PRELIMINARY SERIOUS INCIDENT REPORT

Accident and Incident Investigations Division

Serious Incident
- Preliminary Report -
AIID Ref No: CA18/3/2/1470

Figure 1: The file picture of the ZS-LFW aircraft. (Source: https://www.jetphotos.com/photo)

Description:

On Saturday afternoon, 8 February 2025, two pilots, a medical doctor and a paramedic on-board a Beechcraft Super King Air B200 aircraft with registration ZS-LFW took off on a positioning flight from Kimberly Airport (FAKM) in Northern Cape province to Bram Fischer International Airport (FABL) in Free State province. The flight was 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 captain stated that during descent from FL130 to 6 000ft and after depressurising the cabin as per the Standard Operating Procedure (SOP), the cabin door warning indication light illuminated on the annunciator panel. The captain requested the paramedic to inspect the door. On his return, he advised the captain that one of the four door locks was misaligned (not centred). Thereafter, the captain requested the two medical personnel to put on their seatbelts. Whilst the aircraft was on downwind for Runway 30 at FABL, the door opened and detached from the fuselage. The crew continued with their approach and landed safely on Runway 30. The door was found in a paved car parking lot at a nearby shopping mall. There was no damage to property during the serious incident. The aircraft was also not damaged, and none of the occupants was injured.

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Occurrence Details

Reference Number	**:** CA18/3/2/1470
Occurrence Category	**:** Serious Incident
Type of Operation	**:** Private (Part 91)
Name of Operator	**:** Air Ambulance Health Service (PTY) LTD
Aircraft Registration	**:** ZS-LFW
Aircraft Make and Model	**:** Beechcraft Super King Air B200
Nationality	**:** South African
Place	**:** Bloemfontein
Date and Time	**:** 8 February 2025 at 1420Z
Injuries	**:** None
Damage	**:** None

Purpose of the Investigation

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 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.

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.

Investigation Process

The Accident and Incident Investigations Division (AIID) was notified of the occurrence involving a Beechcraft Super King Air B200 which occurred above Twin Cities Mall in Bloemfontein, Free State province, on 8 February 2025 at 1420Z. The occurrence was classified as a serious incident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions.

The AIID has appointed an investigator-in-charge to conduct a full investigation. The investigator dispatched to the accident site. Notifications were sent to the State of Registry, Operator, Design and Manufacturer in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. The States did not appoint an accredited representative and/or advisor. The AIID will lead the investigation and issue the final report of this serious incident in accordance with the CAR 2011 Part 12 and the ICAO Annex 13.

The information contained in this preliminary report is derived from the information gathered during the on-going investigation into the occurrence. Later, an interim report or the final report may contain altered information in case new evidence is found during the on-going investigation that requires changes to the information depicted in this report.

The AIID reports are made available to the public at:

https://www.caa.co.za/industry-information/accidents-and-incidents/

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Serious Incident — this investigated serious incident
   Aircraft — the Beechcraft Super King Air B200 involved in this serious incident
   Investigation — the investigation into the circumstances of this serious incident
   Pilot — the pilot involved in this serious incident
   Report — this serious incident report

2. *Photos and figures used in this report were taken from various sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; or enhancement of colour, brightness, contrast; or addition of text boxes, arrows, or lines.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
ATF	Authority-to-fly
CEO	Chief Executive Officer
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CRS	Certificate of Release to Service
Ft	Feet
FO	First Officer
hPa	Hectopascal
Kt	Knots
M	Metres
METAR	Meteorological Aerodrome Report
NM	Nautical Miles
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
QNH	Altitude Above Mean Sea Level
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1. On Saturday afternoon, 8 February 2025, two pilots (crew), a medical doctor and a paramedic on-board a Beechcraft Super King Air B200 aircraft with registration ZS-LFW were on a positioning flight from Kimberley Aerodrome (FAKM) in Northern Cape province to Bram Fischer Aerodrome (FABL) in Free-State province when the serious incident occurred. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.1.2. The crew and the occupants initially took off on a medivac flight in which they were transferring a patient from Springbok Hospital in Northen Cape province to FAKM. The captain stated that once the patient was disembarked (transferred) from ZS-LFW and embarked on another aircraft at FAKM, the crew prepared the aircraft (ZS-LFW) for positioning flight to FABL. The aircraft's take-off and climb to flight level (FL) 130 was normal. The flight was a 30-minute leg. At the top of descent, the "cabin door" warning indication light illuminated on the annunciator panel. Thereafter, the captain requested the paramedic who was seated at the back to check the visual indicators on the door if they were aligned (*the green marks on the four door locks must align to indicate that the door is locked into position*). The paramedic reported that three of the visual indicators were centred on the mark but one (that is, the visual indicator on the top-right corner) (see Figure 2). The captain then advised the paramedic and the doctor to fasten their seatbelts and to not temper with the door as the cabin was still pressurised.

