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BACKGROUND ON SPECIAL CONDITION SC-VLA.3

JAR/CS-VLA applies to aeroplanes intended for non acrobatic operation only. Extension to cover intentional spinning was requested by the industry some years ago, especially for training purposes.

During the last years the Micro light Industry has been grown up rapidly and a new Category of airplanes, the LSA-Light Sport airplanes with a maximum Take Off Mass of 600 kg has been established. Due to this situation, there is an urgent request of the existing VLA industry to extend the scope of the already certified products also in Europe, to be attractive on the market.

Transport Canada for example is using TC-Basis AMW 523-VLA, which is technically a JAR-VLA with the possibility for night VFR operation and intentional spinning.

EASA has planned, as a long term task within the rulemaking program (ref. task VLA.003) to cover also VLA intentional spinning operation. In addition equivalent VLA aeroplanes, including European products, have been already certified for intentional spinning in USA and Canada.

The purpose of this SC is to provide an agreed method of compliance showing to demonstrate that the aircraft is capable for intentional spinning, based on CS23.

CS-VLA is not significantly changed since JAR-VLA initial Issue is April 1990.

It is not intended to change the Categories of CSVLA but add the capability of intentional spins. It is not the intent to generally change the Aeroplane Categories to Utility or Acrobatic such as in CS23. The non-Acrobatic concept in the CS-VLA still remains.

The structural capabilities equivalent to the CS23 Utility category have to be demonstrated and is part of this CRI

EASA considers this as a non significant change regarding to Part 21A101. The airplane will remain within the general CS-VLA concept; administratively without this Special Condition a CS 23 certification would be required.

Due to the fact that the CS-VLA requirements do not cover intentional spins, demonstrate of compliance for intentional spinning based on CS23 requirements has to be done. The following additional items must be considered:

Acceptable Means of Compliance are contained in the Flight Test guide for certification of part 23 aeroplanes attached to the CS-23.

Compliance documentation must be presented to demonstrate the compliance against this Special Condition.

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SUBJECT : **Intentional Spinning with VLA aeroplanes**
CERTIFICATION SPECIFICATION : CS VLA.1 & VLA.3
PRIMARY GROUP / PANEL : 00 (PCM)
SECONDARY GROUPE / PANEL : 01 (Flight)
NATURE : SCU

SPECIAL CONDITION **Intentional Spinning with VLA aeroplanes**

CS-VLA is to be supplemented by the following.

SC VLA.3, Intentional Spinning with VLA aeroplanes

Subpart A - GENERAL

- (1) In addition the operational limitation of VLA 3, the aeroplane shall be capable intentional spinning.

Subpart B - FLIGHT

- (1) The Aeroplane must be able to perform safely the intentional spinning manoeuvre. A safe entry speed and method must be determined. (23.151)
- (2) No control force or characteristics encountered during the spin or recovery may adversely affect prompt recovery.(23.221(a)(2))
- (3) The aeroplane must in each configuration for which approval for spinning is requested recover from any point in a spin up to and including six turns, in not more than one and one-half additional turns after initiation of the first control action for recovery. However, beyond three turns, the spin may be discontinued if spiral characteristics appear. Six turns are the maximum number for spin approval. (23.221 (e)(1))
- (4) The applicable airspeed limits and limit manoeuvring load factors must not be exceeded. For flaps-extended configurations for which approval is requested, the flaps must not be retracted during the recovery. (23.221 (e)(2))
- (5) It must be impossible to obtain unrecoverable spins with any use of the flight or engine power controls either at the entry into or during the spin. It must be impossible to obtain unrecoverable spins with any use of the flight or engine power controls either at the entry into or during the spin. (23.221 (e)(3))

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- (6) There must be no characteristics during the spin (such as excessive rates of rotation or extreme oscillatory motion) which might prevent a successful recovery due to disorientation or incapacitation of the pilot. (23.221 (e)(4))

Subpart C Structure

- (1) The positive limit manoeuvring factor may not be less than 4,4g and the negative limit load factor not less than – 1,76g (23.337)

Subpart D Design:

- (1) Each seat must be designed to accommodate an occupant wearing a parachute. (23.785 (g))
- (2) The Emergency exit must be operable from both inside and outside the aeroplane. Auxiliary locking device used to secure the aeroplane must be designed to be overridden by the normal internal opening means. The inside handles of emergency exits which open outward must be adequately protected against inadvertent operation. (23.807)(b) In addition, each emergency exit must-
- (a) Be readily accessible, requiring no exceptional agility to be used in emergencies.
 - (b) Have a method to opening that is simple and obvious;
 - (c) Be arranged and marked for easy location and operation;
 - (d) Have a reasonable provision against jamming by fuselage deformation;
 - (e) The inside handles of the emergency exit which open outwards must be adequately protected against inadvertent operation.
 - (f) Allow each occupant to abandon the aeroplane at the highest speed likely to be achieved in the manoeuvre for which the aeroplane is certificated.
 - (g) The proper function of emergency exit must be shown by test.

Subpart G Operating Limitations and Information

- (1) The placard as required by VLA 1559 must contain that intentional spinning is approved (23.1559)
- (2) There must be a placard in clear view of the pilot listing the control actions for recovery from spin manoeuvres and stating that recovery must be initiated when spiral characteristics appear, or after not more than 6 turns (23.1567 (d))
- (3) The Aeroplane flight Manual must contain the following limitations:
- (a) A List of authorised manoeuvres demonstrated in the type certification flight tests, together with recommended entry speed and any other associated limitations. No other manoeuvre is authorised. (23.1583 (e))
 - (b) Spin recovery procedure established to show compliance with this Special Condition (23.1583(e))

ANNEX

Appendix 1

Acceptable Means of Compliance to SC-VLA.3

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Appendix 1

ACCEPTABLE MEANS OF COMPLIANCE

CS-VLA Intentional Spinning

Published Flight Test guidance in CS-23 for intentional spinning is an acceptable means to demonstrate compliance for intentional spinning with a VLA aeroplane.