



1. Applicability

All American Champion Aircraft (ACA)

2. Purpose

To alert maintainers and operators to the in-flight failure of a primary flight control cable which occurred in an ACA 7GCBC 'Citabria' and to ensure that maintenance providers are made aware of the need to adequately inspect all flight control cables in ACA aircraft. This AWB is based on the preliminary findings of the ATSB investigation.

3. Background

The elevator "up" cable failed completely at the point where the cable ran over the first guide pulley forward of the elevator horn cable interconnection. (Fig.1). A second area of fraying was found in the same elevator cable, approximately 1.76 m further forward, at the next cable pulley location. (Fig. 2)

Figure 1.



Aft section of failed elevator cable.

The cable failed due to the cumulative effects of fatigue cracking of the individual strand wires. The cable suffered multiple wire failures on the inside bend of the cable, specifically where it contacts the pulley during cruise flight. The cable did not show any other 'normal' signs of wear, such as flats or shiny sections in the areas where the cable contacted pulleys or fairleads. There was no obvious corrosion. The second area of cable degradation was also a fatigue cracking issue. See (Fig.2)



Figure 2.



The failed elevator cable was identified as a 1/8" diameter spiral-wound galvanised carbon steel cable, of 7 strands, each of 19 wire construction. (7X19).

The cable had been installed when the aircraft was manufactured in 2005 and had been in service for 2,904 Hours TSN.

Forward section of failed elevator cable.

4. Recommendation

In order to detect failed control wires in control cables, prevent cable separation and possible loss of control, CASA urgently recommends that:

1. All flight control cables in all ACA aircraft be immediately subjected to a close inspection and frequent inspection thereafter, in accordance with FAA AC 43-13-1B, chapter 7, Section 8, paragraph 7-149(d), particularly in the areas of the cable at the specific points of contact with the pulleys and fairleads. This may require disconnecting the cable at one end in order to withdraw the cable from the aircraft and examine areas not normally visible with the system assembled.
2. Operators consider replacing all existing 1/8" 7x19 spiral-wound galvanised carbon steel cable which cannot be traced to MIL-DTL-83420 certification, with cables having verifiable certification to MIL- DTL- 83420 standard.
3. That all cable operated control systems are inspected for wear, broken wires and corrosion in accordance with FAA AC 43-13-1B, chapter 7, Section 8, paragraph 7-149(d) and in accordance with approved data and the manufacturers maintenance data as required at each 100 hourly or annual inspection.

5. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address: AirworthinessBulletin@casa.gov.au

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