SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-57

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10203					
Classification	Accident	**Date**	08 August 2022	**Time**	1308Z	
Type of Operation	Private (Part 91)					
Location						
Place of Departure	Secunda Aerodrome (FASC), Mpumalanga Province	Place of Intended Landing	Richmond Aerodrome (FARM), KwaZulu-Natal Province			
Place of Occurrence	Runway 11 at Richmond Aerodrome (FARM), KwaZulu-Natal Province					
GPS Co-ordinates	Latitude	S 29°52'20.6"	Longitude	E 030°17'34.4"	Elevation	2732 ft
Aircraft Information						
Registration	ZS-OAB					
Make; Model; S/N	Beechcraft, Baron 58 (Serial Number: TH-622)					
Damage to Aircraft	Substantial		Total Aircraft Hours	9304.3		
Pilot-in-command						
Licence Type	Airline Transport Pilot Licence (ATPL)		Gender	Female	Age	40
Licence Valid	Yes	Total Hours	4425	Total Hours on Type	1160.4	
Total Hours Past 30 Days	9		Total Hours on Type Past 90 Days		26	
People On-board	1+2	**Injuries** 0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Thursday morning, 8 August 2022 at 0445Z, a pilot and two passengers on-board a Beechcraft Baron 58 with registration ZS-OAB took off on a three-leg business trip from Runway 11 at Richmond Aerodrome (FARM) in KwaZulu-Natal province, to Delmas Aerodrome (FADE) and Secunda Aerodrome (FASC) in Mpumalanga province where they made two full stop landings. The final leg was from FASC back to FARM. The flights were conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot stated that she descended from a height of 2100 feet (ft) above ground level (AGL) and then confirmed that the wind was light and variable using the windsock, which informed her decision to use Runway 11 to land. She descended to the circuit height and, thereafter, completed the downwind checks. The pilot stated that she landed slightly deeper as there were some animals on the runway (the runway is 1016 metres long). The pilot indicated that touchdown was normal, but soon after, the left wing dropped sharply, followed by the collapse of the left main gear. This resulted in the propeller blades contacting the ground (see Figure 1). Because of the drag from the left-side, the aircraft yawed to the left, causing the left propeller blades to stop turning. However, the right

propeller blades were still turning at idle speed. The aircraft veered off to the left-side of the runway. The right-side gear and the nose gear also collapsed during the accident sequence.

The pilot stated that the aircraft came to a stop in a ditch next to the runway, and that she and the two passengers were not injured. After they had disembarked from the aircraft, the pilot noticed that the landing gear doors had detached from the aircraft, and that the right engine had impacted the ground during the accident sequence. The nose gear was also damaged after impacting the side of the ditch before it came to a stop. The aircraft sustained substantial damage to the underbelly, fuselage, propeller blades and undercarriage.

Post-accident inspection

The condition of the undercarriage was inspected, and it was discovered that the push arms which extend the undercarriage had bent, and it was impossible to lower the undercarriage without damaging them further.

Figure 1: The strike marks caused by the left engine propeller blades and the tyre marks left by a vehicle that came to assist post-accident. (Source: Owner)

Figure 2: The aircraft at the accident site. The inset image shows the damaged propeller. (Source Owner)

