European Union Aviation Safety Agency

Comment-Response Document 2020-13

RELATED NPA: 2020-13 — RMT.0037 —15.9.2021

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1. Summary of the outcome of the consultation

During the consultation of NPA 2020-13[1], 37 comments in total were placed from 9 stakeholders, among which 5 national aviation authorities. There was in general full support for the proposed amendments and there were no unfavourable comments on the proposed amendments. Some of the comments received proposed issues that were not within the scope of the proposal of the NPA. They will be reviewed in the context of future rulemaking projects.

1 https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-13

2. Individual comments and responses

In responding to the comments, the following terminology has been applied to attest EASA's position:

(a) **Accepted** — EASA agrees with the comment and any proposed change is incorporated into the text.

(b) **Partially accepted** — EASA either partially agrees with the comment or agrees with it but the proposed change is partially incorporated into the text.

(c) **Noted** — EASA acknowledges the comment, but no change to the text is considered necessary.

(d) **Not accepted** — EASA does not agree with the comment or proposed change.

(General Comments)	-

comment *1* comment by: *KNVVL Royal Netherlands Aviation Organisation*

Dear EASA Team,

We value the efforts to improve rules and regulations. However we like to ask EASA to seek more close contact when drafting rules, regulations and changes with specific sectors, such as glider pilots, AML-holders, clubs and their representations (either national aeroclubs, or European Representatives like European Gliding Union or European Airsports).

We see all too often that EU regulations are not fit for purpose wenn introduced (incorrect, incomplete, not tested in the field) and have to be reworked. We should all (EASA, EU, Sector) look for rules that are "first time right", proportional, serving a purpose. The way the process works now is anything but "LEAN". Due to rework there is a lot of added cost or "MUDA" without any added value. We are all wasting a lot of scarce resources. Examples: the introduction of Part CAO, PART ML, PART FCL, PART 66 L, PART Medical and so on. Example: change from MG CAMO to CAO costs us already € 20000, - and we still have the same rights and obligations (nothing lighter or more proportional, rather the contrary). Changes introduced by ML requires redoing Aircraft Maintenance Programs (another 500 days of labor for 500 gliders down the drain), Part 66 L examinations: similar story.

With respect to Part 22 we have the following additional suggestions for improvement:

1. **Magnetic Compass:**
   Remove the magnetic compass as obligatory instrument for powered gliders (sustainer, self-launching, touring motor glider). Make a magnetic sensor based compass (conventional or electronic) an optional instrument. Motivation: compasses are quite inaccurate and difficult to install properly in the limited space available in gliders. They use up the limited space for more useful instruments and not seldom are in the field of view of the pilot (thus causing a safety hazard). Glider pilots of all sorts use navigation systems

based on satellite and normally have one or more backups on board. Gliders pilots are not allowed to fly IMC and are not trained for Heading and vector instructions by ATC.

2. **Airbrakes:**
   A pilot has only two hands to control the glider. One of course needs to handle the control stick at all times. This leaves the other hand to control: gear (up/down), Flaps, airbrakes, gas (and sometimes also ballast dumping, trim, brake parachute, carb heat, mixture). In the pattern (circuit) and final approach the pilot has a lot of workload and quite often the pilot needs to adjust the throttle, flaps or other items and then he needs to take one hand off the airbrakes lever. In most aircraft the airbrakes are not arrested in the position they are set. If the pilot does not hold the airbrake control handle, the airflow may suck open the airbrakes completely or close them completely. Both cases happen relatively often and lead to unsafe situations and somethimes damages (short landing, lost control). The suggestion is to change CS-22 for new designs to have airbrakes stay in the position they are set in order to allow the pilot to safely adjust other settings (gear, power, trim, flaps etc.). This improvement cannot be very difficult or expensive as Flap mechanisms also have various holding and locking options and settings.
3. **Control arrangement**:
   Quite a number of incidents (lost control) are related to absence of standardization in shape or placement of control handles and knobs. It happens frequently that pilots are operating gear instead of airbrakes, or flaps instead of airbrakes (and all variations). Why? Well glider pilots fly normally various types of aircraft. So pilots have to reconsider the arrangement of knobs, instruments and function very often when changing from one type to another. So for new designs it would lead to safety improvement if handles and knobs were all in the same place, have the same shape, and are operated in the same way. It must be possible for manufacturers to come to an agreement here (from the outside gliders are all the same anyway).
4. **Payload:**
   Many gliders / motorized gliders are designed and approved with unrealistic payloads. A two-seater glider or motor glider with only 150 kg remaining payload for crew after installation of necessary equipment and fuel is really just a single seater (where does one find two not too obese Europeans weighing with clothes and lunch and on-board documents less than 150 kg?). The consequence is that the pliot is fined for flying the aircraft with two persons way over the 150 kg. But this is not correct. The manufacturer has designed an unrealistic aircraft and the Agency or CA overseeing the manufactur have issued a TCDS for a faulty design. Or in other words: the pilot is fined for the fault stemming from poor design and it was all approved for service by the Agency. To correct this matter:
   For new designs: single pilot > 120 kg payload (two seater > 240 kg), excluding full instrumentation, excluding 4 hours of fuel for TMG and at least 1 hour fuel for sustainer and selflauncher gliders.
   For existing designs: review if the MTOW was limited by regulations in place at the time of design and homologation. If yes, allow for more payload (example: increasing an MTOW of 850 kg based on old regulations with only 6% raises MTOW to 900 kg and suddenly the two slightly obese Europeans can fly as intended). Or review the specifications of the existing design. Can

