

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Cessna 402B Utililiner, G-NOSE
<b>No &amp; Type of Engines:</b>	2 Continental Motors Corp TSIO-520-EB piston engines
<b>Year of Manufacture:</b>	1975 (Serial no: 402B-0823)
<b>Date &amp; Time (UTC):</b>	14 March 2013 at 1102 hrs
<b>Location:</b>	Shrivenham, Oxfordshire
<b>Type of Flight:</b>	Aerial Work
<b>Persons on Board:</b>	Crew - 1                      Passengers - 2
<b>Injuries:</b>	Crew - None                      Passengers - None
<b>Nature of Damage:</b>	Minor damage to right emergency exit door
<b>Commander's Licence:</b>	Commercial Pilot's Licence
<b>Commander's Age:</b>	27 years
<b>Commander's Flying Experience:</b>	3,000 hours (of which 250 were on type) Last 90 days - 54 hours Last 28 days - 20 hours
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot

### Synopsis

As the aircraft descended through 4,500 ft, at 170 kt, the right emergency exit door departed the aircraft. No injuries were caused by the release of the door, which was found on the driveway of a domestic property. A reason for the release of the door could not be positively determined.

### History of the flight

The aircraft had been tasked for an aerial photography sortie in the Swindon area. The crew for the flight consisted of the pilot, an observer sitting in the left cockpit seat and an experienced aerial photographer, seated by the right emergency exit door, in the rear of the aircraft. During the pre-flight checks the security of all of the aircraft doors was checked by the pilot

and no abnormalities were noted. After completion of the survey the pilot turned the aircraft to return to East Midlands Airport and initiated a decent from 5,800 ft to 4,000 ft. The aircraft's airspeed increased from 140 kt to 170 kt and as the aircraft descended through 4,500 ft the pilot heard a loud bang and felt a distinct change in air pressure. The photographer reported that the right hand emergency exit had departed the aircraft. The pilot declared a PAN and slowed the aircraft to 140 kt before completing an uneventful flight to East Midlands.

The emergency exit door was found, relatively undamaged, on the driveway of a domestic property in Shrivenham. There were no reported injuries.

### Cessna 402B emergency exit door

The right emergency exit door fitted to G-NOSE consisted of a windowed panel, approximately 60 cm x 100 cm, Figure 1. The door is fitted with a flange on its upper edge which locates in a groove in the upper door aperture. The lower edge of the door is secured by two locking pins which pass through lugs on the lower edge of the door. The locking pins are attached by a cable to the door release handle, located in a receptacle on the cabin wall, immediately below the door. The locking pins are prevented from disengaging from the door lugs by two shear pins. Pulling the door release handle breaks the shear pins and withdraws the locking pins from the door lugs. It also operates an arm on the lower edge of the door aperture which pushes the door away from the fuselage side. A 'tell-tale' wire is fastened between the lever arm and the aircraft structure which breaks if the lever arm moves from its normal, stowed position.

### Investigation

Examination of the door confirmed that there was no evidence of adverse wear to the door attachment flange or to the two securing lugs. An inspection of the aircraft, carried out by the operator, confirmed that the door release handle had not been operated and was secure in its receptacle. The 'tell-tale' wire attached between the door release arm and the fuselage was found intact and the shear pins retaining the door locking pins were in place.

The photographer stated that, during the flight he had not noted any unusual noises or drafts coming from the



**Figure 1**

G-NOSE right emergency exit door

door. He also confirmed that, when the door departed the aircraft, he was facing away from the door, switching off the camera equipment.

The door had not been the subject of recent maintenance and an inspection of the aircraft structure and door release mechanism did not identify any defects which would have allowed the door to be released without pulling the release handle.

There remains a possibility that the relative movement between the right exit door and the aircraft structure, coupled with dynamic flight loads, may have been sufficient to disengage the locking pins and release the door.