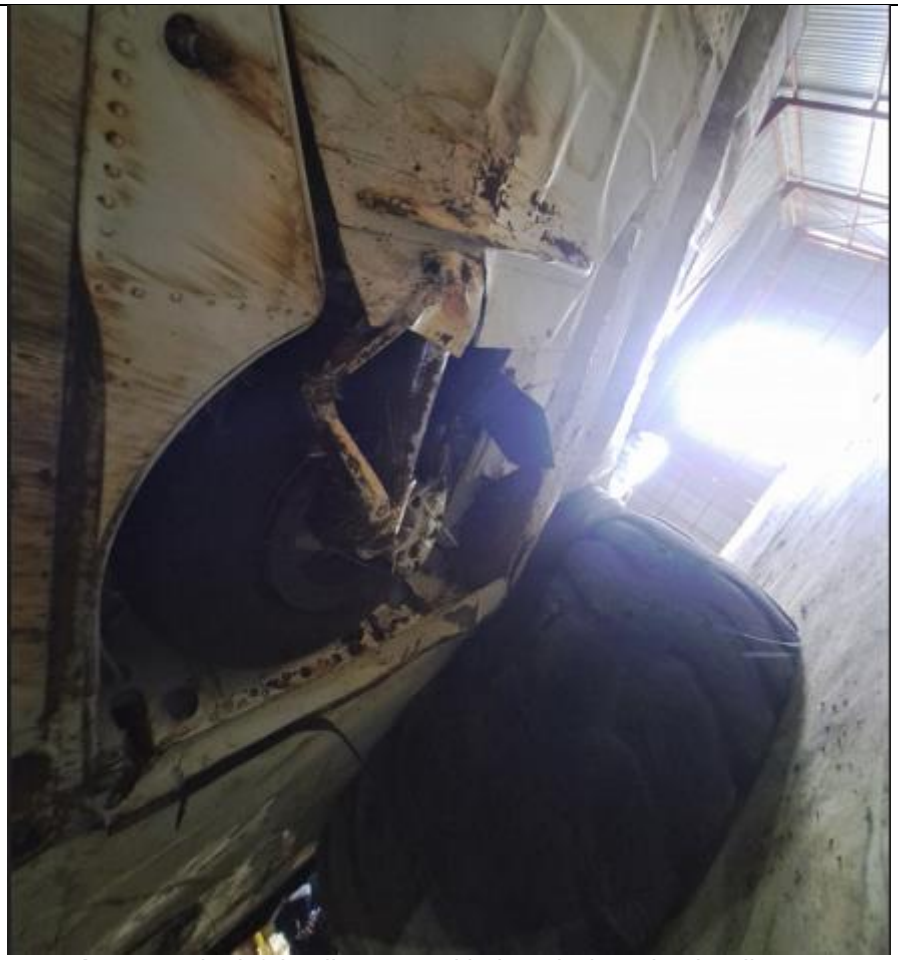


Figure 3: The left landing gear with the missing wheel well cover.

