Subject: Special Condition – Third Seat

Status DRAFT

Requirement reference: CS-VLA §1 §25 §785 and AMC VLA §23

Next action by Issoire Aviation

Statement of Issue:

The applicability of CS-VLA is limited according to CS-VLA §1 to a maximum seating configuration of two seats. Issoire Aviation requests an increase of the maximum seating configuration to three seats.

Discussion:

1. BACKGROUND:

Increasing the CS-VLA applicability will provide more flexibility for VLA design and operational possibilities. This is in line with the current technical developments of VLA.

The perceive importance for action is to answer Flying School request to operate an Aircraft with two trainees: both trainees can take part to the same flight i.e. read instruments, listen to radio traffic and flight instructor directives and comments, follow their own navigation procedure…

The range of aeroplanes certified to CS-VLA will increase, and therefore the boundary between CS-VLA and CS-23 will shift. This will have effect on future VLA design and major modifications.

Equivalent safety is mentioned in respect to Emergency Landing Dynamic Conditions. However, all safety aspects have to be considered. The same requirements have to be respected for the supplementary occupant. As the MTOW and stalling speed limitations are not changed, there is not any increased amount of kinetic energy. Nevertheless, the new fuselage load distribution due to the 3rd seat supplementary loading station should be considered.

Increasing the seating configuration to three seats will make new designed VLA more competitive with single engine piston aeroplanes certified to CS-23 and would increase an operational overlap between CS-VLA certified aeroplanes and CS-23 certified aeroplanes. It will also answer Flight School request to provide training to two trainee pilots during the same flight as today, the operational possibilities of CS-VLA certified aeroplanes is restrictive in comparison to the same aeroplanes certified according to FAR.

2. ISSOIRE AVIATION POSITION (dated 29 July 2005) :

Issoire Aviation proposes to the certification team that the following special condition should be applied :

"SC VLA.1 :

Replace "This airworthiness code is applicable to aeroplanes with a single engine (spark- or compression-ignition) having not more than two seats, with a Maximum Certificated Take-off Weight of not more than 750 kg and a stalling speed in the landing configuration of not more than 83 km/h" by "This airworthiness code is applicable to aeroplanes with a single engine (spark- or compression-ignition) having not more than three seats, with a Maximum Certificated Take-off Weight of not more than 750 kg and a stalling speed in the landing configuration of not more than 83 km/h"."

"SC VLA.25 :

Replace "(2) Assuming a weight of 86 kg for each occupant of each seat, not less than the weight with –" by "(2) Assuming a weight of 77 kg for each occupant of each seat, not less than the weight with –"."

"SC VLA.785 :

Replace "(a) Each seat and its supporting structure, must be designed for occupants weighting 86 kg, and for the maximum load corresponding to the specified flight and load conditions, including the emergency conditions prescribed in CS-VLA 561." by "(a) Each seat and its supporting structure, must be designed for occupants weighting 77 kg, and for the maximum load corresponding to the specified flight and load

conditions, including the emergency conditions prescribed in CS-VLA 561.”.”

“SC AMC VLA.23 :

Replace “(b) An occupant weight of 55 kg to 172 kg for two-seat aeroplanes.” by “(b) An occupant weight of 55 kg to 154 kg for two-seat aeroplanes”.”

3. TEAM POSITION (dated 30 August 2005) :

3.1 CS-VLA assumes a weight of 86 kg for each occupant while CS-23 assumes a weight of 77kg for each occupant in the normal and commuter category aeroplanes, and 86 kg in the utility and acrobatic category aeroplanes.
CS-VLA assumption of 86 kg for each occupant is a safety issue. This assumption is conservative in term of structure compare to CS-23 and permits a simplified design load criteria.
Linked with occupants’ weight increasing, modification from 86kg to 77kg for occupants weighting is not acceptable.
Therefore SC VLA.25 and SC VLA.785 are not acceptable.

3.2 Concerning SC AMC VLA.23, the team doesn’t agree with Issoire Aviation proposition. APM 30 is designed with three seats, so SC AMC VLA.23 must comply with an occupant weight of 55 kg to 258 kg for three-seat aeroplanes.

4. ISSOIRE AVIATION POSITION (dated 02 September 2005) :

Team position accepted. SC VLA.25 and 785 are cancelled.

SC AMC VLA.23 is modified as :

Replace “(b) An occupant weight of 55 kg to 172 kg for two-seat aeroplanes.” by “(b) An occupant weight of 55 kg to 258 kg for three-seat aeroplanes”.”

5. TEAM POSITION (dated 16 February 2006) :

The Team accepts the last Issoire Aviation position.

in addition, according to the CRD document, the following Special Conditions are added to this CRI :

“SCVLA 811 :

In addition to the CS VLA requirements, the CS23.811(a) requirement applies : “ Each emergency exit and external door in the passenger compartment must be externally marked and readily identifiable from outside the aeroplane by –

(1) A conspicuous visual identification scheme; and

(2) A permanent decal or placard on or adjacent to the emergency exit which shows the means of opening the emergency exit, including any special instructions, if applicable.”

Conclusion