	the e.g. 150 kg payload Scheibe TMG be increased to 200 kg? What are the effects for take off speed, stall speed, landing speed, max speed (VNE,Vra etc.), forces on controls, etc. Are the effects within a 5 -10 % range? Is that causing a safety hazard? Or can the aircraft be operated safely at lower speeds in the high end range (reduce VNE, VRA)? is it helpfull to install a G-force measuring and logging instrument to determine the max. G-forces (loads and overload)? Thank you for your time to review our comments. The items listed above can contribute seriously to safety in the short and long term. We hope that are remarks are taken seriously as is our invitation to work more closely together in the rule making process. We truly hope our well-meant input is not just dismissed as not related to the few items described in the NPA. Egbert Veldhuizen Royal Dutch Aeroclub, KNVVL, Gliding, chairman committee continuing airworthiness www.knvvl.nl **Some facts on the Dutch gliding community.** I (Egbert Veldhuizen) am a member of the Dutch Aeroclub (Koninklijk Nederlandse Vereniging voor de luchtvaart). I am chairman of the committee Continuing Airworthiness for Gliding and Coordinator Continuing Airworthiness in our CAMO/CAO, and holder of a Part 66 L2. We represent some 3500 glider and motor glider pilots, active in 30 clubs. We operate about 550 gliders, both club and privately owned aircraft. All our activities are recreational and take place in weekends or holidays. In total we have some 200 licensed glider technicians according to Part 66 L2 (all converted from national licenses). The technicians are all members of their respective clubs. In the CAMO/CAO we have about 60 AR staff, who provide the ARC's and Airworthiness Reviews for aircraft in the associated clubs. The Airworthiness Review Staff are active members of the clubs. Most clubs only operate gliders (sustainer, self-launch, TMG). One club is TMG only. Only a few clubs operate a tow plane (CS-23 ELA-1). (Annual) inspections, ARC-renewal, small to large repairs are performed by AML staff in the clubs. There is one commercial MF/MG company servicing some private owners and performing complex tasks like fuselage repair, or jobs that need to be completed quickly. Pilots are trained in a joint DTO, some local clubs have their own DTO. As KNVVL we are a member of European Airsports and European Gliding Union. We shortly hope to obtain permission by the Competent Authority to organize Part 66 L 1, L2 theoretical exams (after 3 years of discussion with the CA).
response	Noted General information on the EASA rulemaking process can be found here. The proposal of NPA 2020-13 has been drafted and developed in close coordination with the Sailplane Development Panel (SDP), which is one of the three panels within the *Organisation Scientifique et Technique Internationale du Vol à Voile* (OSTIV). The OSTIV has the special status of an international affiliated member of the *Fédération Aéronautique Internationale* (FAI). Before the publication of the NPA, a consultation

took place with the GA advisory bodies, of which, among others, Europe Air Sports is represented.

Your suggestions for CS-22 are appreciated; however, at the CRD stage, EASA will only address comments that are applicable to this proposal.