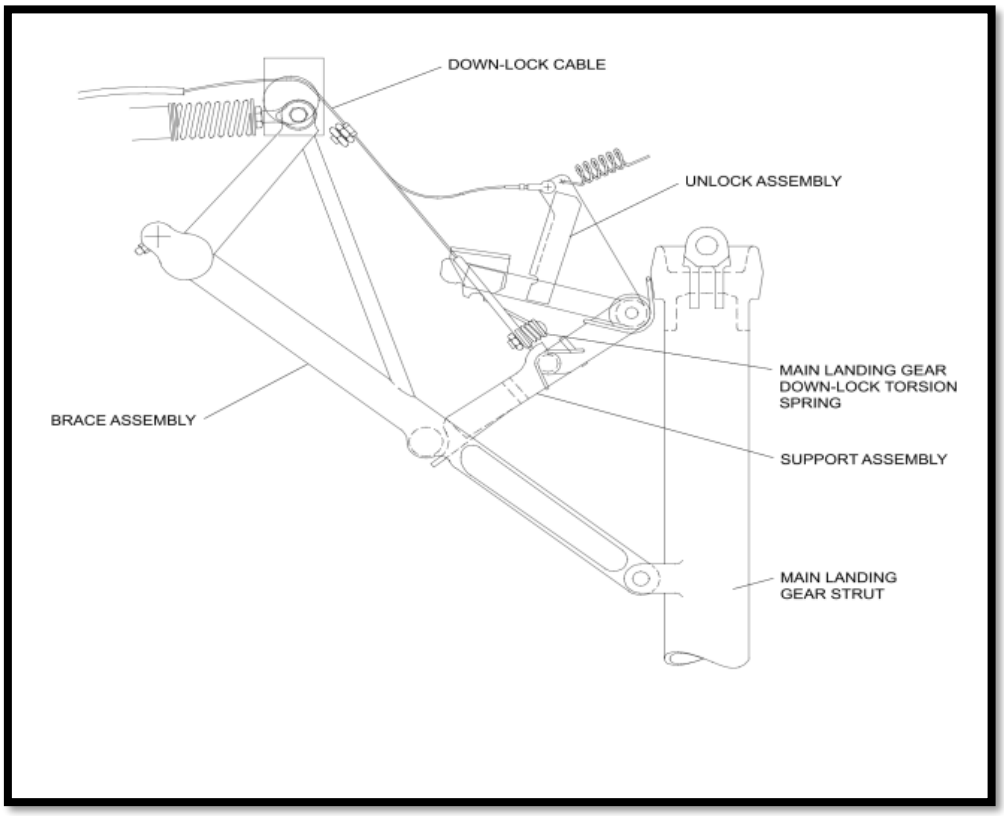
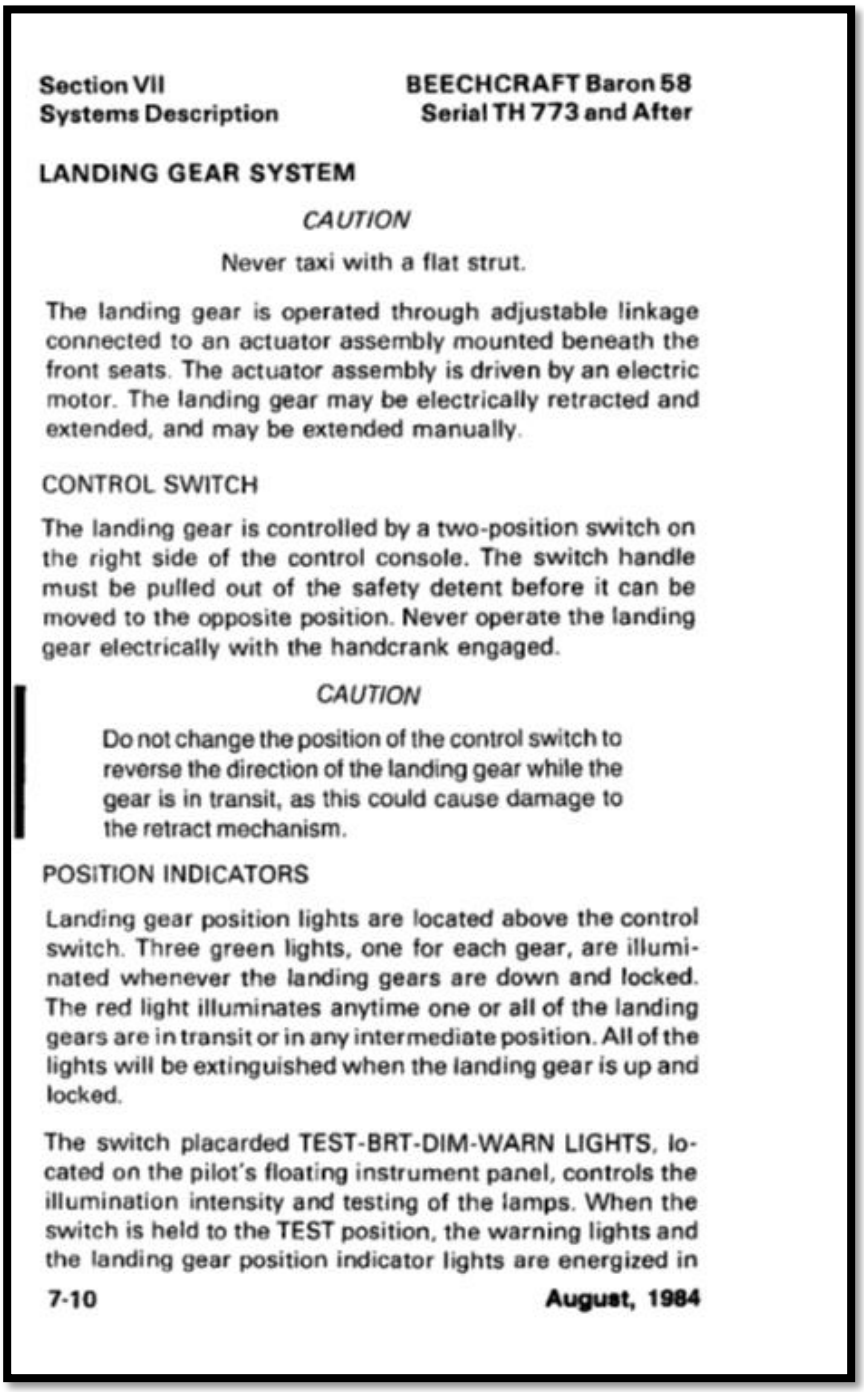


Diagram1: An illustration of the main landing gear down-lock torsion spring orientation.
(Source: Maintenance Manual 32-30-00)

Figure 4: The bent left-side landing gear extension.



LANDING GEAR SYSTEM

CAUTION

Never taxi with a flat strut.

The landing gear is operated through adjustable linkage connected to an actuator assembly mounted beneath the front seats. The actuator assembly is driven by an electric motor. The landing gear may be electrically retracted and extended, and may be extended manually.

CONTROL SWITCH

The landing gear is controlled by a two-position switch on the right side of the control console. The switch handle must be pulled out of the safety detent before it can be moved to the opposite position. Never operate the landing gear electrically with the handcrank engaged.

