

SP-20
Log 1764

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: March 7, 1985

Forwarded to:

Honorable Donald D. Engen
Administrator
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-85-20 through-22

Between December 9, 1983, and September 8, 1984, three Bellanca Scout Model 8GCBC airplanes crashed after each of the airplanes had sustained an in-flight structural failure of the wing. Five persons were killed. The accidents occurred at: Wilmot, New Hampshire, September 8, 1984 (N86859); Houston, Texas, April 8, 1984 (N4167Y); and Saskatchewan, Canada, December 9, 1983 (C-GKZG). Reportedly, each of the airplanes had been repaired preceding the accident after having been blown over on the ground during high winds or after having been flipped over during landing. The Safety Board believes that these and other similar accidents involving in-flight airframe failures of both Bellanca Model 7 and 8 series airplanes, including the aerobatic versions, warrant corrective action by the Federal Aviation Administration (FAA).

The various Bellanca Model 7 and 8 series two-place tandem, strutbraced, high-wing airplanes, for example, 7ECA, 7GCAA, 7GCBC, 8KCAB, and 8GCBC, are constructed with sitka spruce wing spars, formed aluminum ribs, and drag wire bracing, and are covered with Dacron fabric. Over the years, the Bellanca Aircraft Corporation has issued several service letters relating to the inspection and repair of the wing structure of these airplanes. One of these, Service Letter No. 113, "Inspection and Repair of Wing Ribs," issued in 1974 and applicable only to the Model 8KCAB, is mandatory in accordance with Airworthiness Directive (AD) 74-23-04R. However, other service letters of equal or greater structural significance remain discretionary. For example, Service Letter No. C-139A, "Inspection Wing Rib/Spar Attachment And Leading Edge Support Block Nails" issued in 1980 and applicable to various Model 7 and 8 series airplanes, addresses the concern that rib/spar nails may become loose resulting in wing spar damage and/or that loose leading edge support block nails may allow the wing leading edge to buckle.

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Although spar size and airfoil shape vary among the models, the wing construction details are the same. Additionally, the higher structural loadings sustained by some Model 7 and 8 series airplanes certified in the aerobatic category and the uncertain structural integrity of other Bellanca airplanes which also may have been previously damaged, make compliance with critical wing-inspection service letters, such as Service Letter No.C-139A, critical to safe flight. Therefore, the Safety Board believes that the Federal Aviation Administration (FAA) should issue an AD requiring compliance with Bellanca Service Letter No.C-139A, "Inspection Wing Rib/Spar Attachment and Leading Edge Support Block Nails," applicable to models 7GC, 7GCA, 7GCB, 7GCBA, 7HC, 7KC, 7KCAB, 7ECA, 7GCAA, 7GCB, 7GCBC 8KCAB, and 8GCBC; Bellanca Service Letter No. 116, "Wing Leading Edge Inspection" applicable to the model 8KCA8; and Bellanca Service Letter No. 95, "Inspection, Repair and Modification of Aileron Bay Ribs," applicable to models 7ECA, 7GCAA and 7GCBC. The AD also should contain any supplemental inspection instructions deemed necessary by FAA to assure prompt detection and proper repair of wing structural damage.

The Safety Board also believes that the FAA should provide a precautionary Advisory Notice to all Bellanca Model 8GCBC airplane owners regarding the circumstances of the aforementioned accidents. The notice should emphasize the importance of proper inspection and repair of these airplanes, particularly after the airplanes have been overturned during high winds or after they have sustained similar damage as a result of a takeoff or landing incident. Additionally, details of the recent Bellanca Model 8GCBC in-flight airframe failure accidents should be published in an article in FAA Advisory Circular (AC) No. 43-16, General Aviation Airworthiness Alerts. The article should emphasize the importance of maintenance, inspection and repair of these airplanes and the consequences of improper maintenance inspection, and repair of wooden wing spars, ribs, jury struts, drag wire bracing, and fabric on this and similar Bellanca Models.

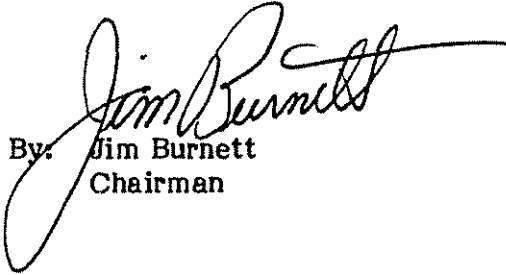
Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue an Airworthiness Directive (AD) requiring compliance with Bellanca Service Letter No. C-139A, "Inspection Wing Rib/Spar attachment and Leading Edge Support Block Nails," applicable to Models 7GC, 7GCA, 7GCB, 7GCBA, 7HC, 7KC, 7KCAB, 7ECA, 7GCAA, 7GCBC, 8KCAB, and 8GCBC; Bellanca Service Letter No. 116, "Wing Leading Edge Inspection," applicable to The Model 8KCAB; and Bellanca Service Letter No. 95, "Inspection, Repair and Modification of Aileron Bay Ribs," applicable to Models 7ECA, 7GCAA, and 7GCBC. The AD should also contain any supplemental inspection requirements deemed necessary by the Federal Aviation Administration to assure prompt detection and proper repair of wing structural damage. (Class II, Priority Action) (A-85-20)

Mail a precautionary Advisory Notice to all Bellanca Model 8GCBC owners regarding in-flight airframe failure accidents involving this airplane. The importance of Bellanca service letters and proper maintenance, inspection, and repair should be emphasized as means of assuring the continued airworthiness of the airplanes, particularly in cases where the airplane has sustained damage during takeoff or landing or has been overturned during high winds. (Class II, Priority Action) (A-85-21)

Publish details of Bellanca Model 8GCBC in-flight airframe failure accidents in FAA Advisory Circular (AC) No. 43-16, General Aviation Airworthiness Alerts. The article should emphasize the importance of Bellanca service letters related to critical wing structure and proper inspection and repair procedures applicable to the wooden wing spars, ribs, jury struts, drag wire bracing, and fabric on this and similiar Bellanca Models. (Class II, Priority Action) (A-85-22)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in these recommendations.


By: Jim Burnett
Chairman