

Tri-R Kis, G-BXJI

AAIB Bulletin No: 8/2003

Ref: EW/G2002/08/09

Category: 1.3

Aircraft Type and Registration:	Tri-R Kis, G-BXJI	
No & Type of Engines:	1 Lycoming O-235-L2C piston engine	
Year of Manufacture:	2000	
Date & Time (UTC):	11 August 2002 at 0950 hrs	
Location:	Cumbernauld Airfield, Glasgow	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to wing, landing gear, propeller, engine and cowling	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	53 years	
Commander's Flying Experience:	344 hours (of which 16 were on type)	
	Last 90 days - 15 hours	
	Last 28 days - 13 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Whilst landing on Runway 08 the aircraft bounced heavily and the pilot initiated a go-around. He applied full power but the right wing stalled, dropped and contacted the runway surface turning the aircraft to the right. With the engine still producing full power, the aircraft continued towards long grass at the side of the runway. As the main wheels and right wing entered the grass the retardation caused the aircraft to pitch forward, invert and come to rest upside down in a wings level attitude. In the process the right wing separated at its root and the main landing gear was torn off. The propeller shattered, shock loading the engine.

Having shut the aircraft down, the pilot and his passenger were left suspended upside down in their four point harnesses. Although uninjured, they were unable to get out of the aircraft because the gull wing doors were held shut by the weight of the aircraft. The pilot used a hand held fire extinguisher to break the perspex windscreen and, in doing so, activated the extinguisher filling the cockpit with extinguishant. At that point two people arrived from the control tower and righted the aircraft. The two occupants were then able to exit normally through the doors. There was no fire and they suffered no ill effects from the contents of the fire extinguisher.

The wind at the time of the landing was from 080° at 5 kt under a 1,000 foot cloudbase, with rain approaching the airfield. The pilot stated that the aircraft, which has a tailwheel configuration, is susceptible to bouncing when trying to effect a three point landing. He concluded that, on this occasion, he flared the aircraft too high causing it to bounce heavily and, due to a high angle of attack during the early stages of the go-around, the right wing stalled.

The pilot expressed concern that, had the aircraft caught fire while it was inverted, he and his passenger would have had significant difficulty in evacuating safely because they were unable to open the gull wing doors.

The aircraft was produced as a kit in the USA and under Federal Aviation Regulations (14 CFR part 21) it would be operated there on a Special Airworthiness Certificate, in the Experimental Category, because of its status as an amateur-built aircraft. In the USA there are no design requirements for aircraft operating under this approval. As a British registered aircraft it was operating on a Permit to Fly, which had been issued by the CAA on the recommendation of the Popular Flying Association (PFA). The PFA had approved the type using The Joint Aviation Requirements for Very Light Aeroplanes (JAR VLA) as guidance, as they are authorised to do.

Discussion on Evacuation

With regard to exits, JAR VLA states:

The aeroplane must be so designed that unimpeded and rapid escape is possible in any normal and crash attitude excluding turnover.

A brief examination of records shows that it is not uncommon for aircraft of the Very Light Aeroplanes category to turn over during a crash. In this particular accident, the safety of the occupants would have been severely compromised if the aircraft had caught fire in the inverted attitude. The pilot did attempt to break out through the windscreen using a hand-held fire extinguisher, which he had to hand in the cockpit, but this had the undesirable side effect that the extinguisher was activated, filling the cockpit with extinguishant. Before the pilot and his passenger could effect an evacuation this way, two people arrived and righted the aircraft allowing the occupants to get out normally. In the circumstances that an aircraft turned over during an accident, preventing the exits from being opened, and caught fire, the provision of an implement in the cockpit, fit for the purpose of breaking out through the cockpit transparencies, could be crucial.

It is possible to envisage a situation in which an aircraft could turn over with sufficient force to crush or block the exit rendering any such hand held implement ineffective. However, for the occasions when this is not the case, it is considered that the inclusion of appropriate safety equipment merits serious consideration.

Safety Recommendation 2003-70

The CAA should take forward to the JAA a proposal to review the requirements for the design of exits and the provision of safety equipment, in aircraft of the Very Light Aeroplanes category, to enable rapid escape from such aircraft in any normal and crash attitude including turnover.