
AIRWORTHINESS DIRECTIVE

For the reasons set out in the background section, the CASA delegate whose signature appears below issues the following Airworthiness Directive (AD) under subregulation 39.1 (1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

Boeing 747 Series Aeroplanes

AD/B747/309

Electrical Bonding

8/2004

Applicability: Model 747 series aeroplanes with line numbers 1 through 1271 inclusive.

- Requirement:
1. Prepare the electrical bonding faying surfaces for the tubing penetrations of the hydraulic heat exchanger on the forward and aft surfaces of the rear spars of the fuel tanks of the left and right wings, together with carrying out a one-time measurement of the electrical bonding resistances between the penetration fittings of the hydraulic heat exchanger and the rear spars; and between the heat exchanger tube and the lower wing stringer surfaces, per the Accomplishment Instructions of ASB 747-29A2104 Revision 1 dated 7 March 2002.
 2. If the bonding resistance is incorrect, repeat the preparation of the electrical bonding faying surface for the tubing penetrations of the hydraulic heat exchanger on the forward and aft surfaces of the rear spar of the fuel tanks of the left and right wings as necessary to achieve a bonding resistance below the threshold specified in the Accomplishment Instructions of ASB 747-29A2104 Revision 1.
 3. Apply fillet sealant and protective finishes around the penetration fittings of the hydraulic heat exchanger in accordance with the Accomplishment Instructions of ASB 747-29A2104 Revision 1 (Figure 4 refers).
 4. Service and pressurize the hydraulic systems and examine for signs of hydraulic fluid leakage. Service the fuel tank and examine for signs of fuel leakage. All these actions are to be accomplished in accordance with ASB 747-29A2104 Revision 1.
 5. Repair any leaks found, during the Requirement 4 examination, in accordance with ASB 747-29A2104 Revision 1.

Actions accomplished before the effective date of this Directive in accordance with Boeing ASB 747-29A2104, dated 19 July 2001, are considered acceptable for compliance with the corresponding action specified in this Directive.

Note: FAA AD 2004-10-06 Amdt 39-13636 refers.

Compliance: For Requirement 1 - Within 60 months after the effective date of this Directive.

Boeing 747 Series Aeroplanes

AD/B747/309 (continued)

For Requirement 2 - Before further flight after the Requirement 1 bonding resistance check.

For Requirement 3 - Before further flight after completing Requirements 1 and 2.

For Requirement 4 - Before further flight after completing Requirement 3.

For Requirement 5 - Before further flight after completing Requirement 4.

This Airworthiness Directive becomes effective on 5 August 2004.

Background: This Directive requires, among other things, preparation of the electrical bonding faying surfaces for the tubing penetrations of the hydraulic heat exchanger on the forward and aft surfaces of the rear spars of the fuel tanks of the left and right wings, a one-time measurement of the electrical bonding resistances together with follow-on actions.

These actions are necessary to ensure adequate electrical bonding between the penetration fittings of the hydraulic heat exchanger and the rear spars of the fuel tanks. Inadequate electrical bonding, in the event of a lightning strike, could cause electrical arcing and ignition of fuel vapour in the wing fuel tank, which could result in a fuel tank explosion.



James Coyne
Delegate of the Civil Aviation Safety Authority

23 June 2004