

BULLETIN ADDENDUM

AAIB File: EW/G94/01/19
Aircraft Type and Registration: Piper PA-23-150 Aztec, G-BHCT
Date and Time (UTC): 27 January 1994 at 1836 hrs
Location: Biggin Hill Airport, Kent
Type of Investigation: Aircraft Accident Report Form submitted by the pilot

AAIB Bulletin 6/94 refers

Shortly after publication of the above Bulletin, the AAIB were informed that a similar failure of the centre bolt had been identified in the left landing gear drag link of PA 23-250 aircraft, G-BFWE, during maintenance operations.

The AAIB examined this and the corresponding bolt from the right leg of the same aircraft. Both bolts were found to be corroded over all external surfaces. It was found that wear and corrosion had caused a maximum reduction in the diameter of the bolt shanks by 0.008 inch in the case of the failed bolt and 0.010 inch in the case of the unbroken bolt. Wear on the shanks had occurred before the corrosion damage. Examination of the fracture faces of the failed bolt showed that failure had occurred as a result of service induced reverse bending fatigue loading, the fatigue resistance having been reduced by the wear and corrosion damage. The complete bolt from the right leg was subjected to a non-destructive crack detection process and was found to be free from cracks.

Hardness testing revealed a figure corresponding to 66 tonf/square inch tensile strength in the case of the failed bolt, a figure typical for bolts in this application. The aircraft had flown a total of 4,418 hours at the time the failure was noted; there was no evidence that the bolt in question had been changed during the life of the aircraft. As in the case of the failed bolt on G-BHCT, a very large number of fatigue cycles were evident on the fracture face of this failed bolt, suggesting that the fatigue loading was the result of the effect of rolling over uneven runway surfaces, rather than related to the number of landings. The engineer responsible for maintenance of G-BFWE commented that although the failed bolt appeared to have been well lubricated, the aircraft is known to have been out of service for an extensive period finishing some time before the failure was found.