

Boeing 727 Series Aeroplanes

AD/B727/155

Fuselage Skin Lap Joints

**1/99
DM**

Applicability: Model 727 series aircraft, line positions 1 through 849; that have been converted from a passenger-carrying to a cargo-carrying (freighter) configuration, or to a passenger- and cargo-carrying (combi) configuration.

Requirement: 1. Perform a detailed internal visual inspection to detect cracking, corrosion, or delamination of the fuselage skin lap joints where those lap joints are covered by external doublers at stringers S-4L, S-10L, S-19L, and S-26L from Body Station 360 to 740; in accordance with task numbers C53-224-01 and C53-111-01 of Boeing Document D6-54929, Aging Airplane Corrosion Prevention and Control Program, Model 727, Revision A, dated July 28, 1989. The lap joints must be completely exposed to perform the inspection.

If any crack, corrosion, or delamination is found, before further flight, repair damaged structure in accordance with a method approved by the Authority.

2. Modify the fuselage skin lap joints where those lap joints are covered by external doublers at stringers S-4L, S-10L, S-19L, and S-26L from Body Station 360 to 740 by removing the external doublers; and by separating and reworking the joint in accordance with Part IV, Figure 4, of the Accomplishment Instructions of Boeing Service Bulletin 727-53-0072, Revision 5, dated June 1, 1989, except that blind fasteners shall not be installed.

Note 1: If an operator can verify that the modification required by this Directive has, in fact, been accomplished, a request for exemption should be submitted to the Authority with data verifying such accomplishment.

Before oversizing the fastener holes as part of the modification, perform a high frequency eddy current inspection of the holes to detect cracking, in accordance with the service bulletin; and before further flight, repair any cracking in accordance with a method approved by the Authority.

When reassembling the lap joint, all three rows of fasteners must penetrate all layers of the lap joint, including the upper skin, lower skin, and the doublers; and the stringers and tripler, as applicable.

Note 2: Installation of protruding head fasteners in the upper row of fasteners of the lap joint in itself does not constitute accomplishment of the modification.

For aircraft on which the cargo door itself was manufactured using the original fuselage skin, Requirements 1 and 2 also apply to the lap joint(s) in the door structure.

Accomplishment of the modification as required by Requirement 2 of this Directive constitutes terminating action for the Requirement 1 inspections, and constitutes an acceptable alternative method of compliance with Paragraph F of FAA AD 91-06-06 (AD/B727/116 Amdt 1) for the affected area.

Contrary provisions of AD/B727/116 Amdt 1 notwithstanding, this Directive allows continued operation of the subject aircraft following the effective date of this Directive in accordance with the terms of this Directive, provided that the modification required by AD/B724/116 Amdt 1 has been accomplished on all lap joints other than those in the area of the main deck cargo door.

Note 3: FAA Telegraphic AD T98-23-51 refers.

- Compliance:
1. Within 60 landings after 9 December 1998; thereafter at intervals not to exceed 60 landings until the Requirement 2 modification is accomplished.
 2. At the latest of the following compliance times:
 - a. Before the accumulation of 28,000 total landings.
 - b. Within 250 landings after 9 December 1998.
 - c. Within 120 days after 9 December 1998.

This Airworthiness Directive becomes effective on 9 December 1998.

Background: The FAA recently received information that the modification required by AD 91-06-06 may not have been accomplished completely on as many as 160 aircraft that are included in the applicability of that AD and that are subject to the unsafe condition addressed in that AD. These aircraft were converted from a passenger-carrying to a cargo-carrying (freighter) configuration, or to a passenger-and cargo-carrying (combi) configuration. These conversions included installation of a main deck cargo door. Although these conversions were accomplished in accordance with several different Supplemental Type Certificates (STC), in each case, as part of the modification, a doubler (approximately 20 feet long) was installed over lap joints S-4L, S10L, S-19L, and (sometimes) S-26L.

FAA personnel recently examined five of these aircraft, operated by three operators, and determined that the lap joints had not been modified, as required, in the area covered by the doublers on any of the five aircraft. Preliminary inquiries indicate a substantial likelihood that very few of the freighters or combi aircraft have been so modified. The installation of doublers over the lap joints during the freighter or combi conversions did not correct the unsafe condition addressed by AD 91-06-06 because it is not effective in preventing delamination, corrosion, and cracking in the lap joint. In fact, in some cases, the unsafe condition may be aggravated because of load redistribution due to installation of a main deck cargo door. This may accelerate crack growth along the lap joint under the doubler.

It is possible that these lap joints have been neither inspected nor modified as required by AD 91-06-06, and therefore there is significant risk that such cracking may have occurred on these aircraft. Without special inspections such cracking cannot be detected until the crack emerges from under the doubler. These cracks could remain undetected until they approach or reach a length at which the fuselage can no longer sustain pressure loads sufficiently to prevent catastrophic rapid decompression.