

Proposed Special Condition D-16 on 'Use of Flaperons for Lift and Roll Control'
Applicable to Dassault Aviation (DA) Falcon 5X

Introductory Note:

The hereby presented Special Condition has been classified as an important Special Condition and as such shall be subject to public consultation, in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) of which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

Statement of Issue:

The mechanically actuated outer flap surfaces of a traditional flap system will be replaced in the DA Falcon 5X by flaperons actuated by a hydraulic servo actuator.

The flaperons are intended to be used symmetrically as well as asymmetrically.

This asymmetrical use of the flaperons is unconventional and CS 25 does not contain adequate safety standards for such operations (CS 25.701, "Flap and Slat Interconnection", does not cover this new function of the flaperons). Therefore, in accordance with IR 21.A.16B (a) (1), a Special Condition is needed to address the flaperons asymmetrical operation.

Proposed Special Condition:

In addition to the current CS 25.701, the following conditions are applicable:

1. It must be demonstrated that no unsafe condition is created by using the flaperons asymmetrically.
2. The degree of acceptable asymmetry (could be full asymmetry if shown to be safe) must be defined and justified for all flight phases with respect to structural loads, aircraft performance and handling.
3. Protection against excessive asymmetry (greater than established at point 2.) must be provided with a similar reliability as CS 25.701 requires for systems that are synchronised by a mechanical interconnection or approved equivalent means.
4. The flaperon control function is part of the flight control system and therefore compliance must be demonstrated to system requirements and flight control requirements.