

Proposed Special Condition on Autobrake System – Structural Loads

Applicable to Falcon 2000EX EASy

Introductory note:

The following 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 02/04 dated 30 March 2004, 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

Type Certificate Holder proposes an "autobrake" option to Falcon 2000EX EASy aircraft. It is a pilot-selectable function that allows earlier maximum braking at landing without pilot pedal input. When "autobrake" system is armed before landing, it automatically commands maximum braking at main wheels touch down.

Normal procedures remain unchanged and call for manual braking after nose wheel touch down.

JAR 25.471 through 25.511 address ground handling loads, but do not contain a specific "pitch over" requirement initiated from a nose wheel airborne condition addressing the subsequent loading on the nose gear, the nose gear surrounding structure and the forward fuselage that could result from this type of automatic braking system, therefore a special condition is needed.

Falcon 2000 EX EASy Special Condition C-1110

- Autobrake System / Structural Loads-

A landing pitch over condition must be considered that takes into account the effect of the auto brake system.

The aeroplane is assumed to be at the design maximum landing weight, or at the maximum weight allowed with the autobrake system on. The aeroplane is assumed to land in a tail-down attitude and at the speeds defined in JAR 25.481.

Following main gear contact, the aeroplane is assumed to rotate about the main gear wheels at the highest pitch rate allowed by the autobrake system. This is considered a limit load condition from which ultimate loads must also be determined.

Structural loads must be determined for critical fuel and payload distributions and centres of gravity.

The effect of auto-brake system failure conditions on aircraft loads should also be investigated according to the principles of F2000 CRI C-06 : Interaction of Systems and Structures (NPA 25C-199).

In addition to the above special condition, fatigue loads must also be determined and applied in accordance with JAR 25.571.