1. Magnetic compass (Not within the scope of this NPA)

2. Airbrakes (See detailed comment)

3. Control arrangement (Not within the scope of this NPA)

For your information, please refer to points 22.779 and 22.780.

4. Payload (Not within the scope of this NPA)

For your information, the MTOW is not limited by the applicability of CS-22. The technical requirements of CS-22 have been developed for aircraft up to that weight limit. When the weight exceeds this scope, special conditions (SCs) are applied to cover the gap in the technical specifications.

comment	*6* comment by: *DGAC France* Please note that DGAC France has no specific comments on this NPA.
response	Noted

comment	*7* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* Thank you for the opportunity to comment on NPA 2020-13, Regular update of CS-22. Please be advised that there are no comments from the Swedish Transport Agency.
response	Noted

comment	*21* comment by: *LBA* LBA: We support the proposed changes and see them as important items to develop the CS-22 to ensure a high level of safety. Items on which we have comments or suggested changes are commented below.
response	Noted

comment	*25* comment by: *Europe Air Sports* Europe Air Sports appreciates the opportunity to comment on this NPA and recognises EASA's efforts to develop the certification standards. We appreciate that the development of the NPA has happened in close cooperation with the industry stakeholders. As a result, we generally support the new measures proposed in the NPA. Our comments to this NPA are mostly based on the expertise of these stakeholders.

response	Noted

Executive Summary p. 1

comment	*19* comment by: *European Sailplane Manufacturers* The European sailplane manufacturers did participate in the discussions within the Sailplane Development Panel (SDP) of Ostiv together with EASA and very much appreciate the long ongoing work of all participating members and organisations. All in all, these discussions between all stakeholders in gliding (pilots and manufacturers, gliding associations and authorities, research institutions and interested participants and just friends of gliding) in the SDP (as well as in other Ostiv groups and panels) are a great help to keep our airworthiness requirements up-to-date allowing and reflecting the ongoing evolution with sailplanes and gliding. Therefore it is nice to see the results of these fruitful discussions now also taken on board the proposed amendments to the CS-22 requirements for sailplanes.
response	Noted

3. Proposed amendments - Item 1: Unintended opening of airbrakes. p. 9

comment	*2* comment by: *KNVVL Royal Netherlands Aviation Organisation* See our general comment. The suggestion is to change CS-22 for new designs to have airbrakes stay in the position they are set in order to allow the pilot to safely adjust other settings (gear, power, trim, flaps etc.).
response	Noted The current requirements of CS 22.697(b) are not prescriptive in the design, but considered appropriate for the identified topic. In response to accident reports, emphasis is placed in the NPA to airbrakes remaining closed during take-off in the new GM1 22.697(b).

comment	*8* comment by: *European Sailplane Manufacturers* In some old sailplane designs the suction of the pressure distribution on the wing upper sides could cause the extension of airbrakes if the pilot did not lock those and this has led to accidents. Modern designs have shown different options to prevent this scenario. Therefore it is very much appreciated that this new GM points out this issue, helping designers of sailplanes to find improved solutions.
response	Noted

comment	*27* comment by: *Europe Air Sports* Page 9: GM to CS 22.697(b) 3. Proposed amendments - Item 1: Unintended opening of airbrakes. In some old sailplane designs the suction of the pressure distribution could cause the extension of airbrakes if the pilot did not lock those and this has led to accidents. Modern designs have shown different options to prevent this scenario. Therefore it is very much appreciated that this new GM points to this safety issue.
response	Noted

3. Proposed amendments - GM1 22.697(b) p. 9

comment	*22* comment by: *LBA* LBA comment to Item 1: GM1 22.697 (b) Wing-flap and air-brake controls The sentence can be misinterpreted as a statement. It should be a demand. Proposal: "The air brakes, when closed but not locked, **shall** remain….." LBA comment to Item 2: AMC 22.777 (b) Cockpit controls This item is considered to be very important for flight safety. Therefore, it should not be an AMC, but a fixed requirement of CS 22.777 b).
response	Item 1: The proposed addition of wing-flap controls is accepted. This is, however, guidance material, and is not worded as an obligation, as suggested. Item 2: Not accepted. The importance of an item does not mean that it should be in the technical specifications. The objective of the existing technical specification 22.777(b) is clear; however, specific considerations for the cable release operation during a launch needed to be included in the means of compliance.

