

<b>Aircraft Type and Registration:</b>	Cozy, G-BXDO	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-235-C2C piston engine	
<b>Year of Manufacture:</b>	1998	
<b>Date &amp; Time (UTC):</b>	10 July 2004 at 1500 hrs	
<b>Location:</b>	1 mile south of Junction 12 of the M5 motorway, Gloucestershire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Minor damage to the underside of nose during landing followed by damage to the propeller during the subsequent flight, followed by severe damage, during the ensuing forced landing, to the right wing, right foreplane and left wing tip fin	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	64 years	
<b>Commander's Flying Experience:</b>	979 hours (of which 44 were on type) Last 90 days - 6 hours Last 28 days - 2 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot plus telephone enquiries and photographs	

### Introduction

The aircraft is an all-composite 'home-built' design featuring a retractable nose-wheel, fixed main undercarriage, a rear-mounted wing, canards and a pusher-propeller; it is similar in appearance to a Long-EZ. G-BXDO was constructed by a previous owner and granted a Permit to Fly. The aircraft type is usually parked with its nose wheel retracted and the nose of the aircraft resting on the ground; consequently the underside of the nose is reinforced to withstand parking loads and surface abrasion.

### History of the flight

At the conclusion of the previous flight, the aircraft landed at Kemble with the nose landing gear retracted (inadvertently). Damage to the underside of the nose was considered minor and the aircraft

departed for Shobdon Airfield. During this flight, the inspection hatch for the retractable nose wheel system separated from the upper surface of the nose and passed through the propeller at the rear of the fuselage. The resulting damage to the propeller caused severe vibrations, which necessitated the gradual reduction of engine power. The enforced power reduction culminated in a loss of height from 1,200 feet over a period of about three minutes and a forced landing. Before the landing the pilot turned off all the aircraft's systems.

The aircraft landed at a microlight field near Morton Valence which is located approximately one mile south of Junction 12 of the M5 motorway. The surface wind was from 300° at 15 kt and, being unable to discern a runway, the pilot elected to land to the south of the field, in a direction aligned with its length.

After touchdown, the aircraft's nosewheel sank into soft ground and the nose landing gear collapsed. The aircraft yawed and then pitched onto its back, causing substantial damage to the airframe including destruction of the right wing and canard, and the left wingtip-mounted fin. The aircraft was quickly righted by several people who were at the scene and the pilot then exited normally from the relatively undamaged cockpit, once the canopy, which opens upwards on a forward hinge, was free to open.

### **Discussion on survivability**

Because of the configuration of the aircraft's canopy, the pilot would have been unable to evacuate the inverted aircraft unaided after the accident without breaking the canopy. He reported that, in the silence after the landing, he was "listening for the sound of dripping petrol," very aware of the danger that a fire might start. He had planned to use his radio to summon help, had help not been imminent.

AAIB Bulletin 8/2003 contains details of an accident to a Tri-Kis light aircraft, G-BXJI, which turned over during an attempted go-around. As in this case, the pilot and passenger of the Tri-Kis were unable to evacuate the aircraft until help arrived because of the design of the canopy. In both these and other similar cases, the safety of those on board would have been severely compromised by their inability to escape rapidly from the aircraft and without external assistance should a fire have broken out.

Although in the case of the accident to G-BXDO, the availability of immediate assistance and the absence of fire prevented a serious threat to the pilot's safety, it illustrates again that *'The provision of an implement [hand held] in the cockpit, fit for the purpose of breaking out through the cockpit transparencies, could be crucial.'*

As a result of the accident to G-BXJI, Safety Recommendation 2003-70 was made by the AAIB to the Joint Airworthiness Authorities (JAA) which recommended that *'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.'*

### **Further safety action**

The CAA accepted Safety Recommendation 2003-70 and undertook to forward to the JAA, by 27 September 2003, 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. Since this recommendation was made, responsibility for the certification specifications for aircraft of this category has been transferred to the European Aviation Safety Agency (EASA) but no response has been forthcoming from either the JAA or the EASA. Therefore, Recommendation 2003-70 was reiterated as Recommendation 2004-107 and directed to EASA.

### **Safety Recommendation 2004-107**

The European Aviation Safety Agency (EASA) should review the requirements for the design of exits and the provision of safety equipment within the Certification Specifications for Very Light Aeroplanes (CS-VLA), to enable rapid escape from such aircraft in any normal or crash attitude including turnover.

### **Safety action pending**

Although no reply to AAIB Safety Recommendation 2004-107 was received direct from the EASA, action is expected this year. According to the CAA, the EASA, working in concert with the JAA, has responded positively and the EASA Rulemaking Directorate has included a review of the design of exits on Very Light Aeroplanes in its forward rulemaking programme. The particular item, VLA.004, plans for a working group to be formed in the second quarter of 2005, and requests a Notice of Proposed Amendment to the Certification Specifications CS-VLA to be delivered in the second quarter of 2006. The EASA programme for CS-VLA rulemaking is available online at [http://www.easa.eu.int/doc/Rulemaking/rule\\_advace\\_plan\\_2006\\_08.pdf](http://www.easa.eu.int/doc/Rulemaking/rule_advace_plan_2006_08.pdf) and the relevant entry may be found on page 17 of the downloaded file.