AIRCRAFT INCIDENT SHORT REPORT

CA18/3/2/1200: ZS-JYD, Incident

Date and time	:	03 April 2018; 0612Z
Occurrence type	:	Incident
Aircraft registration	:	ZS-JYD
Aircraft manufacturer and model	:	Beechcraft Baron 58
Last Point of departure	:	Port Alfred airfield (FAPA): Eastern Cape
Next point of intended landing	:	East London airport (FAEL): Eastern Cape
Location of incident site with reference to easily defined geographical points (GPS readings if possible)	:	Runway 29 at FAEL
Meteorological Information	:	Wind direction: West; Wind speed: 12 kts; Visibility: +10 km; Temperature: 22˚C
Type of operation	:	Private (Part 91)
Persons on board	:	1+0
Injuries	:	None
Damage to aircraft	:	Minor

All times given in this report is Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Purpose of the Investigation:

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (2011) this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and ***not to apportion blame or liability.***

Disclaimer:

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1. SYNOPSIS

1.1 The pilot being the only occupant on-board a Baron 58 aircraft took off on a private flight from Port Alfred (FAPA) to East London (FAEL).

1.2 The pilot reported that, the entire flight was uneventful, however during the landing roll on Runway 29 the nose gear collapsed and the propeller blades struck the ground and bent. The aircraft skidded with the nose section on the runway until it came to rest on the left hand side of runway 29.

1.3 The owner stated that during recovery they discovered that the nose gear brace assembly failed and this resulted in the nose gear folding back in the wheel well during landing. The aircraft sustained damage to the propellers, the nose wheel assembly and nose cone. The pilot was not injured in the incident sequence.

1.4 The investigation revealed that the cause of the incident was that the nose gear retraction brace assembly failed most probably as a result of a hard landing.

2. FACTUAL INFORMATION

2.1 On 03 April 2018, the pilot being the sole occupant on-board a Beechcraft Baron 58 aircraft, registration ZS-JYD, took off on a private flight from Port Alfred (FAPA) to East Landon Airport (FAEL).

2.2 According to the pilot the entire flight was uneventful and was conducted under visual flight rules (VFR). The aircraft touched down on runway 29, and during the landing roll, the nose gear assembly collapsed. Both propeller blades struck the ground surface (asphalt). The aircraft skidded on the nose cone and came to rest on the left-hand side of runway.

2.3 The owner stated that during recovery they discovered that the nose gear brace assembly failed and this resulted in the nose gear to collapse.

2.4 The aircraft sustained damage to propellers, the nose wheel assembly and the nose cone.

Figure 1: Shows aircraft's final position

2.5 The pilot was not injured in the incident sequence.

2.6 The incident occurred during daylight at GPS coordinates determined to be approximately 33˚02´08.07˝ South 027˚49´36.81˝ East at an elevation of 407 feet.

Figure 2: Google Earth showing incident site

3. Investigation Revealed the Following:

3.1 The pilot had a private pilot licence (PPL) which was expiring 15 July 2018 and a valid medical certificate issued on 09 March 2018 and expiring 31 March 2019. The pilot had a total of 2 873 flying hours and 1 110 hours on type at the time of the accident.

3.2 According to the available documents, the aircraft's mandatory periodic inspection (MPI) was last carried out on 2 November 2017 at 5 717.6 hours. The aircraft had a total of 5740.6 hours at the time of the incident and had flown a total of 23 hours since the last MPI.

3.3 According to available documents, the aircraft had a valid Certificate of Registry (C of R). The application for the Certificate of Airworthiness (C of A) was signed on 23 February 2018, ten days before the expiry date. The aircraft was in possession of an invalid (C of A) which had expired on 06 March 2018.

3.4 The weather conditions were fine at the time of the occurrence.

3.5 The nose landing gear collapsed during the landing roll.

3.6 During aircraft recovery, it was discovered that the nose brace assembly had fractured and this resulted in the nose gear collapsing.