3. Proposed amendments - Item 2:Operation of the cable release mechanism should not be limited during launch p. 9

comment	*9* comment by: *European Sailplane Manufacturers* Experience has shown that under certain circumstances during winch launch or during aero-tow full control stick inputs might be required. Therefore this new AMC helps to point out that this must not interfere with the access of the (left and free) hand of the pilot to the release handle. The addition of this AMC is appreciated to support the designer of a sailplane to address this important issue.
response	Noted

comment	*28* comment by: *Europe Air Sports* Page 9: AMC to CS 22.777(b) 3. Proposed amendments - Item 2:Operation of the cable release mechanism should not be limited during launch. Comment: Experience has shown that under certain circumstances during winch launch or during aero-tow full control stick inputs might be required. Therefore this new AMC helps to point out that this must not interfere with the access of the (typically left and free) hand of the pilot to the release handle. The addition of this AMC is appreciated to support the designer of a sailplane to address this safety issue.
response	Noted

3. Proposed amendments - Item 3: Removal of the obsolete 45° airbrake dive requirement for sailplanes approved for aerobatics p. 9-10

comment	*10* comment by: *European Sailplane Manufacturers* This change in 22.73 is very much appreciated as this eliminates a left-over from old times from these airworthiness rules. In the first decades of gliding, the airbrake was really a device to "brake", i.e. to limit the maximum attainable airspeed. At these times it was not uncommon to enter clouds and if the pilot lost orientation, the airbrakes were extended and the old, original requirements then demanded that in this configuration the VNE could not be exceeded. When sailplane performance was increased and this rather challenenging type of cloud flying was discontinued, the requirement was modified with the expectation that only during aerobatics such a limitation of speed might be needed - and here only during dive angles up to 45°. Again, experience grew and gliders further developed to the situation that since many decades the airbrakes are only used any more to control the glide angle during approach and landing and to attain high sink rates when the pilot wants to get down from altitude in a short time. Additionally, since many years usage of airbrakes during hard maneuvres is not longer recommended, as 22.345 requires structural strength only up to 3.5 g with airbrakes extended, i.e. the maximum allowed g-load is reduced with airbrakes extended. Therefore it is very much appreciated to delete now this historic requirement - even more so, as it required a rather high effort during flight testing to show compliance with.
response	Noted

comment	*29* comment by: *Europe Air Sports* Page 9: CS 22.73 3. Proposed amendments - Item 3: Removal of the obsolete 45° airbrake dive requirement for sailplanes approved for aerobatics Comment: This change in CS 22.73 is very much appreciated as this eliminates a left-over from old times from the airworthiness rules. Since many decades, the airbrakes are only used to control the glide angle during approach and landing and to attain high sink rates when the pilot wants to get down from altitude in a short time. Therefore it is very much appreciated to delete now this historic requirement which required a rather high effort during flight testing to show compliance with.
response	Noted

comment	*43* comment by: *CAA CZ* In our opinion the basic idea behind the CS 22.73 is not in glider's ability to recover from a dive flight with or without using airbrakes, but in the ability of glider to prevent the VNE speed from being exceeded by using airbrakes when the glider reaches a position from which the VNE speed can be reached easily and quickly. Therefore, this requirement is still valid for gliders, for which this can normally occur, i.e.: Gliders approved for cloud flying (no external visual reference), Aerobatic gliders (intentional aerobatic manoeuvres), and Utility category gliders (training of unusual positions and their recovery: stalls, spins, spirals etc.). This requirement is particularly important in case of the utility category. Utility gliders are used for pilot training by students who do not have sufficient experience. Students can get to these positions not only when flying with an instructor, but also during solo flights. For gliders approved for cloud flying, even the 45° dive requirement is debatable, as the pilot may not be aware of his position – with no external visual reference can easily exceed 45° glide angle by setting the VK trim to the forward position. These statements are confirmed by the regulation from earlier days of gliding BCAR, SECTION E Gliders, Chapter E3-2, Section 3.1: "*Gliders intended to be certified for Cloud-Flying and Aerobatic manoeuvers shall be fitted with air brakes of a design such that, when fully extended, the Terminal Velocity of the Glider does not exceed VNE.*". On the other hand, we realize that in the case of modern, aerodynamically clean gliders, it is often difficult to meet this requirement, i.e. to find compromise in terms of glider design. <u>Conclusion:</u>

