

AAIB Bulletin No: 12/93

Ref: EW/G93/08/18

Category: 1.3

Aircraft Type and Registration: Avid Speed Wing Mk 4 Avid Flyer, G-BUFV

No & Type of Engines: 1 Rotax 582 piston engine

Year of Manufacture: 1992

Date & Time (UTC): 16 August 1993 at 1810 hrs

Location: Liverpool Airport, Merseyside

Type of Flight: Private

Persons on Board: Crew - 2 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Damage to nose landing gear, cowling, silencer and propeller; engine shock loaded

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

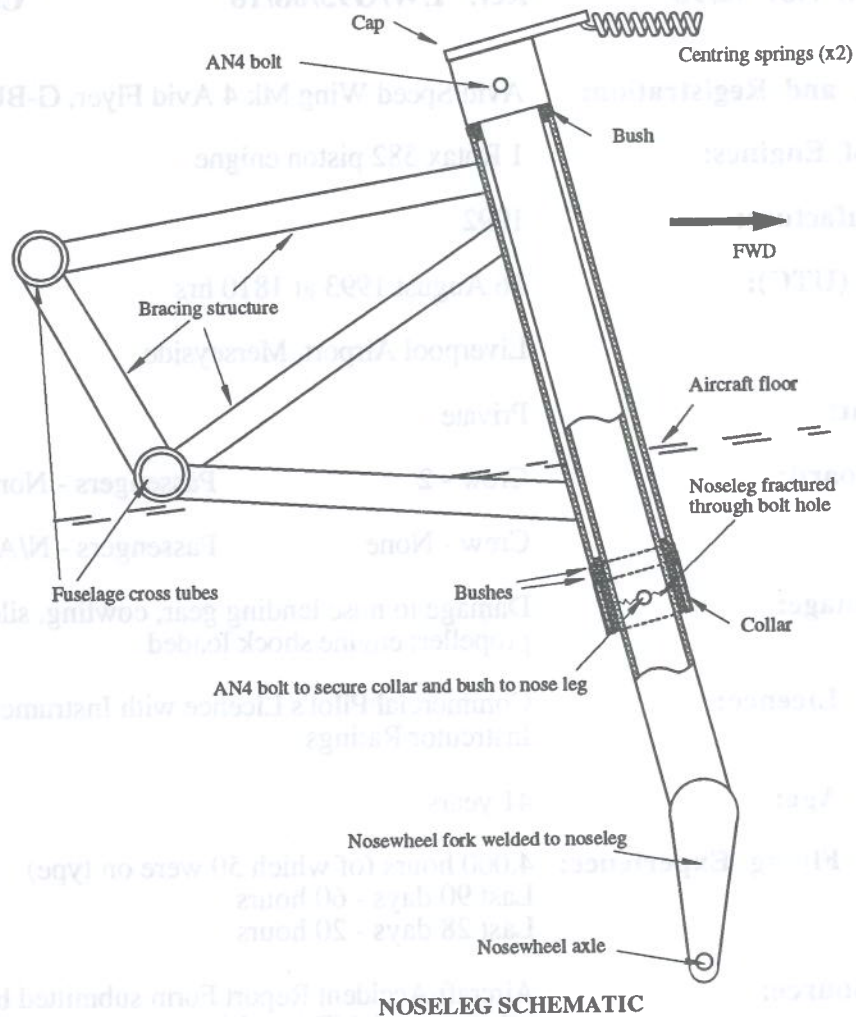
Commander's Age: 41 years

Commander's Flying Experience: 4,000 hours (of which 50 were on type)
Last 90 days - 60 hours
Last 28 days - 20 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and subsequent AAIB inquiries

The aircraft was in the process of taxiing towards the active part of Liverpool Airport when the nose leg failed leaving the wheel and fork assembly behind and causing the aircraft to tip onto its nose. The speed at the time was approximately 15 mph, and the aircraft slid for 15 to 20 metres before coming to rest.

The nose landing gear consisted of a nosewheel fork welded to a steel tube which was inserted into a support tube in the fuselage. A bushed collar, attached via an AN4 bolt, located the lower leg axially within the support tube, as shown in the attached sketch. It was found that the leg had failed through the associated bolt hole.



The failed components were returned to the UK importer of the aircraft, which forwarded them to the manufacturer in the United States. The fracture faces were reportedly indicative of an overload failure which, according to the manufacturer, was likely to have been the result of a nosewheel 'shimmy' problem commonly encountered on this type of aircraft. In addition, the results of a stress analysis commissioned in the UK indicated an inadequate reserve factor on the nose leg. One other instance of nose leg failure is known to have occurred on this type.

New aircraft kits are being supplied with the nose leg tube wall thickness increased from 0.054 inches to 0.108 inches. A modification is available for in-service aircraft which consists of a reinforcing tube inserted inside the existing nose leg. The Popular Flying Association require that either this modification be embodied or the nose leg be replaced with the strengthened version, by the next renewal of the Permit to Fly.