

Log 2477



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Date: August 31, 1993

In reply refer to: A-93-105

Honorable David R. Hinson
Administrator
Federal Aviation Administration
Washington D.C. 20591

On October 17, 1992, the nose gear on a Bellanca 17-30A airplane, N14695, collapsed on landing at Walker Field in Grand Junction, Colorado.¹ The pilot and passenger were not hurt, but the airplane was substantially damaged. Preliminary inspection of the nose wheel well revealed that the drag strut bracket from the right side of the nose landing gear (NLG) well had separated from the firewall.

Metallurgical examination performed at the Safety Board's materials laboratory revealed that the drag strut bracket (P/N 194383-10) had separated into three pieces at two fracture locations. One fracture intersected the entire length of the bend radius located on the inboard ear. The other fracture intersected the upper outboard and lower mounting bolt through-holes. These separations were located on the portion of the bracket that was mounted against the firewall. Evidence indicated that the fractures resulted from fatigue cracking that originated from multiple sites along the forward and aft faces of the bracket.

The cracking of drag strut brackets was the subject of Bellanca Aircraft Company (Bellanca) Service Letter (SL) 76, dated January 4, 1973. The SL advises owners of Bellanca airplane models 14-19-3, 14-19-3A, 17-30, 17-30A, 17-31, 17-31A, 17-31TC, and 17-31ATC to perform visual inspections of the brackets with a 10-power magnifying glass to detect cracks in the vicinity of the three mounting bolt through-holes and the bend radius of the inboard and outboard ears. The SL states that the inspections should occur within the next 25 airframe hours after receiving the SL and every 100 airframe hours thereafter. Brackets found to contain cracks are to be replaced with new brackets bearing P/Ns identified in the SL. After new brackets are installed, repetitive inspections are not necessary, except during normal routine inspections. According to a Bellanca representative, the new brackets are of the same design as the brackets they replace.

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¹ The Safety Board's investigation of this accident is continuing (DEN93-L-A006).

Bellanca SL 76 applies only to specific serial numbers of the identified Bellanca airplane models. According to a company representative, airplanes with those serial numbers were manufactured prior to the SL release date of January 4, 1973. The service letter does not address inspections of drag strut brackets in Bellanca models with later serial numbers. Consequently, airplanes manufactured after January 4, 1973, are not subject to the repetitive inspections described in SL 76, although those brackets are the same design as the brackets addressed by SL 76. Because the accident airplane, N14695, was manufactured in 1974, its drag strut bracket had not been inspected for cracks in the vicinity of the mounting bolt through-holes and bend radii of the ears.

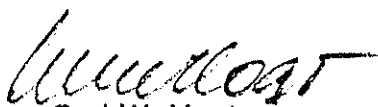
A review of FAA Service Difficulty Reports (SDR) for January 1, 1986, through January 28, 1993, revealed reports of either drag strut bracket separation or cracking on seven Bellanca airplanes. Four of the seven airplanes were manufactured after January 4, 1973. Consequently, their drag struts brackets were not subject to the inspections described in SL 76. The SDR contained an additional report indicating that within a 2-year period at least 20 brackets were found to contain cracks. The report did not indicate the number of Bellanca airplanes involved.

The accident of airplane N14695 and documentation in the FAA Service Difficulty Reports demonstrate that drag strut brackets of the same design as those addressed by SL 76 are susceptible to cracking. Because of the potential for separation of the Bellanca drag strut brackets, the possibility of injury, death, or extensive property damage exists. Because repetitive inspections for cracks are not required for drag strut brackets in Bellanca airplanes manufactured after January 4, 1973, and are not required for brackets replaced in Bellanca airplanes manufactured before that date, the Safety Board is concerned that cracks may go undetected in these airplanes, resulting in separation of the brackets.

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

Issue an airworthiness directive for Bellanca Aircraft Corporation airplane models 14-19-3, 14-19-3A, 17-30, 17-30A, 17-31, 17-31A, 17-31TC, and 17-31ATC to require periodic inspections for cracks in the areas of the bend radius and bolt through-holes of the nose landing gear drag strut brackets. The repetitive inspection program should include the airplanes addressed in Bellanca Service Letter No. 76, dated January 4, 1973; airplanes whose drag strut brackets were replaced in accordance with the service letter; and airplanes manufactured after January 4, 1973. Brackets found to contain a crack should be replaced with brackets specified in SL 76. (Class II, Priority Action) (A-93-105)

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HART, and HAMMERSCHMIDT concurred in this recommendation.


By: Carl W. Vogt
Chairman