CAUTION

Do not change the position of the control switch to reverse the direction of the landing gear while the gear is in transit, as this could cause damage to the retract mechanism.

POSITION INDICATORS

Landing gear position lights are located above the control switch. Three green lights, one for each gear, are illuminated whenever the landing gears are down and locked. The red light illuminates anytime one or all of the landing gears are in transit or in any intermediate position. All of the lights will be extinguished when the landing gear is up and locked.

The switch placarded TEST-BRT-DIM-WARN LIGHTS, located on the pilot's floating instrument panel, controls the illumination intensity and testing of the lamps. When the switch is held to the TEST position, the warning lights and the landing gear position indicator lights are energized in

Figure 5: Description of landing gear system. (Source: https://www.csobeech.com/files/B58-POH.pdf)

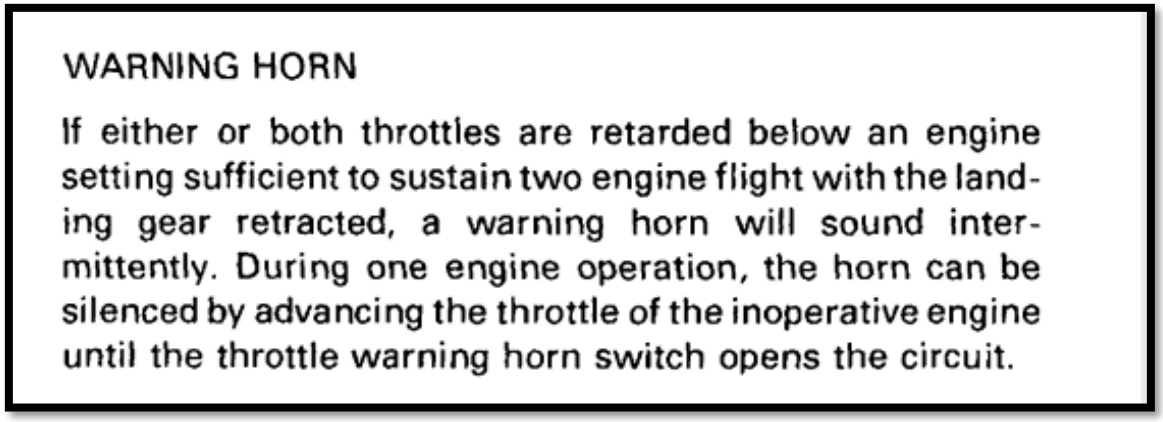


Figure 6: Warning horn caution. (Source: https://www.csobeech.com/files/B58-POH.pdf)

Findings

- The pilot had an Airline Transport Pilot Licence (ATPL) with 1160.4 hours on type and 4 425 total hours of flying experience. Her licence was reissued on 27 October 2021 with an expiry date of 30 November 2022.

- The pilot had a Class 1 medical certificate with no restrictions, which was issued on 22 October 2021 with an expiry date of 22 October 2022.

- The last 200 hours maintenance periodic inspection (MPI) was carried out on 10 May 2022 at 9046.2 Tacho hours. The aircraft had accumulated a total of 12 hours since its last inspection. All the airworthiness directives (AD) and service bulletins (SB) were complied with.

- The pilot elected to not execute a go-around because she had enough runway length left to bring the aircraft to a safe stop and had already cleared the obstacle (the animals) at the start of the runway.

- On 13 December 2019, the aircraft's left- and right-side drag braces were removed due to excessive play. The nose landing gear trunnion was shimmed as required, following the instruction on the manufacturer's maintenance manual 55-590000-13: REV-G12, 22 June 2017.

- The defect sheet dated 18 March 2022 had a record of 11 defect items, and none of them referenced the landing gear/s. All defects were signed off as done.

- In instances where the landing gears are down and locked and whilst landing, one or both collapse, they would break off. However, if the landing gears are still in transit (extending) and they make contact with the ground, they can easily return (retract) into the wheel well because they are not locked.

Probable Cause

It is likely that the main landing gears were still in transit during touchdown and collapsed into their wheel well upon contacting the ground resulting in the aircraft veering off the runway.

Contributing Factors
The pilot landed deep due to animals on the runway, which could have distracted her attention.
Safety Action
None.
Safety Message and/or Safety Recommendation/s
Pilots are encouraged to execute a go-around when they see obstacles on the runway to avoid putting their lives at risk as well as to avert accidents.
About this Report
Decisions to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence. *All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.*
Purpose
In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, 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
This report is produced without prejudice to the rights of the AIID, which are reserved.

This report is issued by:

Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa