ACCIDENT

Aircraft Type and Registration:	BFC Challenger II, G-CAMR
No & Type of Engines:	1 Rotax 582 piston engine
Year of Manufacture:	1999
Date & Time (UTC):	21 April 2009 at 1614 hrs
Location:	Old Sarum Airfield, Wiltshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - 1 (Minor) Passengers - 1 (Serious)
Nature of Damage:	Aircraft badly damaged
Commander's Licence:	Private Pilot's Licence
Commander's Age:	60 years
Commander's Flying Experience:	600 hours (of which 9 were on type) Last 8 years - 4 hours on type Last 90 days - 6 hours Last 28 days - 6 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and inquiries by the AAIB

Synopsis

An experienced flexwing microlight pilot had recently started flying a three-axis microlight aircraft. Whilst attempting to land he applied the incorrect control input, which resulted in a heavy landing. The pilot and passenger were injured and the aircraft was badly damaged.

History of the flight

The pilot's friend, who held a Private Pilot's Licence with a Microlight class rating, flew the aircraft from the pilot's private airstrip near Bournemouth to Old Sarum, where he was met by the pilot. The intention was for the pilot to fly a number of circuits with his friend sitting in the rear seat. The first circuit was flown without incident. The pilot reported that on his second approach, instead of applying backward pressure on the control column to flare the aircraft, he pushed the column forward. The passenger commented that the pilot had made a good approach until about 20 ft above the ground, when the passenger felt "some negative 'g'" and noticed that the control column had been pushed fully forward. The aircraft landed heavily, causing the nose and right landing gear to detach and the pusher propeller to strike the rear fuselage. After coming to rest, the pilot turned off the ignition to stop the engine, which was running at high rpm. He and the passenger then vacated the aircraft.

The airfield crash procedure was initiated by the air/ground controller. The emergency response crew assessed that both occupants were suffering from back injuries and alerted the local emergency services who took them to the local hospital. The pilot was found to have suffered a cracked rib and severe bruising to the lower back. The passenger sustained a broken vertebra and spent four weeks in hospital.

The pilot believes that the accident occurred because he reverted to his previous flexwing experience and applied the incorrect control input when flaring the aircraft.

Background

The BFC Challenger II is a three-axis microlight aircraft which the pilot purchased as a kit in 1999, but did not start building until approximately two years before the accident.

The pilot held a PPL (Aeroplanes) with a Microlight class rating. A total of 595 flying hours was recorded in his flying logbook, of which the last four hours were flown in his Challenger aircraft. Prior to this, he had last flown a three-axis microlight aircraft in July 2001, when over a period of two days he flew 5 hours 25 minutes as Pilot in Command (PIC). His last flight with an instructor was in 1992, some 420 hours before the accident flight, when he received approximately 12 hours instruction in Single Engine Piston class aircraft.

The pilot's logbook contained a stamped certificate titled '*Aircraft Rating – Certificate of Experience*', which was dated 14 December 2008 and signed by a CAA authoriser. The certificate stated that he had satisfied the authoriser:

> *'that he had appropriate experience to act as pilot in command (P1) or as co-pilot (P2) on Microlight (Landplane) type(s) of aircraft'.*

The certificate was valid for 13 months from 14 December 2008 and made no distinction between flexwing and three-axis microlight aircraft.

Previous accidents

Previous AAIB reports have highlighted the dangers of pilots flying aircraft equipped with control systems on which they have limited experience. In 1998, following a fatal accident to a Kolb Twinstar Mk III microlight aircraft, the AAIB made Safety Recommendation 98-62 which stated:

> *'This accident may have resulted from a loss of control by the pilot. The pilot had no training and limited experience on the type of aircraft control system that he was using. Given the fundamental differences between weight shift and 3-axis control systems, notably the diametrically opposed control movements for pitch and roll, it is recommended that the CAA should consider making the guidance contained in CAP53… a mandatory requirement.'*

In March 2005, following an accident in which a third party was seriously injured, the AAIB made Safety Recommendation 2005-128 which stated:

> *'The Civil Aviation Authority should require holders of the Private Pilots Licence (Aeroplane) (Microlights) converting from weight shift to three-axis control systems, or the reverse, to undertake adequate conversion training and pass a Flight Test conducted by an appropriately qualified microlight pilot examiner.'*

Changes to the Air Navigation Order regarding difference training

As a result of the AAIB recommendations, Schedule 8 of the Air Navigation Order[1] (ANO) was amended in January 2008 to include the requirement for appropriate difference training to be undertaken when the holder of a Microlight class rating acts as PIC of a microlight aircraft. The ANO states:

> *'Where the aeroplane has 3-axis controls and his previous training and experience has only been in an aeroplane with flexwing/weightshift controls; before he exercises the privileges of the rating, appropriate difference training, given by a flight instructor entitled to instruct on the aeroplane on which instruction is being given, must have been completed, recorded in his personal logbook, and endorsed and signed by the instructor conducting the differences training.'*

There is no record in the pilot's logbooks of any three-axis training having being carried out since July 1992. The pilot stated that he was unaware of the change to the ANO and did not know that he was required to undertake difference training.

AAIB comment

The pilot held a current certificate of experience to fly microlight aircraft, which did not differentiate between flexwing and three-axis control systems. Whilst he had received training in flying three-axis (SEP class) aircraft in 1992, he had not undertaken any recent instruction on such aircraft. This lack of recency is believed to be a contributory factor to the accident.

Footnote

[1] CAP 393 Section 1 Schedule 9 Page 22 Section 2.1.(1)(b)(i).