AAIB Bulletin No: 11/95 **Ref: EW/G95/06/28** **Category: 1.3**

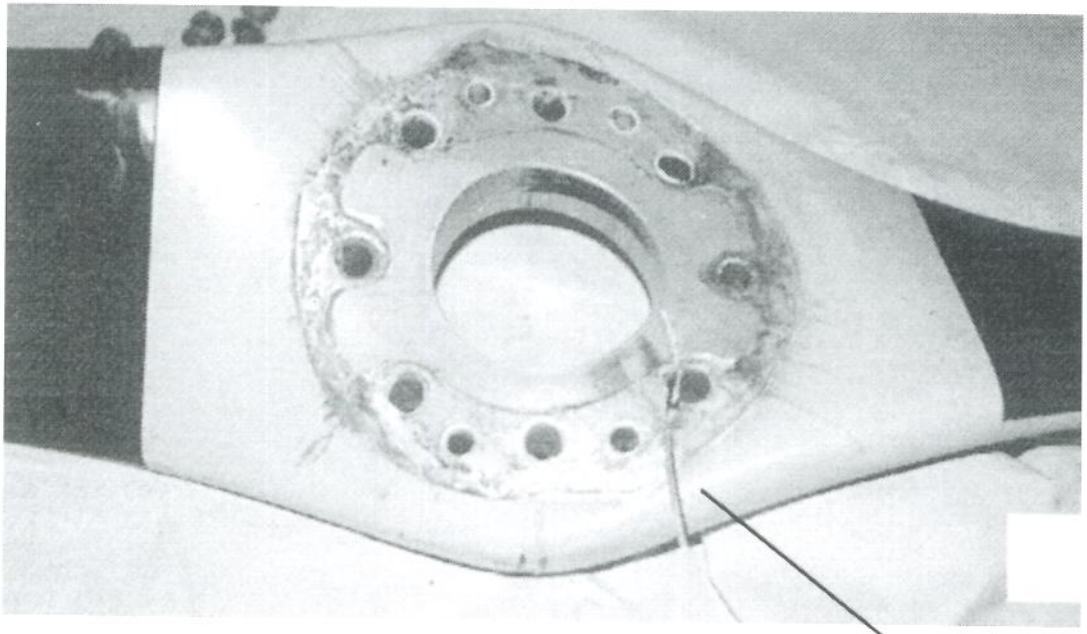
INCIDENT

Aircraft Type and Registration:	DHC-1 Chipmunk 22, G-ARGG	
No & Type of Engines:	1 Gypsy Major piston engine	
Year of Manufacture:	1951	
Date & Time (UTC):	June 1995	
Location:	Between Sywell and Coventry	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Propeller hub cracked	
Commander's Licence:	Not Relevant	
Commander's Age:	Not Relevant	
Commander's Flying Experience:	Not Relevant	
Information Source:	Aircraft Accident Report Form submitted by the pilot and examination of the propeller by AAIB	

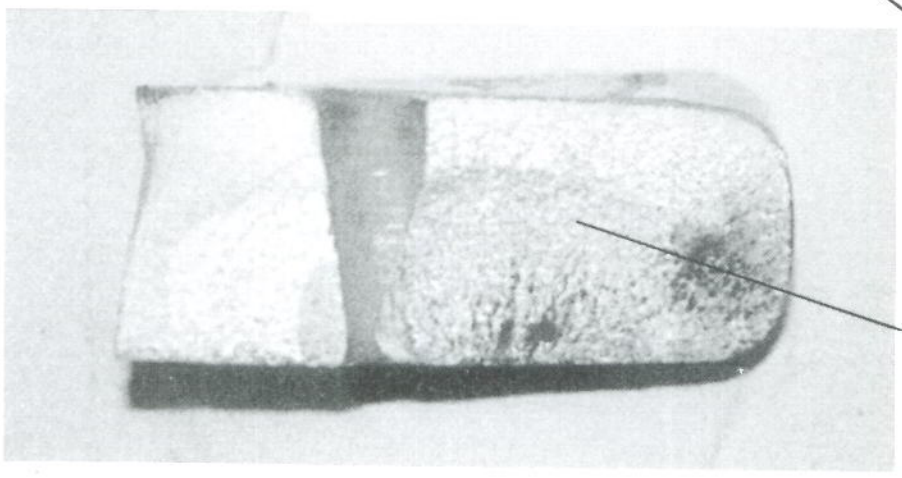
In-flight vibration was experienced by the pilot, and on inspection following an uneventful landing the propeller hub was found to be cracked.

The propeller had been manufactured by Fairey Reed in 1950 and had been used by the Royal Air Force for an unknown time. Since coming into civilian ownership the aircraft had been raced for 8 years; this comprised 10 to 12 races per year lasting approximately 50 minutes and using 2,500 to 2,600 RPM. A weld repair had been carried out to the hub block in 1990 following a ground strike which bent both blades. A further repair had been carried out to minor blade damage in April 1995, 10 hours before the incident. This repair did not involve dismantling or inspection of the hub area.

The blade was examined by AAIB and exhibited a crack through one of the bolt holes, this crack continued across both hub blocks. The cracked area was cut out of the blade to facilitate further examination, which showed that the crack was caused by fatigue.



Crack in Propeller hub



Area of fatigue cracking

Dye penetrant was present in the bore of the bolt hole but had not penetrated the crack. The last dye penetrant check had been carried out in accordance with Fairey Reed AD FRP-001, 70 hours prior to the incident.