

ACCIDENT

Aircraft Type and Registration:	Zenair CH 601UL Zodiac, G-CBAP	
No & Type of Engines:	1 Rotax 912-S piston engine	
Year of Manufacture:	2001 (Serial no: PFA 162A-13656)	
Date & Time (UTC):	17 February 2013 at 1435 hours	
Location:	Near Cumnock, East Ayrshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	65 years	
Commander's Flying Experience:	304 (of which 174 were on type) Last 90 days - 6 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot had been airborne for about 10 minutes when the canopy suddenly detached from the aircraft. He made a forced landing, but the ground was rougher than expected and the aircraft was badly damaged as a result; the pilot was uninjured. The reason for the canopy detachment was not immediately evident.

History of the flight

The pilot had flown from his home airstrip at Benston Farm, near Cumnock, to Bute. After a short stay he prepared his aircraft for the return journey. The checklist included a check of the canopy locks. The subsequent takeoff was uneventful, but about 10 minutes into the flight the pilot experienced what appeared to be an explosion, but he quickly realised that the canopy had detached.

When the canopy detached the pilot lost his headset, cap, spectacles, one of his charts and one of the two GPS navigation displays he carried. From the other display he could see he was about 5 miles from Kilmarnock. The fields below were quite saturated so he continued en route to remain clear of buildings, descended to about 500 ft and reduced speed to 60 kt. Whilst he could see the waypoints on the GPS display, he could not read the distances without his spectacles.

By the time he reached his next waypoint at Cumnock, his eyes were becoming sore and he could not see the ground very clearly. This, and the fact that he felt that the rudder "didn't feel right", prompted him to make a forced landing in a field. As he touched

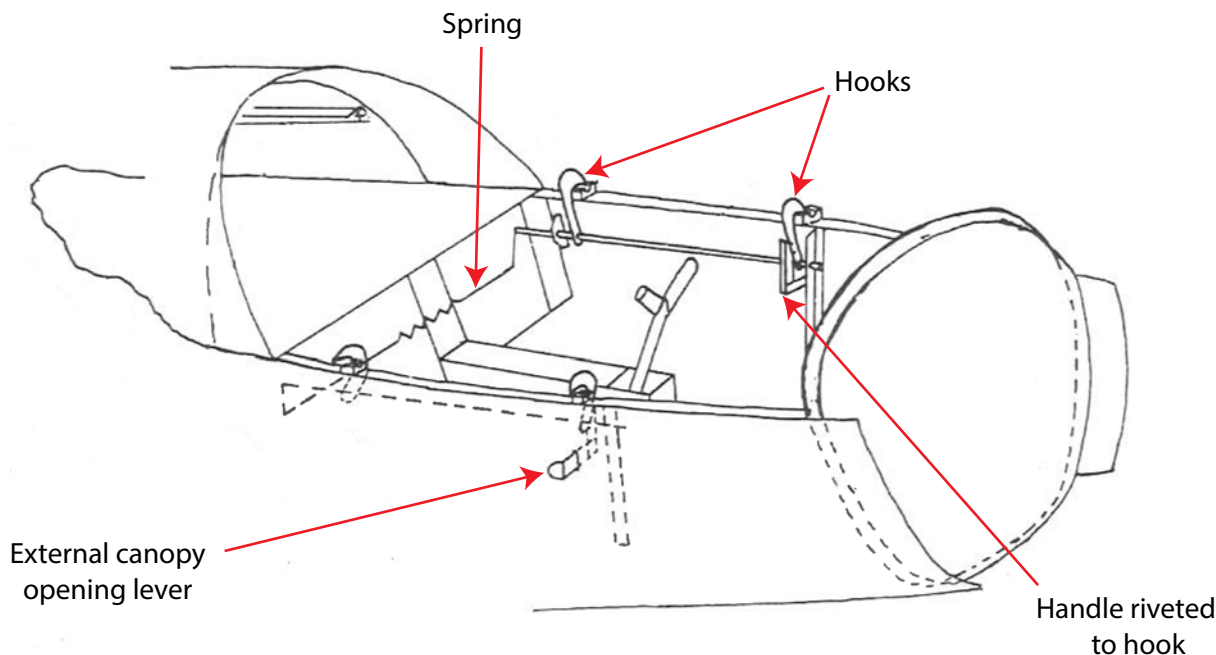
down he realised that the field was rougher than he had thought and the aircraft slid to a halt on its nose, having collapsed the nose landing gear. In addition to the damage caused during the landing, the canopy had struck and damaged the rudder and right elevator when it departed. Although very shaken, the pilot was uninjured.

Neither the canopy nor the pilot’s personal equipment had been recovered at the time of writing this bulletin.

Canopy latching mechanism

On this model of the CH601 Zodiac the one-piece canopy is hinged sideways, as opposed to later models which are hinged from the front. Longitudinal tubes on the sides of the canopy frame are secured by two hooks on each cockpit sill (Figure 1). The hooks are

spring-biased towards the locked position by a light duty helical spring stretched across the rear of the cockpit. Handles attached to the left and right rear hooks allowed one side or the other of the canopy to be unlocked and opened; the hooks on the other side then acted as hinges. Note that, although Figure 1 is taken from the builder’s manual for G-CBAP, the unlatch handles were attached to the rear hooks and not the front as depicted and only the left handle could be operated externally. In addition, and also not shown, two sliding bolts were attached to the left and right cockpit sidewalls which engaged into holes in the front hooks to keep them in the closed position. Opening the canopy from the inside thus required two operations: firstly, disengaging the bolt and then operating the release handle.



Sketch from builder’s manual showing principle of the canopy locking mechanism. Description of how G-CBAP differed from this is in the text

Figure 1

Canopy latching mechanism

Discussion

The pilot subsequently stated that he was aware of the left rear canopy hook unlatching first, moments before the canopy detached. Examination showed the right side of the canopy had torn away, leaving the longitudinal tube retained by the hooks on that side. On the right side, the longitudinal tube was missing (presumably still attached to the canopy), even though both hooks on that side were closed and the front hook locked by the pin.

The Light Aircraft Association is investigating the various possibilities for this scenario including a foreign object becoming trapped by a rear hook or wear causing an apparently locked mechanism to fail to retain the canopy.