



# National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

Date: May 13, 1992

In reply refer to: A-92-36

Honorable Barry L. Harris  
Acting Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

At 0727 central daylight time on September 21, 1991, a Piper PA-25-235, N7509Z, crashed in a field near Brewton, Alabama, after the left wing separated from the airplane. According to a witness, the airplane had completed a chemical spraying run in a field and was performing a pull-up maneuver when the structural failure occurred. A fire started in the engine compartment after the impact and spread to other portions of the airplane. The airplane was substantially damaged and the pilot suffered serious injuries. The airplane reportedly received its airworthiness certificate on June 29, 1965, and had accumulated a total of 10,700 airframe hours at the time of the accident.

The aft spar attachment for the left wing separated in overstress. However, examination of the front spar attachment for the left wing disclosed evidence of a progressive separation on the fuselage side of the attachment. The progressive separation was through the P/N 64003 fitting and the P/N 64412 fitting assembly, which when welded together produce the two attachment clevis ears on the wing front spar fuselage attachment assembly.

The forward clevis ear of the left wing front spar fuselage attachment assembly fractured at the base of the clevis ear and contained extensive corrosion products. The fractures were, in part, along flat traverse planes, which indicates progressive cracking. There also was an extensive oxidation layer between the sections making up the fitting assembly, indicating that the corrosion had occurred over an extended period of time.

The aft clevis ear of the left wing front spar fuselage attachment assembly was extensively deformed and broken through the wing attachment bolt hole. This clevis ear broke from a high stress separation when it could no longer sustain the stresses imposed by the wing after the forward clevis ear fractured.

A representative from Piper Aircraft Corporation (Piper), the manufacturer of the N7509Z airplane, stated that there is no service manual for the model PA-25 airplane. As a consequence, there is no required inspection period for this model airplane except for those specified in the Piper service bulletins (SB) and the FAA airworthiness directives (AD). However, there are no SBs or ADs for the model PA-25 airplane that address the wing front spar fuselage attachment assembly.

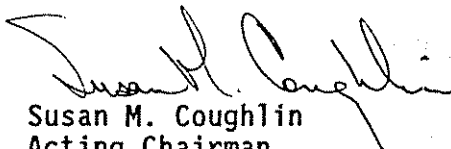
The wing front spar fuselage attachment assembly is not readily accessible for inspection when the wings are attached to the fuselage. A thorough inspection requires disassembling the wings from the fuselage.

The Safety Board is concerned that there may be other PA-25 airplanes that contain corrosion and cracking in the wing front spar fuselage attachment assembly, which if left undetected, could lead to inflight wing separation and the loss of lives and property.

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

Issue an Airworthiness Directive for Piper PA-25 Airplanes to require (1) an immediate inspection for corrosion and cracking of the clevis ears on the wing front spar fuselage attachment assemblies (P/Ns 64003 and 64412), (2) the repair, by an FAA approved method, of any fitting assembly that contains cracking or corrosion damage, and (3) periodic inspection of the wing front spar fuselage attachment assemblies at intervals that will detect cracking before it becomes critical to safe operation of the airplane. (Class I, Urgent Action) (A-92-36)

Acting Chairman COUGHLIN, and Members LAUBER, HART, HAMMERSCHMIDT, and KOLSTAD concurred in this recommendation.

  
By: Susan M. Coughlin  
Acting Chairman