

**JAR-25**  
**Comment/Response Document**  
**JAR NPA 25C-276**  
**Braked Roll Conditions**

**INTRODUCTION**

*This notice proposes to amend the ground loads requirements of JAR 25 that require the aeroplane be designed to withstand main landing gear maximum braking forces during ground operations. This action ensures that the landing gear and fuselage continue to be capable of withstanding the dynamic loads associated with the maximum dynamic braking condition, whilst eliminating differences between the European Joint Airworthiness Requirements (JAR) and the Federal Aviation Regulations (FAR).*

*These proposals were developed in co-operation with the Federal Aviation Administration (FAA) of USA and the European, American and Canadian aviation industry through the Loads and Dynamics Harmonisation Working Group of the U.S. Aviation Rulemaking Advisory Committee (ARAC).*

**JUSTIFICATION**

*This NPA proposes to re-organise the JAR braked roll conditions to make them compatible with proposed changes to FAR Part 25. The major change is to bring the existing conditions of ACJ 25.493 into the body of the rule, thereby setting a minimum strength standard. The amended requirement of JAR 25.493(d) would still cover the effects of dynamic braking by accounting for the effects of aeroplane pitch inertia on the nose gear and fuselage. The proposed new JAR 25.493(e) provides a mathematical expression, in terms of aeroplane weight, geometry, coefficient of friction, and dynamic response factor that may be used in lieu of a more rational analysis, to account for the total nose gear loading, including the effects of dynamic braking. Regardless of the FAR requirements, the existing JAR requirement will be imposed on U.S. manufactured aeroplanes seeking JAR approval. It is therefore proposed to harmonise the FAR with the JAR by incorporating the dynamic braked roll condition in the FAR.*

**DISPOSITION OF COMMENTS**

*A number of supportive comments were received indicating acceptance of the proposed amendments without change to the text. Only two comments expressed minor concerns over the proposed changes. These comments were considered in detail by the Structures Study Group (SSG) at its Meeting No. 96 held in Madrid on 20-21 March 1997 and were resolved as follows:-*

**COMMENT:** *In a final review of this material, a concern was expressed about a possible interpretation of the rule. Industry believes that the intent of the HWG was to harmonize on the JAA interpretation and advisory material which allows use of a coefficient of friction less than 0.8, when substantiated, in the formula of 25.493(e). It is requested that this interpretation be clarified in the material accompanying the publication of the final rule.*

**SSG RESPONSE:** *Comment accepted. The intent of the rule is to allow a lower drag reaction if a lower value is substantiated. Surely there can be no doubt on this point since the proposed sub-paragraph 25.493(c) is very clear in stating "A drag reaction lower than that prescribed in this paragraph may be used if it is substantiated that an effective drag force of 0.8 times the vertical reaction cannot be attained under any likely loading condition." No changes of the requirement text are needed to reinforce this point.*

**COMMENT:** *The formula under paragraph (e) although not strictly incorrect is not clearly depicted in this NPA and requires careful attention during publication.*

**SSG RESPONSE:** *Comment accepted. This will be highlighted to JAA Headquarters when the NPA is returned for publication.*