

**AAIB Bulletin No: 4/94**

**Ref: EW/G94/01/09**

**Category: 1.3**

**Aircraft Type and Registration:** Grumman AA-5B Tiger, G-PORK

**No & Type of Engines:** 1 Lycoming O-360 A4K piston engine

**Year of Manufacture:** 1977

**Date & Time (UTC):** 26 January 1994 at 1230 hrs

**Location:** Southampton (Eastleigh) Airport, Hampshire

**Type of Flight:** Aerial Work (Training)

**Persons on Board:** Crew - 2                      Passengers - 1

**Injuries:** Crew - None                      Passengers - None

**Nature of Damage:** Aileron outer bearing support brackets failed

**Commander's Licence:** Commercial Pilot's Licence with IMC and Flying Instructor Ratings

**Commander's Age:** 42 years

**Commander's Flying Experience:** 4,053 hours (of which approximately 1,000 were on type)  
Last 90 days - 45 hours  
Last 28 days - 19 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and metallurgical examination of failed brackets

The aircraft took off from Southampton Airport to conduct a Navigational Flight Test with a student, an instructor and one passenger on board. They were just levelling off at 1,400 feet with the student handling the aircraft when the control column started to oscillate rapidly in the roll sense. The instructor looked to his right and saw the right aileron outboard section flapping up and down but restricted from full movement by the presence of the balance horn in the wingtip.

He immediately took control and reduced speed to about 80 kt whence the oscillation stopped. Informing Southampton ATC of their intention to return, an uneventful landing was subsequently achieved with the instructor reporting that the response to control inputs felt normal at all times. Examination showed that both left and right aileron outer bearing support brackets (Part No 902010-501) had failed completely (see photograph).

The owner of the aircraft immediately suspected that the failures were related to the fact that the aircraft had spent some time during the preceding days parked tail-to-wind in gale-force conditions. He reported that the control column gust lock had subsequently been found partially dislodged. Metallurgical examination confirmed that the fractures exhibited a high proportion of low-cycle/high strain fatigue characteristics consistent with a number of excessive load cycles being applied to the brackets.

Consultation with the CAA and a UK operator of a large number of similar aircraft did not reveal any general history of in-service failures of the subject components but it was recalled that a cracked bracket had once been found some years ago.

**G-PORK Photograph of failed aileron outer bearing support bracket**

