

Proposed Special Condition on CS 25.963 at Amdt 18 – “Fire withstanding capability of Carbon Fibre Reinforced Plastic (CFRP) wing fuel tanks”

Applicable to Boeing 777-9

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 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 Boeing 777-9 aircraft features wing fuel tanks made of Carbon Fibre Reinforced Plastic (CFRP) material.

Neither extensive in-service experience, nor guidance material, is available regarding the performance of such material and structure with respect to fire withstanding capabilities. This statement is valid for in-flight fires as well as for under wing fires or post-crash fires.

Aeroplanes equipped with conventional fuel tank configurations constructed with light metal alloys structures have demonstrated a satisfactory level of safety with regard to fire withstanding capability. Because of this positive service experience, CS-25 does not specify requirements for fire withstanding capability of fuel tanks.

Only some areas adjacent to engine nacelles are required to be fire resistant (CS 25.867). Adverse in-service experience prompted to the creation of a similar specification for fuel tank access panels (CS 25.963(e)(2)).

AMC 25.963(e), paragraph 4, recognises that fuel tank access panels withstanding fire for a period of time at least as great as an equivalent aluminium alloy in dimensions appropriate for the purpose for which they are used, meet the fire resistance requirement of CS 25.963(e)(2). This therefore establishes a minimum fire withstanding capability expected from wing fuel tank structure.

This Special Condition requires the demonstration of fire capability of the CFRP wing fuel tanks in order to ensure a safety level equivalent to conventional wing fuel tanks.

Special Condition E-17-9

Applicable to Boeing 777-9

Add to CS 25.963 the following material:

CS 25.963 Fuel Tanks: general

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(e) Fuel tanks must comply with the following criteria in order to avoid hazardous fuel leak:

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- (3) All fuel tank external surfaces made of a material other than aluminium alloy must have the capacity to withstand the heat associated with fire at least as well as a surface made from aluminium alloy in dimensions appropriate for the purpose for which it is to be used.

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