

 <p>European Aviation Safety Agency</p>	SPECIAL CONDITION Type Certification Category	Doc. No. : SC-A10 Issue : 1 Date : 19 Nov 2010 Ref. : CRI A-10 Page : 1 of 2
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SUBJECT : Type Certification Category
CERTIFICATION SPECIFICATION : FAR 23.3
PRIMARY GROUP / PANEL : -
SECONDARY GROUP / PANEL : -
NATURE : SCN

SPECIAL CONDITION

Type Certification Category – Limited Aerobatic Operations

STATEMENT OF ISSUE

FAR Part 23, 23.3 defines the aeroplane categories and operations authorized under each category. The applicant wishes to certify this aircraft under Utility category but with limited Aerobatic operations.

BACKGROUND

As stated in SC A-01, the aircraft will fit into the proposed ELA 1 processes as currently drafted and according to NPA 2008-07. FAR Part 23 Amendment 7 dated 14 September 1969 is proposed as the certification basis.

FAR Part 23, 23.3 states :

“Airplane categories.

(a) The normal category is limited to airplanes intended for nonacrobatic operation. Nonacrobatic operation includes—

- (1) Any maneuver incident to normal flying;*
- (2) Stalls (except whip stalls); and*
- (3) Lazy eights, chandelles, and steep turns, in which the angle of bank is not more than 60 degrees.*

(b) The utility category is limited to airplanes intended for limited acrobatic operation. Airplanes certificated in the utility category may be used in any of the operations covered under paragraph (a) of this section and in limited acrobatic operations. Limited acrobatic operations includes—

- (1) Spins (if approved for the particular type of airplane); and*
- (2) Lazy eights, chandelles, and steep turns, in which the angle of bank is more than 60 degrees.*

(c) The acrobatic category is limited to airplanes intended for use without restrictions other than those shown to be necessary as a result of required flight tests.

(d) Small airplanes may be certificated in more than one category if the requirements of each requested category are met.”

The applicant intends to certify the aircraft under with the following Aerobatic operations authorized :

- Positive loop
- Roll.

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DISCUSSION

According FAR23 Amdt 7, 23.337, the applicant proposes to demonstrate by stressing (analysis, calculation and/or test) the following aeroplane categories :

- Normal category with MTOW = 1000 kg and $n=3.8g/-1.9g$
- Acrobatic category with MTOM 816 kg and $n=6g/-3g$

The aircraft will be compliant with FAR 23 Amdt 7 Normal and Acrobatic aeroplane categories.

Nevertheless, due to operational considerations and engine certification specifications, the applicant wants to reduce the aircraft flight envelope to the FAR23 Amdt 7 Normal and Utility categories (i.e $+3.8/-1.9g$ and $+4.4/-2.2g$) with simple aerobatic operations (Spins, Lazy eights, Chandelles, Steep turns (bank angle $> 60^\circ$) , Entry and exit of inverted flight, Stall turn, Loop and Roll) authorized.

The level of safety of these authorized aerobatic operations will be provided by the Acrobatic category compliance demonstrated by the aeroplane, but the engine is only certified for $+4.4/-2.2g$ operations.

SPECIAL CONDITION:

The aircraft will be demonstrated to be compliant with FAR 23 Amdt 7 23.337 Normal and Acrobatic aeroplane categories.

Due to engine certification specifications limitation to $+4.4/-2.2g$ operations, and operational considerations from the applicant, he will limit the operational domain to Normal and Utility categories with limited aerobatic operations (Spins, Lazy eights, Chandelles, Steep turns (bank angle $> 60^\circ$), Entry and exit of inverted flight, Stall turn, Loop and Roll).

The level of safety of this limited operational domain and limited acrobatic operations will be assumed by the Acrobatic category use for substantiation under 23.337 requirement.