Beechcraft 90 and 65-90 (King Air) Series Aeroplanes

AIRWORTHINESS DIRECTIVE

For the reasons set out in the background section, the CASA delegate whose signature appears below revokes Airworthiness Directive (AD) AD/BEECH 90/48 Amdt 1 and issues the following AD under subregulation 39.1 (1) of CAR 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.

AD/BEECH 90/48 Amdt 2 Wing Spar Fitting Fatigue - Inspection 11/2000

Applicability: All model 65-90, 65-A90, B90, C90, and E90 aircraft, except serial nos. LJ-1085, and LJ 1088 and subsequent. All model F90 aircraft except serial nos. LA-226 and subsequent.

Requirement:

1. Remove the wing main spar lower attachment bolts in accordance with the manufacturer's instructions. Strip all paint from the "bathtub" portion of the four outer wing to centre section main spar lower attachment fittings.

2. For all except F90: Perform a fluorescent liquid penetrant inspection of all four fittings in accordance with the Beechcraft Structural Inspection and Repair Manual (SIRM) P/N 98-39006B3 as revised May 28 1999, Chapter 57-13-01 Chart 201 Index Nos. 1 and 10, or 57-13-02 Chart 201 Index Nos. 1 and 5, as applicable to individual aeroplanes. When inspecting the "bathtub" portion of the fittings, pay particular attention to the bolt counterbore and fillet radius. As an alternative, this inspection may be performed using an eddy current (pencil probe) procedure as detailed in Chapter 20-00-00 of the SIRM in which case paint strip is not required.

3. For model F90 aircraft only: Perform a fluorescent liquid penetrant inspection of all four fittings in accordance with the Beechcraft Structural Inspection and Repair Manual (SIRM) P/N 98-39006B3 as revised May 28 1999, Chapter 57-14-01 Chart 201 Index No. 1. Pay particular attention to the bolt counterbore and fillet radius in the "bathtub" portion of the centre wing fitting, and the radius at the end of the barrel nut recess in the outer wing fitting. As an alternative, this inspection may be performed using the eddy current procedure specified in 4 below.

4. For model F90 aircraft only: Perform an eddy current inspection of all four fittings in accordance with the Beechcraft Structural Inspection and Repair Manual (SIRM) P/N 98-39006B3 as revised May 28 1999, Chapter 57-14-01 Chart 201 Index No. 2. Paint strip is not required for eddy current inspection.

In accordance with the SIRM, should a fatigue crack be found in the outer wing fitting, the complete outer wing main spar lower cap must be replaced before further flight. A crack in a centre section fitting requires replacement of the affected component only.

Note 1: The SIRM Chapter 20-00-00 "Warning" regarding not removing paint for penetrant inspections should be disregarded. To prevent corrosion, some form of protective treatment, such as a standard zinc chromate primer, should be applied between inspections, to surfaces from which the paint has been removed.

Note 2: Solvent removers should be used wherever possible. If the use of other paint strippers is unavoidable, the complete removal of residue must be ensured before inspection. In either case, the use of mechanical or abrasive means of paint removal must be avoided.

Note 3: It is recommended that the penetrant be applied to the counterbore and recess radii using a fine artist's paint brush. This will simplify penetrant removal and minimise false indications. Care should be taken to ensure full coverage of the fillet radius and a similar distance (at least 5 mm) into the cylindrical portion of the counterbore, in particular on the side of the hole adjacent to the "bottom of the bathtub".

Note 4: No attempt should be made to polish out suspect indications, as this has led in the past to the obscuring of large cracks. Where suspect indications need to be confirmed, seek specialist NDT advice.

Note 5: Inspection of the bolts and nuts is detailed in the current issue of AD/BEECH 90/69.

Compliance: For Models 65-90, 65-A90, B90, and C90 and E90 aircraft, Requirements 1 and 2: Prior to exceeding 3000 hours component time in service, and thereafter at intervals not exceeding 200 hours component time in service. Where the eddy current procedure is used, the recurring inspection interval may be doubled.

For Model F90 aircraft only:
Requirement 3: At intervals not exceeding 5 calendar years.
Requirement 4: Prior to exceeding 20 000 hours component time in service, and thereafter at intervals not exceeding 1200 hours component time in service.

Note 6: Inspections carried out in accordance with previous issues of this or related ADs, satisfy the initial inspection requirements of this amendment.

This Amendment becomes effective on 2 November 2000.

Background: The original issue of this Airworthiness Directive became effective on 30 June 1977, and was based on the known fatigue history of the "bathtub" fittings.

Amdt 1 was issued by Telex on 24 May 1979, and reduced the inspection threshold and interval for most models following an in-flight failure of an outer wing fitting on a King Air 65-90 aeroplane in Canada, and issue of Canadian emergency AD CF 79-06.

This Amendment results from a review of the AD which confirmed the need for the requirement and the appropriateness of the inspection intervals. It consolidates AD/BEECH 90/47 and AD/BEECH 90/48 Amdt 1 into a single AD. The applicability has been curtailed to exclude later production aircraft which have clevis fittings in lieu of the "bathtub" type fittings. The requirements have been aligned with the Beechcraft SIRM to the extent possible; and the use of eddy current inspection of the "bathtub" is allowed as an optional alternative to fluorescent dye penetrant, with a corresponding increase in the repetitive inspection interval. Since the E90 shares the same fittings as the earlier models, the same inspection intervals also apply; this was overlooked when Amendment 1 was issued. The model F90 has also been added, it uses different fittings for which the SIRM inspection procedures and intervals have been adopted.

David Alan Villiers
Delegate of the Civil Aviation Safety Authority

22 September 2000