Figure 3: Broken brace assembly

Figure 4: Shows damage to the metal

Information below extracted from Aircraft Accident Investigation book, second edition by Richard H. Wood and Robert W. Sweginnis.

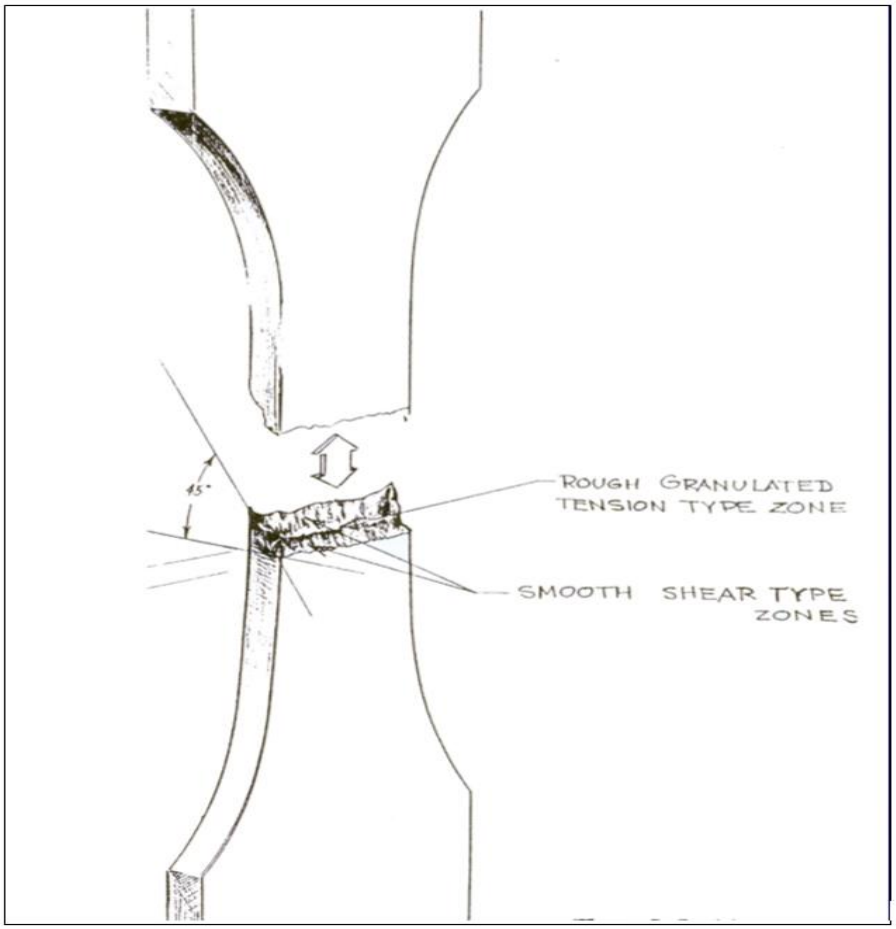

Figure 5: Tension failure in thin, highly ductile material

Referring to the picture above, a tension load will produce both tension and shear stress. The maximum tension stress will occur on a plane perpendicular to the tension load and will be equal to the tension load divided by the cross-sectional area perpendicular to the load. The tension stress is referred to as the "primary" stress. Maximum shear stress will occur on a plane 45˚ to the tension load and will be equal to one-half the tension stress. The shear stress is referred to as the secondary stress. In the failure of a ductile material, both the tension zone and the shear zone can usually be seen.

4. Probable cause/contributing factor

4.1 The cause of the incident was as a result of unsuccessful landing following the nose gear brace assembly failure due to stress most probably as a result of a hard landing.

Figure 6: Shows the aircraft after the incident

5. REFERENCES USED ON THE REPORT

5.1 Aircraft Accident Investigation, Second edition by R.H Wood and R.W. Sweginnis.

6. SAFETY RECOMMENDATION

6.1 None.