever possible.
- 8) Noted. However, the suggested reference to "continued..." will be removed throughout all CS for consistency.

Para. Book 1 General Comments

- 9) Noted. However, the suggested reference to "continued..." will be removed throughout all CS for consistency.
- 10) Noted. References to the corresponding AMC will be relocated under the heading.
- 11) Carried.
- 12) Carried.
- 13) - 16) Carried.
- 17) - 18) Noted. However, the suggested reference to "continued..." will be removed throughout all CS for consistency.
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- 35) a)- b) CS are regulatory material issued by the Agency and require a certain degree of quality and formality in the drafting. The suggested marginal line (marking "P" in the margin) does not fit with this approach. A more user-friendly text may be published by external publishers.
- 36) Noted. References to the corresponding AMC will be relocated under the heading.
- 37) Noted. References to the corresponding AMC will be relocated under the heading.
- 38) Noted. The note will be removed.
- 39) Carried.
- 40) Carried.
- 41) Carried.

Para. Book 2 General

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Comment

Part B – Book 2:

- 1)Page 2-0-1 Paragraph 2.1 – the sentence ' It should be noted that the page numbering will be adapted.' Needs to be deleted from the issued copy of this CS.
- 2)Page 2-0-1 Paragraph 2.4
 - a)Change 'also AMCs...' to AMCs in AMC-20 may also provide
 - b)Should the reference to AMC-20 be to part 21?
- 3)Page 2-0-1 Footer block is missing from this page.
- 4)Page 2-0-2 'Sailplanes and Powered Sailplanes' is missing from the Footer block.
- 5)Page 2-A-1 AMC 22.1 (a) amend 2nd paragraph to read '.....stalling speed, weight to surface area ratio, maximum take-off weight.....'
- 6)Page 2-D-1 AMC 22.613(c) – Spelling error in title, should read 'Material Strength Properties and Design Values'
- 7)Page 2-D-3 AMC 22.788 Paragraph (b) - the line break between '...CS22.788(a)' and 'is ensured for each occupant' should be deleted.

Response

Part B – Book 2:

- 1) Carried.
- 2)
 - a) Carried.
 - B) Disagreed. AMC-20 is appropriate in this instance.
- 3) Noted. This will be corrected.
- 4) Noted. This will be corrected.
- 5) Carried.
- 6) Carried.
- 7) Carried.