

INCIDENT

Aircraft Type and Registration:	Cessna 550 Citation Bravo, G-IKOS	
No & Type of Engines:	2 Pratt & Whitney Canada PW530A turbofan engines	
Year of Manufacture:	2001	
Date & Time (UTC):	5 February 2008 at 1815 hrs	
Location:	Biggin Hill Airport, Kent	
Type of Flight:	Private	
Persons on Board:	Crew - 2	Passengers - 2
Injuries:	Crew - None	Passengers - None
Nature of Damage:	None	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	Not provided	
Commander's Flying Experience:	8,422 hours (of which 117 were on type) Last 90 days - 61 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the commander, Mandatory Occurrence Report form submitted by the first officer.	

Synopsis

A windshear encounter at two miles on an approach to Biggin Hill Airport resulted in an apparent wing drop. The approach was continued and the aircraft bounced on the subsequent landing. A go-around was called by the PNF but the PF (commander) decided to continue and landed successfully.

History of the flight

The aircraft was being flown from Nice to Biggin Hill Airport with the commander as the PF. At 2,000 ft amsl on the approach into Biggin Hill, the crew reported that the wind vector displayed on the Electronic Flight Instrumentation System (EFIS) showed 54 kt and the

reported surface wind was 230°/15 kt. After capturing the glideslope for a fully coupled approach to a manual night landing on Runway 21, the PF reduced speed to "minimum approach" (approximately 115 kt). At two miles from the runway threshold G-IKOS encountered severe windshear and the EFIS speed tape showed the speed trending to below 100 kt. The autopilot pitched up to maintain the glideslope and the aircraft appeared to stall with a right-wing drop. The PF recovered from the stall by lowering the nose and increasing power and decided to continue the approach. On landing the initial touchdown was flat and G-IKOS entered a series of porpoising bounces. During the second bounce

the first officer (F/O) called for a go-around, but the commander decided to continue the landing. G-IKOS was stopped within the runway length and taxied normally to its parking position.

Commander's report

The commander submitted an aircraft accident report form to the AAIB. He considered that the windshear was an isolated weather phenomenon and consequently decided to continue the approach. He acknowledged that the aircraft bounced on landing but stated that at all times he had control of the aircraft and maintained the runway centreline.

The commander assessed the cause of the landing incident as a combination of the "wind, touchdown speed and bad light conditions at the moment of landing."

First officer's report

The first officer completed a CAAMandatory Occurrence Report (MOR) form. In his report he noted that the minimum approach speed of $V_{ref} + 10$ kt was being flown and at least 15 kt was lost in the windshear event. He stated that, on landing, the initial touchdown was very flat and a series of 's' porpoises occurred reaching heights of 10 to 15 ft. On the second bounce he called for a go-around but the commander replied that there was no need.

CVR

Before the event was reported to the AAIB, the operator removed and downloaded both the CVR and FDR. During the windshear encounter the F/O can be heard stating "SPEED SPEED SPEED SPEED." The commander replies "WOW, WE HAVE TO REPORT THAT, SEVERE WINDSHEAR." The crew have a brief discussion about flying at minimum approach speed.

During the approach there is a GPWS call out "GLIDESLOPE GLIDESLOPE" immediately followed by an automated "MINIMUMS" and the commander responds "LANDING". A few seconds later the F/O comments "YOU CAN'T FLY MINIMUM APPROACH IN THIS WEATHER" and the commander responds "NO-NO WAY ARE YOU CRAZY WITH THE WINDSHEAR."

Five seconds after touchdown the F/O calls for a go around, the commander responds "WHY".

During the rollout the commander asks the F/O if the surface of the runway is bumpy and the F/O responds "NO THERE WAS NO FLARE."

FDR

The FDR recorded both the windshear event and the subsequent landing.

The FDR fitted to G-IKOS recorded IAS once per second. Initially G-IKOS was stable on the approach at 117 kt but one second later the speed was recorded at 105 kt. The pitch attitude decreased over the next four seconds to 7° nose down and the IAS increased to 133 kt. During this event the minimum vertical acceleration was recorded as 0.498g. As the aircraft pitched up during the recovery a transient acceleration of 1.74g was recorded. The roll attitude is recorded twice per second and the maximum roll attitude recorded during the event was 6.1° right-wing down. During the remainder of the approach, the IAS remained unstable, varying between 111 kt and 139 kt.

The bounced landing had an initial vertical acceleration of 1.6g reducing over the next second to 0.53g before increasing over one quarter of a second to 2.1g.

Analysis

Although the reported surface weather was benign, the change in wind velocity of some 40 kt in the final 1,500 ft of the approach gave warning that a rapid shear area may exist. The selection of a speed greater than minimum approach speed may have provided a greater margin for windshear. The PF carried out the correct immediate actions of lowering the nose and increasing thrust to regain energy but the airspeed

remained unstable for the remainder of the approach. A go-around executed at this point may have prevented the subsequent bounced landing.

Safety action by the operator

Since this incident the operator has introduced stabilised approach criteria whereby crews must go-around if not stable by 500 ft agl or if the approach becomes destabilised below 500 ft agl.