

**SERIOUS INCIDENT**

<b>Aircraft Type and Registration:</b>	Slingsby T67C Firefly, G-RAFG
<b>No &amp; Type of Engines:</b>	1 Lycoming O-320-D2A piston engine
<b>Year of Manufacture:</b>	1989 (Serial no: 2076)
<b>Date &amp; Time (UTC):</b>	18 September 2013 at 1222 hrs
<b>Location:</b>	Approximately 3 nm west of Wellesbourne Mountford Airfield, Warwickshire
<b>Type of Flight:</b>	Training
<b>Persons on Board:</b>	Crew - 1                      Passengers - 1
<b>Injuries:</b>	Crew - None                  Passengers - None
<b>Nature of Damage:</b>	Cockpit canopy perspex shattered
<b>Commander's Licence:</b>	Commercial Pilot's Licence
<b>Commander's Age:</b>	48 years
<b>Commander's Flying Experience:</b>	4,010 hours (of which 74 were on type) Last 90 days - 168 hours Last 28 days - 53 hours
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and further inquiries by the AAIB

**Synopsis**

Whilst climbing prior to demonstrating an aerobatic manoeuvre, the cockpit canopy suddenly opened shattering the perspex. The frame remained attached to the aircraft which made a safe landing without further incident. Non-incorporation of a modification to improve ease of checking for correct engagement of the latch mechanism or maladjustment of the mechanism are considered as possible factors in this incident.

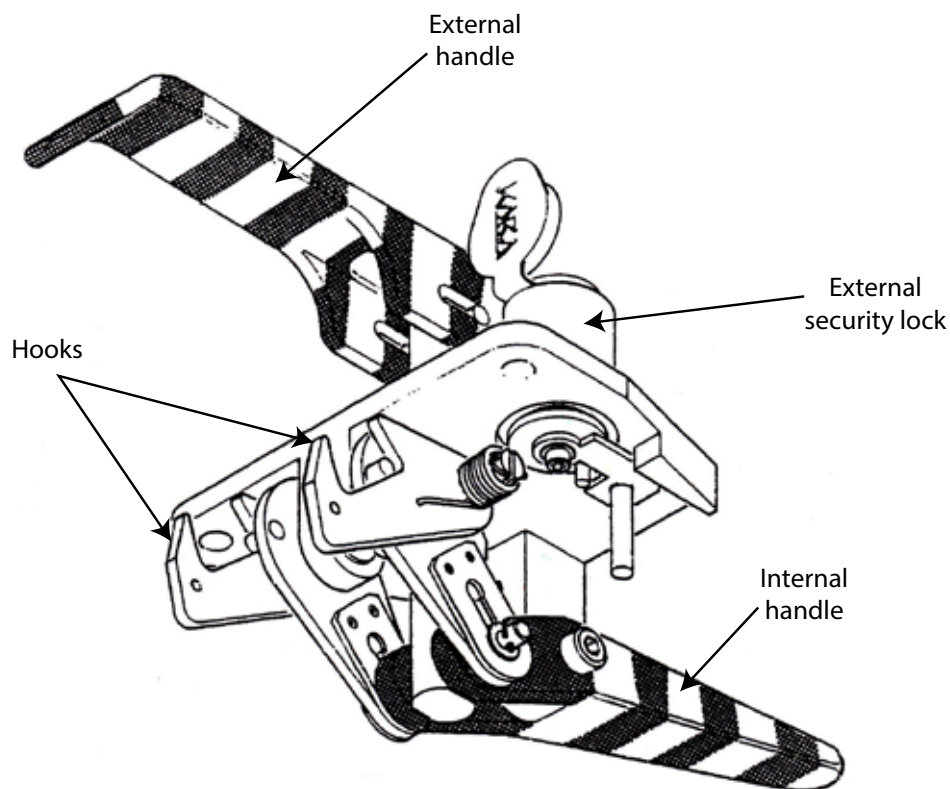
**History of the flight**

The aircraft was engaged on an aerobatic detail to demonstrate an aileron roll to a potential student on a trial lesson. After climbing to a height of about 3,000 ft, the canopy suddenly opened and the aircraft pitched nose-up and slowed considerably before the pilot lowered the nose and returned to Wellesbourne Mountford at low level. On the ground, he could see that, although the carbon fibre frame remained, the Perspex 'bubble' had been almost completely destroyed. The pilot was at a loss to explain the occurrence and stated that he checked the canopy latches before start-up, at the hold for the runway and again before commencing the planned aerobatic manoeuvres.

**Description of the canopy latching mechanism**

The canopy opens by sliding upwards and rearwards and is locked using two hooks, operated by a single internal lever and external lever (see Figure 1). The hook mechanism

is attached to the moving canopy and the pins with which they engage are on the fixed windscreen arch section. As originally designed, the means of visually checking that the hooks were correctly engaged was to ensure that the internal handle was aligned with a line painted on the plastic trim covering the mechanism.



**Figure 1**

Firefly canopy latch mechanism with pins not shown for clarity

In May 2001, Slingsby Aviation issued Service Bulletin (SB) 173 which:

*'improves the ease of visual inspection when checking for correct engagement of the latch hooks with the latch pin.'*

The SB improved visual inspection by advising that parts of the trim around the hook and pin mechanism should be cut away so that pilots could actually see when the hooks were correctly engaged on the pin. G-RAFG did not have this modification embodied, even though it was *'highly recommended'*.

The maintenance company charged with repairing the aircraft fitted a temporary replacement canopy for a ferry flight and reported that, after adjusting the latches to suit the new canopy, they worked normally and exhibited only normal wear and tear. They are of the opinion, however, that it is possible that the latches may have been maladjusted but advise that they will be incorporating SB 173 before returning the aircraft to the owner.