EASA	COMMENT RESPONSE DOCUMENT
	EASA PSC No. SC-OVLA.div-01 **[Published on the 13-April-2010 and officially closed for comments on the 01-July-2010]**

Commenter 1 :AD&C – date 17-May-2010

Comment # 1

In the proposed Special Conditions SC-OVLA.div-01 chapter 3a) the reference to "ETSO C23c" seem outdated. In CS-ETSO issue C23d is published. Further CS-ETSO 23d is a reference to 'Personnel Parachute Assemblies'. The applicability of the reference is questioned as a the Ballistic Recovery System is intended to be used on aircraft level. Parachute design for aircraft may differ from personnel parachutes – an equivalent use of the specification order may not lead to the desired effects on design safety. Established system suppliers as 'Junkers Pro Fly' and 'BRS' do not officially use this reference.

EASA response:

EASA partially agrees:

to bullet 1: wrong reference in SC will be corrected
to bullet 2: It is stated in the CRI that the applicant has to use the minimum design standards were appropriate as prescribed in ETSO-C23d or an approved equivalent. The technical conditions of ETSO-C23d are defined in SAE standard AS8015B. If the applicant is developing his own standard this standard shall be oriented on the SAE standard AS8015B were appropriate.

Commenter 2 :CAA UK – date 31-May-2010

Comment # 1

Paragraph No: **4 (g)**

Comment: **There is a word, probably the word 'provide', missing in the sentence before the word 'relief'.**

Justification: **Does not make sense**

Proposed Text (if applicable): **An installed BRS does not PROVIDE relief from compliance**

EASA response: Accepted

Comment # 2

Paragraph No: 4 i)

Comment:

This text should explicitly state that the warning placard must not be placed on the cover for the rocket ejection opening and that there should be multiple placards.

Justification:

The majority of BRS-equipped aircraft have a cover over the rocket ejection opening to protect the contents from the elements. The cover is designed to detach from the aircraft during activation of the rocket but it is also likely to detach from the aircraft during an impact with the ground. If the warning placard is affixed to the cover and the cover detaches from the aircraft, it is likely that the warning placard will not be in the view of those who may be in danger. As the aircraft may come to rest upside down or on its side there should be sufficient placards affixed to the aircraft such that one is always in view no matter what the orientation of the aircraft is.

Proposed Text (if applicable):

(i) A warning placard must be located on a fixed part of the fuselage near the rocket motor ~~warning of the rocket~~ but not on the cover for the rocket ejection opening. Sufficient warning placards must be provided such that one is always in view regardless of the orientation of the aircraft.

EASA response: Accepted (amended text see below under comment # 3)

Comment # 3

Paragraph No: 4 (General comment)

Comment:
There should be a common design for the warning placard.

Justification:
Manufacturers have produced a number of varying designs for the warning placards that are affixed to aircraft fitted with BRS. Due to the nature of some of these designs it may not always be immediately apparent to the general public what the placard is warning against. Furthermore, the lack of a standard design leads to confusion with rescue services. It is proposed that EASA should adopt a standard warning placard design for use in all aircraft fitted with a BRS. The design must enable the placard to be readable any way up and be easily interpreted from some distance away from the aircraft.
The UK CAA is introducing a standard design which is in common with popular placards already in use in North America and Australia. A copy of the placard is attached as Appendix A to this form.

Appendix A:

EASA response: We agree. Under consideration of comment # 2 and # 3 paragraph 4(i) has been changed as follows:

A warning placard (design and dimension see figure 1) must be located on a fixed part of the fuselage near the rocket motor but not on the cover for the rocket ejection opening. Sufficient warning placards must be provided such that one is always in view regardless of the orientation of the aircraft.

Figure 1: Warning placard (minimum height: 12.7 cm (5 inch))

Commenter 3 : BRS Aerospace, Inc. – date 11-June-2010

Comment # 1

1. Flight Test Demonstration
Flight Tests are very costly and dangerous. FAA Special Conditions have a conditional clause included here that states "Flight demonstrations are not required for airplanes with similar characteristics…to airplanes that have already received and STC for the installation".
The FAA has recognized that demanding flight tests will deter a supplemental safety device from being certified, thereby actually contributing to a reduction in flight safety.

EASA response: Accepted in principle
EASA will introduce a new paragraph 1(c) allowing the applicant refraining from flight tests as required in paragraph 1(a). In this case a placard in view of the occupants has to state that the capability of the BRS system has not been demonstrated in flight. A paragraph 1(c) has been added.

Comment # 2

3. Parachute Performance
(a) TSO-C23c has been superseded by TS-C23d.
(c) The US version states "…will result in an occupant environment in which serious injury to the occupants is improbable". The word improbable better captures the nature of what we are actually looking at. If a BRS deployment occurs, it will be at a random time and over a random place. The variables are not controllable (ie. landing in power lines, trees, on a building, etc.). Remember, this is a supplemental safety device meant to be used if nothing else will prevent death.

EASA response:
to bullet 1: see above (commenter 1), agreed.
to bullet 2: accepted. The wording of paragraph 3(c) has been modified.

Comment # 3

4. system Function and Operation
(f) A maximum descent rate of 8 m/s is being required here. This drastically constricts 3.(c) which rightfully calls out that serious occupant injury may not occur on touchdown. The difference here is that the more energy a specific fuselage and seat can absorb, the higher the descent rate of the parachute can be, which ultimately reduces weight and volume of the parachute. Since it is a constant quest for a parachute manufacturer to use cutting edge technology to reduce landing loads, stipulating a maximum descent rate stifles development and technological advancement. It is up to the manufacturer to show that the particular descent rate of his parachute will not seriously injure the occupants of a specific aircraft. Due to the use of different materials and structure in the fuselage and seats, what is adequate for one aircraft may not necessarily work for another.
(l) Essentially a repeat of 3.(d).

EASA response:
to bullet 1: EASA agrees with this position. Requiring descent rate limits (like 8 m/s) could be not reasonable, even more since the VLAs do not have essentially dynamic seats. Aircraft behaviour absorbing energy may be used for compliance demonstration. The introduction of a maximum compression load measured between the pelvis and the lumbar spine seems to be more suitable. A compression load of 680 kg established in CS23.562(c)(7) may be accepted as already approved limit. The wording of paragraph 4(f) has been modified.

to bullet 2: These are two different levels. Ones EASA defines the parachute requirements, under point 4 the compliance demonstration is mentioned. Therefore the wording will be unchanged.