

**SPECIAL CONDITION**  
**Ballistic Recovery System (BRS)**

Doc. No. : **SC-OVLA.div-01**

Release : 1  
Issue : 2  
Date : 15-May-2013  
  
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**SUBJECT** : **Installation of Ballistic Recovery System (BRS)**  
**CERTIFICATION SPECIFICATION** : None, novel System  
**PRIMARY GROUP / PANEL** : Panel 03 (Structure)  
**SECONDARY GROUPE / PANEL** : Panel 01 (Flight), Panel 08 (Cabin Safety)  
**NATURE** : SCN

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**SPECIAL CONDITION**  
**Installation of a Ballistic Recovery System for CS-VLA**

### 1. Flight Test Demonstration

- (a) The system must be demonstrated in flight as defined in (b) to satisfactorily perform its intended function, without exceeding the system deployment design loads, for the critical flight conditions.
- (b) Satisfactory deployment of the parachute must be demonstrated, at the most critical airplane mass and balance, for the following flight conditions:
  - (1) Spin with deployment at one turn or 3 seconds, whichever is longer and
  - (2) Deployment during level flight with at least  $V_A$  at MTOM.
- (c) If compliance has not been demonstrated in acc. with paragraph (a) a placard in view of all occupants has to state that the rescue system has not been tested in flight.

### 2. Occupant Restraint

The occupant restraint system must protect the occupants from head and upper torso injuries during parachute deployment and ground impact at the critical load conditions.

### 3. Parachute Performance

- (a) The parachute must comply with the applicable requirements of ETSO-C23 (edition as valid on the reference date of the project) or an approved equivalent, for the maximum airplane mass used for compliance with paragraph 1(b)(2).
- (b) The ultimate design load used for compliance for the attaching structure and the cabin structure surrounding the occupants must be at least 1.5 times the loads occurring during deployment of the BRS.
- (c) It must be shown that, although the airplane structure may be damaged, it is improbable that the airplane impact during touchdown will result in an occupant environment in which the occupants can suffer serious injuries.

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- (d) It must be shown that, with the parachute deployed, the airplane can impact the ground under wind conditions on ground up to 15 knots, without endangering the airplane occupants. The influence of rain and/or snow has to be considered.

#### **4. System Function and Operations**

- (a) It must be shown that there is no fire hazard associated with activation of the BRS.
- (b) The system must be shown to perform its intended function with a high probability that it will operate as designed.
- (c) It must be shown that reliable and functional deployment in the adverse weather conditions that the airplane is approved for have been considered.
- (d) It must be shown that arming and activating the system can only be accomplished in a sequence that makes inadvertent deployment extremely improbable.
- (e) It must be demonstrated that the system can be activated without difficulty by various sized people, from a 10th percentile female to a 90th percentile male, while sitting in the pilot or co-pilot seat.
- (f) The compression load measured between the pelvis and the lumbar spine of the ATD may not exceed 680 kg (1 500 lb).
- (g) For Emergency landing conditions an installed BRS does not provide relief from compliance with the requirements of CS VLA.561.

In addition in case of the BRS installed behind the occupants, regardless if inside or outside the cabin, compliance with the requirements of CS VLA.561(c) must be shown for the system.

- (h) The system must be labelled to show its identification, function, and operating limitations. Markings and warning placards have to be placed near the rocket ejection opening and near the actuation handle(s), stating of the hazard associated with such devices.
- (i) 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.
- (k) The EASA-approved flight manual must include a thorough explanation of operation and limitations as well as the safe deployment envelope.
- (l) It must be shown that the occupants will be protected from serious injury after touchdown under high wind speed conditions (15 kts).

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## 5. System Protection

- (a) All components of the system must provide protection against deterioration due to weathering, corrosion, and abrasion.
- (b) Adequate provisions must be made for ventilation and drainage of the parachute canister and associated structure to ensure the sound condition of the system.

## 6. System Inspection Provisions

- (a) Instructions for continued airworthiness must be prepared for the system that meets the requirements of CS VLA.1529, including inspection, repacking, and replacing the parachute and deployment mechanism.
- (b) Adequate means must be provided to permit the close examination of the parachute and other system components to ensure proper functioning, alignment, lubrication, and adjustment during the required inspection of the system.

## 7. Operating Limitations

The Airplane Flight Manual (AFM) must include

- (a) The deployment envelope of the BRS,
- (b) Any other operating limitation necessary to ensure proper operation of the system within its deployment envelope, and
- (c) A detailed description of the system, including operation and procedures.

## 8. Continued Airworthiness Limitation

The limitation section of the Instructions for Continued Airworthiness must include all BRS related life limits, required by the BRS manufacturer. Specific limitations which are caused by the installation have to be considered.



Figure 1: Warning placard  
(Minimum height: 12.7 cm / 5 in)