	For utility category gliders we recommend keeping the requirement. For aerobatic gliders, it should be demonstrated that during 45° dive, using airbrakes, the airspeed increases slowly enough to give the pilot enough time to control the situation and to not exceed VNE.
response	Not accepted In the first decades of gliding, the air brake was really a device to 'brake', i.e. to limit the maximum attainable airspeed. Nowadays, the air brakes are only used to control the glide angle during approach and landing, and to attain high-sink rates when the pilot wants to get down from altitude in a short time. Students shall be trained to recover from spin and a spiral dive by applying the correct recovery procedures, as indicated by the AFM. In particular, during a spiral dive, due to the reduced load factors as per 22.345, extending the air brakes would be actually dangerous. It should be noted that the change to 22.73 is complemented by the change to 22.1585(o). For cloud flying, however, the 45° dive requirement is justified. BCAR is not compatible anymore with today's sailplane design and operation.

3. Proposed amendments - Item 4:Additional guidance for winch launch tests, to address recent winch launch accidents. p. 10

comment	*11* comment by: *European Sailplane Manufacturers* The new proposed amendmend gives useful information to the flight test planner and pilot how to plan and conduct an appropriate winch launch flight test campaign and is therefore very useful.
response	Noted

comment	*23* comment by: *LBA* LBA comment Item 4: Due to the many possible variations, especially due to (3) and (4), flight testing would become very complex. Usually, only one or two different types of winches are available at one airfield. Flight testing would thus have to be done at different locations.
response	Noted

comment	*30* comment by: *Europe Air Sports* Page 10: AMC 22.152 3. Proposed amendments - Item 4:Additional guidance for winch launch tests, to address recent winch launch accidents. Comment:

	The new proposed amendment provides useful information to the flight test planner and pilot how to shape a meaningful winch launch test campaign and is therefore very useful.
response	Noted

3. Proposed amendments - Item 5.1 Vertical tail surfaces–Rolling Moment for T-tail p. 11-12

comment	*12* comment by: *European Sailplane Manufacturers* The development of modern sailplanes tends toward higher aspect ratios on wings and on the tail surfaces for higher gliding performance. Therefore it is a useful amendment to open usage of the already existing formulas for the loads upon the tail surfaces also for these higher aspect ratio empennages. Some manufactures have already shown during own load assumption calculation that the limitation to certain aspect ratios (as given in the old versions of the airworthiness requirements) are too stringent and it is appreciated that the proposal now also takes these experiences and calculations on board.
response	Noted

comment	*31* comment by: *Europe Air Sports* Page 11: AMC 22.441 3. Proposed amendments - Item 5.1 Vertical tail surfaces– Rolling Moment for T-tails Comment: The development of modern sailplanes tends toward higher aspect ratios on wings and on the tail surfaces for higher gliding performance. Therefore it is a useful amendment to open usage of the already existing formulas for the loads upon the tail surfaces also for these higher aspect ratio empennages. Some manufactures have already shown during own load assumption calculation that the limitation to certain aspect ratios as given in the old versions of the airworthiness requirements are too stringent and it is appreciated that the proposal now also takes these experiences and calculations on board.
response	Noted

3. Proposed amendments - Item 5.2 Vertical tail surfaces–Flick Maneouvre p. 12

comment	*13* comment by: *European Sailplane Manufacturers* When looking towards the development of aerobatic maneouvres with aeroplanes (in powered aerobatics championships), a clear trend towards flick maneouvres is obvious since many years.

	For glider aerobatics, this trend is much less visible as this type of flying is also much less efficient, resulting into a higher demand for altitude to fly the different aerobatic figures. Nevertheless the trend is visible here as well and it is therefore appreciated that the CS-22 takes this into the requirements to remind the developer of such sailplanes about the possible combination of sideslip and control input, possibly resulting into higher loads.
response	Noted

comment	*32* comment by: *Europe Air Sports* Page 12: AMC 22.441 3. Proposed amendments - Item 5.2 Vertical tail surfaces–Flick Maneouvre Comment: When looking towards the development of aerobatic maneouvres with aeroplanes (in powered aerobatics championships), a clear trend towards flick maneouvres is obvious since many years. For glider aerobatics, this trend is much less visible as this type of flying is also much less efficient, resulting into a higher demand for altitude to fly the different aerobatic figures. Nevertheless the trend is visible here as well and it is therefore appreciated that the CS-22 takes this into the requirements to remind the developer of such sailplanes about the possible combination of sideslip and control input, possibly resulting into higher loads.
response	Noted

3. Proposed amendments - Item 5.3 Ground loads p. 13-14

comment	*14* comment by: *European Sailplane Manufacturers* The proposed modifications to the landing gear requirements reflect the results of research programmes and tests which clearly showed how to increase occupant safety during hard landings. Similarly as with other add-ons based on such research programmes (e.g. optimum placement of seat restraints some years ago) the manufacturers very much appreciate such research programmes and the associated update in the CS-22 requirements to increase the level of safety.
response	Noted

comment	*33* comment by: *Europe Air Sports* Page 13: CS22.773 3. Proposed amendments - Item 5.3 Ground loads Comment:

	The proposed modifications to the landing gear requirements reflect the results of research programmes and tests which clearly showed how to increase occupant safety during hard landings without the proposed "finetuning" of the numbers in the actual requirements. Similarly as with other add-ons based on such research programmes (e.g. optimum placement of seat restraints some years ago) the manufacturers very much appreciate such research programmes and the associated update in the CS-22 requirements to increase the level of safety.
response	Noted

3. Proposed amendments - CS 22.473 p. 14

comment	*3* comment by: *DAI-A OoA* Diamond Aircraft welcomes, that these requirements are revisited. A significant increase in energy absorption is technically feasible and practical for all CS-22 sailplanes and powered sailplanes. The proposed amendment does not increase safety sufficiently to justify a change on rule level. When modifying these requirements the safety increase should be significant.
response	Not accepted The proposal is the result of consensus among the participants from national aviation authorities, industry and other stakeholders, and it results in affordable improvements.

3. Proposed amendments - CS 22.723 p. 14

comment	*4* comment by: *DAI-A OoA* Diamond Aircraft welcomes, that these requirements are revisited. A significant increase in energy absorption is technically feasible and practical for all CS-22 sailplanes and powered sailplanes. The proposed amendment does not increase safety sufficiently to justify a change on rule level. When modifying these requirements the safety increase should be significant.
response	Not accepted The proposal is the result of consensus among the participants from national aviation authorities, industry and other stakeholders, and it results in affordable improvements.

3. Proposed amendments - CS 22.725 p. 14

comment	*5* comment by: *DAI-A OoA* Diamond Aircraft welcomes, that these requirements are revisited. A significant increase in energy absorption is technically feasible and practical for all CS-22 sailplanes and powered sailplanes. The proposed amendment does not increase safety sufficiently to justify a change on rule level. When modifying these requirements the safety increase should be significant.
response	Not accepted. The proposal is the result of consensus among the participants from national aviation authorities, industry and other stakeholders, and it results in affordable improvements.

3. Proposed amendments - Item 5.4 Tow hook attachment and cable loads p. 14-15

comment	*15* comment by: *European Sailplane Manufacturers* The proposed changes reflect the service experience of literally many thousands of launches over many years which clearly demonstrates that overload of the tow hooks and their attachments does in practical flying not occur (even in the varying conditions in real practical flying under all conditions). Additionally the load assumption calculation of manufacturers shows that the loads fom winch launching upon wings and wing-fuselage attachments are always below the critical maneuver and gust loads, and are therefore not critical. Therefore it is clearly justifiable to allow the both proposed simplifications in the calculation of load assumptions for the loads during aero-tow and winch launch.
response	Noted

comment	*34* comment by: *Europe Air Sports* Page 15: CS 22.581, CS22.583, CS22.585 3. Proposed amendments - Item 5.4 Tow hook attachment and cable loads Comment: The proposed changes reflect the service experience of literally many thousands of launches over many years which clearly demonstrates that overload of the tow hooks and their attachments is not happening (even in the varying conditions in real practical flying under all conditions). Therefore it is clearly justifiable to allow both the proposed simplifications in the calculation of load assumptions for the loads during aero-tow and winch launch.
response	Noted

3. Proposed amendments - CS 22.581 p. 15-16

comment *20* comment by: *Jari LYYTINEN*

In CS 22.581 c) there is proposed certification requirement for weak link used. Does this mean, that only certified weak links (with EASA Form 1) may be used with sailplanes having this certification basis? Is the accident statistic showing a need for this amendment?

The weak link is essentially a part of the tow line used by the tow plane or winch, and not a part of the sailplane airframe. It corresponds to ground handling equipment (tow bars etc.) used with large aeroplanes, owned by a ground handling service provider. Currently non-certified weak links are commonly used in tow lines and it may be a practical challenge if minority of sailplanes at an airfield require special certified weak links.

response This proposed change to the sailplane technical specification does not require 'certified weak links', but determines which weak links should be specified in the aircraft operational data.

3. Proposed amendments - Item 6: Change of gust load factors p. 16-17

comment *16* comment by: *European Sailplane Manufacturers*

The gust load formulas given in the CS-22 have been identical to those of aeroplaes since many decades and are based on measurements with a range of powered aeroplanes (motor aircraft) made by NACA in the 1950-ties.

For this range of aeroplanes it was found that the resulting so called Pratt-Walker formula described quite good the different reaction of small to large (i.e. light to heavy) aeroplanes when entering a gust.

Calculation with sailplanes has shown that here aircraft size does not always influence the gust behaviour in the same way. For example sailplanes with larger wing spans and higher MTOW might have lower mean wing chord than smaller and lighter sailplanes.
This effect leads toward the finding, that the Pratt-Walker formula is not a perfect solution to calculate gusts upon sailplanes.

The proposed new formulae take these calculation results on board CS-22 and are very much appreciated as they allow for more realistic calulation of the gust response of sailplanes over the wide range of wing spans and weights as are seen today.

response Noted

comment *35* comment by: *Europe Air Sports*

Page 16: CS 22.341
3. Proposed amendments - Item 6: Change of gust load factors

	Comment: The gust load formulas given in the CS-22 have been identical to those of aeroplanes since many decades and are based on measurements with a range of powered aeroplanes (motor aircraft) made by NACA in the 1950s. For this range of aeroplanes it was found that the resulting so called Pratt-Walker formula described quite good the different reaction of small to large (i.e. light to heavy) aeroplanes. Calculation with sailplanes has shown that here size does not always the gust behaviour as for example sailplanes with larger wing spans and higher MTOW might have lower mean wing chord than smaller and lighter sailplanes. The proposed new formulae take these calculation results on board CS-22 and are very much appreciated as they allow for more realistic calulation of the gust response of sailplanes over the wide range of wing spans and weights as are seen today.
response	Noted

3. Proposed amendments - Item 7: Changes to the content of the aircraft flight manual (AFM). p. 18

comment	*17* comment by: *European Sailplane Manufacturers* The proposed amendments required to be written into the AFM are very useful as not all training syllaby really offer this information to sailplane pilots. Also even older, more experienced pilots do not always know the facts as decribed in the proposed amendment. Therefore this proposal is appreciated as it gives useful information to the pilot which is also safety relevant.
response	Noted

comment	*36* comment by: *Europe Air Sports* Page : 3. Proposed amendments - Item 7: Changes to the content of the aircraft flight manual (AFM). Comments: The proposed amendments required to be written into the AFM are very useful as not all training syllaby really offer this information to sailplane pilots and even older, experienced pilots do not always know the facts as described in the proposed amendment. Therefore this proposal is appreciated as it gives useful information which is also safety relevant to the pilot.
response	Noted

3. Proposed amendments - Item8: Editorial corrections. p. 20

comment	*18* comment by: *European Sailplane Manufacturers* Very much appreciated to see those omissions and mistakes now corrected.
response	Noted

comment	*24* comment by: *LBA* LBA comment CS 22.335 Design air speeds The notation of the drag coefficient must be adapted to that of the formula (see purple marking). The correct notation for index D is a capital letter. Proposal:
response	Accepted: Cd_{min} is changed into $C_{D\,min}$ in the formula and in the definitions.

8. Quality of the document - others (please specify) p. 26

comment	*37* comment by: *Europe Air Sports* 3. Proposed amendments - Item 8: Editorial corrections. Comment: Very much appreciated to see those omissions and mistakes now corrected.
response	Noted