Air Accident Investigation Unit Ireland

SYNOPTIC REPORT

ACCIDENT

Piper, PA-32R-301, N808CA

Ballyboe, Co. Tipperary

31 May 2015

An Roinn Iompair Turasóireachta agus Spóirt

Department of Transport, Tourism and Sport

Foreword

This safety investigation is exclusively of a technical nature and the Final Report reflects the determination of the AAIU regarding the circumstances of this occurrence and its probable causes.

In accordance with the provisions of Annex 13[1] to the Convention on International Civil Aviation, Regulation (EU) No 996/2010[2] and Statutory Instrument No. 460 of 2009[3], safety investigations are in no case concerned with apportioning blame or liability. They are independent of, separate from and without prejudice to any judicial or administrative proceedings to apportion blame or liability. The sole objective of this safety investigation and Final Report is the prevention of accidents and incidents.

Accordingly, it is inappropriate that AAIU Reports should be used to assign fault or blame or determine liability, since neither the safety investigation nor the reporting process has been undertaken for that purpose.

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[1] **Annex 13**: International Civil Aviation Organization (ICAO), Annex 13, Aircraft Accident and Incident Investigation.
[2] **Regulation (EU) No 996/2010** of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.
[3] **Statutory Instrument (SI) No. 460 of 2009**: Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulations 2009.

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In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010 and the provisions of SI 460 of 2009, the Chief Inspector of Air Accidents, Mr Jurgen Whyte, on 31 May 2015, appointed himself as the Investigator-in-Charge assisted by Mr Kevin O'Ceallaigh, an Inspector of Air Accidents, to carry out an Investigation into this Accident and prepare a Report.

Aircraft Type and Registration:	Piper, PA-32R-301, N808CA	
No. and Type of Engines:	1 x Lycoming IO-540-K1G5	
Aircraft Serial Number:	32-46240	
Year of Manufacture:	2006	
Date and Time (UTC)[4]:	31 May 2015 @ 09.25 hrs	
Location:	Ballyboe Airfield, Co. Tipperary, Ireland.	
Type of Operation:	General Aviation	
Persons on Board:	Crew - 1	Passengers - 2
Injuries:	Crew - Nil	Passengers - Nil
Nature of Damage:	Substantial	
Commander's Licence:	Airline Transport Pilot Licence (ATPL) issued by the Federal Aviation Administration (FAA)	
Commander's Details:	Male, aged 32 years	
Commander's Flying Experience:	6,226 hours, of which 81 were on type	
Notification Source:	Pilot in Command	
Information Source:	AAIU Report Form submitted by the Pilot	

[4] **UTC**: Co-ordinated Universal Time. All timings in this report are quoted in UTC; to obtain the local time add one hour.

SYNOPSIS

The aircraft was landing at Ballyboe Airfield near Clonmel following a flight conducted under Visual Flight Rules (VFR) from Newmarket Heath Airfield in the United Kingdom. During the landing roll the left wingtip of the aircraft contacted high crops adjacent to the grass runway. This contact caused the aircraft to veer to the left side of the runway. The aircraft departed the prepared surface and the right-hand undercarriage leg collapsed resulting in further damage to the aircraft. The aircraft came to rest straddling the edge of the runway and the adjacent field. There were no injuries.

1. FACTUAL INFORMATION

1.1 History of the Flight

The Pilot contacted the owner of the airfield on the day prior to what would be his first visit to the airfield and obtained a briefing which included information about the runway length and obstacles on the approach path including trees and power lines. The runway width was not discussed. The presence of agricultural crops adjacent to the runway was included in the briefing but there was no specific discussion regarding the height of the crop. The Pilot filed a VFR flight plan and departed Newmarket Heath Airfield (EGSW) at 08.20 hrs with two passengers. The flight to Ballyboe was uneventful.

The aircraft arrived overhead the airfield at approximately 10.20 hrs and established on a left downwind leg for runway (RWY) 33 to position for a final approach commencing two miles from the runway threshold.

The Pilot informed the Investigation that as he began his final approach to the runway he noted that the strip appeared very narrow. The Pilot stated that it was "*extremely gusty and turbulent*" during the downwind leg. He decided to add 5 knots (kts) to his final approach speed to compensate for the gusting wind.

The Pilot estimated that the aircraft touched down on RWY 33, 70 metres (m) from the threshold. He raised the flaps and started to apply the wheel brakes to stop the aircraft. Shortly after touchdown, the Pilot heard a noise from the left side of the aircraft which he identified as the wingtip contacting the adjacent agricultural crop. This caused the aircraft to begin turning to the left. The application of right rudder did not counteract this turn and the aircraft departed the runway at a speed estimated by the pilot to be 40 to 50 kts. The right-hand undercarriage leg collapsed during this excursion resulting in damage to the underside of the aircraft fuselage, the starboard wing and the horizontal stabiliser. The aircraft came to rest straddling the edge of the runway and the adjacent field (**Photo No. 1)**.

The Pilot and the two passengers were uninjured and exited the aircraft unaided.

Photo No. 1: Final resting position of N808CA

1.2 Meteorological Information

The Pilot stated that upon arriving overhead the airfield he noted the ATIS[5] information valid for 09.30 hrs from Waterford Airport (EIWF) located 23 nautical miles (NM) south east of Ballyboe Airfield as follows;

EIWF 'W' 310930 RWY03 33011KTS 9999 SCT038 10/04 Q1008

The Pilot observed the windsock at the field and visually estimated the wind velocity to be 10-20 kts across the runway from the west. He said that the aircraft's Air Data Computer (ADC) calculated the wind to be from 280° at 20 kts. The weather in the area was reported by the Pilot as scattered cloud at 4,000 ft with heavy showers and patches of sunshine. The Pilot informed the Investigation that the downwind leg of the approach was extremely gusty and turbulent.

1.3 Airfield Information

Ballyboe is a private airfield located in Co. Tipperary approximately 4.5 NM north east of Clonmel. It is an unmarked grass airstrip with the runway oriented on reciprocal magnetic bearings of 330/150 degrees and was reported to the Pilot as being 518 m long. The 12.5 m wide runway is located within an agricultural field.

The runway has an initial downhill slope when viewed from the threshold of RWY 33 followed by an uphill segment for the remainder of the runway length. There is also a minor slope from right to left along the length of RWY 33 to the final location of the aircraft. A line of trees is located 50 m west of the airfield, commencing 50 m before the threshold of RWY 33 and running parallel to the full length of the airfield (**Photo No. 2**). There are wires and trees on the approach to RWY 33.

[5] **ATIS (Automated Terminal Information Service)**: An automated radio transmission of the weather and other pertinent information for aircraft using the associated airfield.

Photo No. 2: Ballyboe Airfield

RWY 33 is flanked by a crop of Field Beans to the right and a crop of Rapeseed to the left. The Field Beans had reached a height of 0.7 m (1-2 ft) at the time of the accident. The Rapeseed had grown to a height of approximately 1.5 m (4-5 ft). Rapeseed is an agricultural crop that consists of long stems and distinctive yellow flowers (**Photo No. 3**). The Rapeseed plant can grow to a height of up to 2.5 m (8 feet). This was the first time that the airfield owner had planted Rapeseed as a crop.

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Photo No. 3: View north-westerly from the threshold of RWY 33

1.4 The Pilot

The Pilot held a FAA ATPL, which was issued on 30 June 2014. He also held an EASA[6] ATPL issued on 05 Nov 2012 by the UK Civil Aviation Authority (CAA) and was valid for MEP[7] (Land) and SEP[8] (Land). His SEP (Land) rating was valid until 14 August 2015. He held a Class I Medical Certificate that was valid until 29 September 2015. The Pilot was qualified to operate the aircraft and had the following flying experience:

EXPERIENCE:	TOTAL:
Flying time (all types)	6,202 hours
Total Flying time on type	81 hours
Flying time (all types) last 30 days	40 hours
Flying time (on type) last 30 days	27 hours
Flying time last 3 days (on type)	16 hours

1.5 The Aircraft

The Piper PA-32R-301 is a six-seat, single engine, all-metal low-wing aircraft produced by New Piper Aircraft Inc. and designated the *Saratoga II HP*. It has a tricycle, retractable undercarriage and is powered by a Lycoming IO-540-K1G5 engine. The gross take-off mass is 1,633 kgs and the wingspan is 11 m (36 ft 2 inches). There is a vertical clearance of approximately 1.2 m (4 ft) between the wingtip and the ground. The FAA issued a Standard Airworthiness Certificate (Form 8100-2) on 29 June 2006 for N808CA which was valid at the time of the accident.

2. ANALYSIS

2.1 Weather

The Investigation confirmed that the ATIS received by the Pilot was the valid Meteorological Report (METAR) for EIWF issued by Met Éireann. The Pilot visually estimated that the wind velocity was 10-20 kts from a westerly direction. The information supplied from the ADC supported this estimate. It is likely that this wind velocity resulted in a significant crosswind component[9] for the approach and landing phase. The maximum demonstrated crosswind component listed in the Piper PA-32R-301 Saratoga II HP Pilot Operating Handbook (POH) is 17 kts.

The westerly wind resulted in the line of trees parallel to the runway being upwind of the airfield. This may have contributed to the low level turbulence that the Pilot experienced during the approach. The Pilot decided to add 5 kts to his original approach speed of 80 kts to compensate for the turbulent conditions. The location and orientation of the trees relative to the wind velocity could also have resulted in localised changes in wind direction and speed near the runway as the trees potentially shielded the area close to the touch-down point from the full effect of the wind.

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[6] **EASA**: European Aviation Safety Agency.
[7] **MEP (Land)**: Multi-Engine Piston landplanes.
[8] **SEP (Land)**: Single-Engine Piston landplanes.
[9] A wind velocity from 280° at 20 kts results in a crosswind component of 15 kts on RWY 33.

2.2 The Approach and Landing

The POH states that the aircraft wingspan is 36 ft 2 inches (11 m). The runway width in Ballyboe is 12.5 m (41 ft). This provided a maximum clearance of 0.75 m (29 inches) from each wingtip to the respective runway edge when the aircraft was aligned with the runway centreline. The Pilot informed the Investigation that as he commenced his final approach to the runway he noted that the strip appeared very narrow. He further stated that he concentrated on keeping the aircraft aligned with the runway centreline for the remainder of the approach. The width of the runway relative to the aircraft wingspan gave minimal scope for deviation from the centreline.

The combination of a gusting crosswind and low level turbulence from the trees adjacent to the runway would have made the task of remaining within 0.75 m of the runway centreline a significant challenge for the Pilot. The absence of runway markings would have further reduced the Pilot's ability to recognise if the aircraft was deviating from the runway centreline.

When the aircraft wingtip contacted the Rapeseed crop the resultant asymmetric deceleration caused a rapid turning moment to the left that was not counteracted by the rudder inputs of the Pilot, probably due to reduced rudder authority as the aircraft decelerated. As the aircraft departed the prepared surface the right undercarriage leg collapsed due to a combination of lateral forces applied to the undercarriage leg and contact with the unprepared surface of the field. The final position of the aircraft indicates that it had turned left through approximately 110° from the runway centreline axis.

3. CONCLUSIONS

(a) Findings

1. The Pilot was licensed and qualified to operate the aircraft.

2. There were no known airworthiness issues with the aircraft.

3. The briefing conducted between the Pilot and the airfield operator did not include either the runway width or the height of the crops adjacent to the runway.

4. There was a gusting crosswind at the airfield.

5. A line of trees adjacent to the runway may have resulted in the increased level of turbulence experienced by the Pilot.

6. The height of the Rapeseed crop immediately adjacent to the runway exceeded the vertical wingtip clearance of the aircraft.

(b) Probable Cause

Runway excursion during the landing roll due to contact between the left wingtip and an agricultural crop adjacent to the runway.

(c) Contributory Cause(s)

1. The width of the runway relative to the aircraft wingspan.
2. The height of the Rapeseed crop immediately adjacent to the runway.
3. Turbulence and a gusting crosswind experienced by the pilot during the approach.

4. SAFETY RECOMMENDATIONS

This Investigation does not sustain any Safety Recommendations.

- END -

In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010, and Statutory Instrument No. 460 of 2009, Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulation, 2009, the sole purpose of this investigation is to prevent aviation accidents and serious incidents. It is not the purpose of any such investigation and the associated investigation report to apportion blame or liability.

A safety recommendation shall in no case create a presumption of blame or liability for an occurrence.

Produced by the Air Accident Investigation Unit

AAIU Reports are available on the Unit website at www.aaiu.ie

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