1.1.3. The crew started their descent from FL130 to 6 000ft and, whilst descending, they depressurised the cabin as per the Standard Operating Procedure (SOP) and, thereafter, joined a circuit for Runway (RWY) 30 at FABL. *The airport was unmanned at the time*. During the downwind leg, the captain who was the pilot flying (PF) reduced the speed before he commenced with the before landing checks. The crew selected first stage flaps and lowered the landing gear at a speed of approximately 150 knots (kts). Just before a call to select full flaps could be made, the door opened and detached from the aircraft fuselage. The crew did not change the aircraft configuration and speed; they landed safely on RWY 30. After landing, the crew found out that the door landed on a car parking lot of a shopping mall, approximately 4 nautical miles (nm) south-west of FABL. The door did not injure any person or damage property when it detached and landed on the parking lot. A security video footage at the shopping mall showed the door whilst it descended and impacted the paved parking area.

1.1.4. The serious incident occurred during daylight at a shopping mall parking lot, approximately 4.03nm from the threshold of RWY 30 at Global Positioning System (GPS) co-ordinates determined to be 29˚08’34.54” South 26 15’15,66” East, at an elevation of 4534 feet (ft).

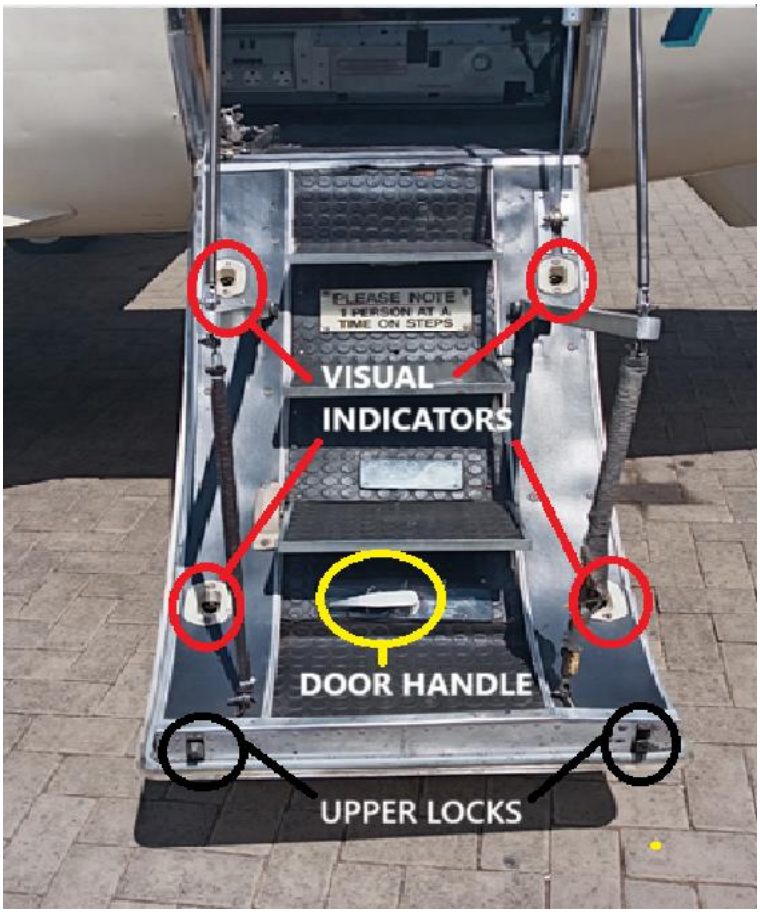

Figure 2: A different aircraft with the cabin door intact.

1.2. Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	2	-	2	4	-
Total	**2**	**-**	**2**	**4**	**-**

Note: Other means people on the ground.

1.3. Damage to Aircraft

1.3.1. The door detached from the fuselage during downwind for landing on RWY 30.

1.3.2. Other damage to the aircraft included the cable attachments that kept the door in place when open.

Figure 3: The aircraft post-incident at FABL. (Source: Operator)

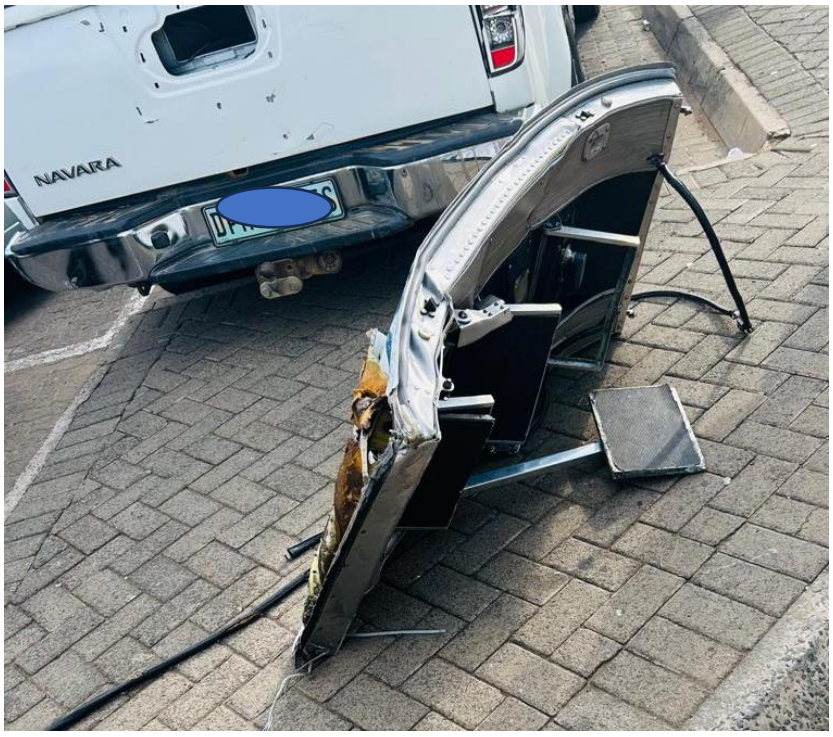

Figure 4: The aircraft door at the shopping mall parking lot. (Source: Operator)

1.4. Other Damage

1.4.1. None.

1.5. Personnel Information – Captain

Nationality	South African	Gender	Male	Age	72
Licence Type	Airline Transport Pilot Licence (ATPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument and Agriculture				
Medical Expiry Date	30 June 2025				
Restrictions	Yes				
Previous Incidents	Unknown				

Note: Previous incidents refer to past serious incidents the pilot was involved in, when relevant to this serious incident.

Flying Experience:

Total Hours	23 668.9
Total Past 24 Hours	4.1
Total Past 90 Days	71.9
Total on Type Past 90 Days	71.9
Total on Type	3 022

1.5.1. The captain was initially issued an Airline Transport Pilot Licence (ATPL) on 5 November 1999. The ATPL was renewed on 30 June 2024 with an expiry date of 31 July 2025.

1.5.2. The first officer questionnaire had not been received at the time of finalising this preliminary report. The information will be included in the final report.

1.5.3. All the occupants aboard the aircraft were familiar with the opening and closing of the cabin door.

1.6. Aircraft Information

(Source: Pilot Operating Handbook [POH])

The Beechcraft Super King Air B 200 is a low-wing, twin-engine aircraft with seating for up to nine passengers in a pressurised cabin. The aircraft is approved for operation by a single pilot, or by two pilots. It is powered by two turboprop PT6A-42 engines, each rated at 850 shaft-horsepower (SHP), each driving a three-bladed, hydraulically operated constant-speed propeller with full feathering and reversing capability. The main cabin door is hinged at the bottom and pivots downwards to provide a stairway for passenger and crew entry and exit. The locking mechanism (see Figure 5) operates via a handle located centrally in the door.

Rotation of the handle to the closed position causes two top door latches to hook into the top of the door frame and two upper (one each side) and two lower (one each side) lock bolts on the sides of the door to extend outwards into the door frame. The lock bolts move outwards over a roller located within a slot inside a plate on the side of the door. The roller is secured by a pin, which is held in position by 'staking' at both ends. 'Staking' is performed after the pin is placed through the roller and involves striking the plate around the pin with a centre punch, causing deformation of the plate material, thus preventing movement of the pin.

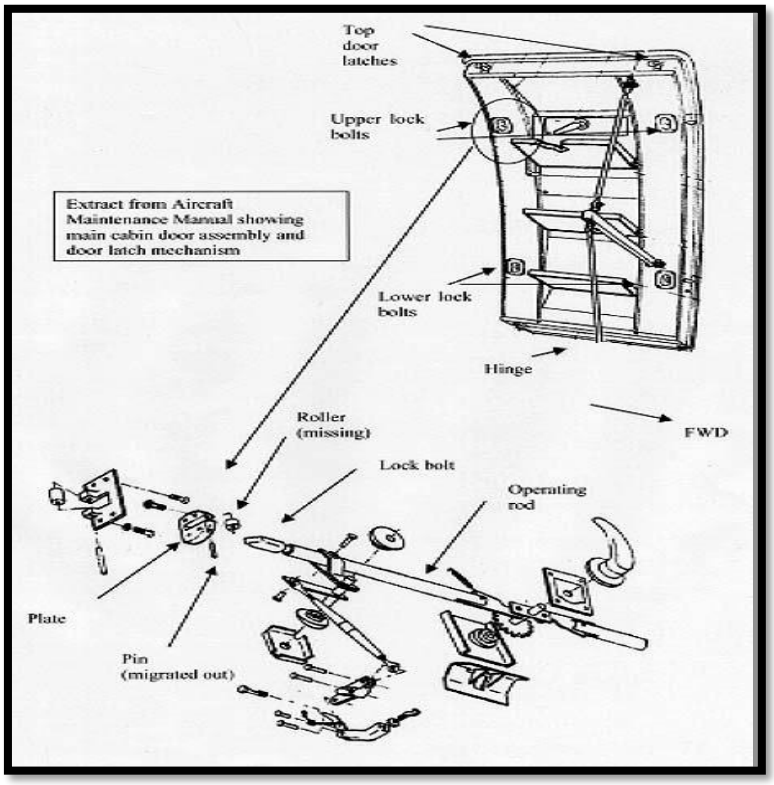

Diagram 1: The airstair boarding door mechanism. (Source: Aircraft Maintenance Manual [AMM])

Airframe:

Manufacturer/Model	Beechcraft Super King Air B200	
Serial Number	BB-999	
Year of Manufacture	1997	
Total Airframe Hours (At Time of Serious incident)	18 081.02	
Last Inspection (Date & Hours)	06 February 2025	18 072.,72
Hours Since Last MPI	8.3	
CRS Issue Date	06 February 2025	
C of A (Issue Date & Expiry Date)	29 April 1997	30 April 2025
C of R (Issue Date) (Present Owner)	28 July 2015	
Type of Fuel Used	Jet A1	
Operating Category	Part 91	
Previous Incidents	TBA	

Note: Previous incidents refer to past serious incidents the pilot was involved in, when relevant to this serious incident.

Engine # 1 (left side):

Manufacturer/Model	Pratt & Whitney / PT6A-42
Serial Number	PCE-94643
Part Number	PT6A-42
Hours Since New	10 400.69
Hours Since Overhaul	6 796.19

Engine # 2:

Manufacturer/Model	Pratt & Whitney / PT6A-42
Serial Number	PCE-94643
Part Number	PT6A-42
Hours Since New	8 641.19
Hours Since Overhaul	3 664.09

Propeller # 1 (left side):

Manufacturer	Hartzell
Serial Number	FY3845
Part Number	HC-D4N-3A
Hours Since New	5544.75
Hours Since Overhaul	154.85

Propeller # 2:

Manufacturer	Hartzell
Serial Number	FY3847
Part Number	HC-D4N-3A
Hours Since New	6 500.77
Hours Since Overhaul	1 777.25

1.6.1. The two engines were maintained on a continued airworthiness programme that defines specific maintenance tasks and their associated maintenance schedule and are used as supplementary to the Pratt Whitney Canada Manuals. Limitations and conditions using the Supplementary Type Certificate (STC) SE00001EN are maintained in accordance with Revision 3 of the More on Reliable Engines (MORE) instructions for continued airworthiness, dated 4 October 2022. The MORE programme increases the TBO time from 6000 to 8000 airframe hours.

1.6.2. According to the status report printed on 20 January 2025, the cabin door forward and aft side latches were installed on 17 October 2019 at 14958 cycles. They have a life of 5000 cycles and, on the day of the serious incident, they had 936 cycles left before replacement.

1.7. Meteorological Information

1.7.1. The weather information below was obtained from the pilot questionnaire which was completed on 10 February 2025.

Wind Direction	300˚	Wind Speed	15	Visibility	9999m
Temperature	24˚C	Cloud Cover	None	Cloud Base	Nil
Dew Point	3˚C	QNH	Unknown		

1.8. Aids to Navigation

1.8.1. The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigational equipment was unserviceable prior to the flight.

1.9. Communication

1.9.1. The aircraft was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system prior to the flight.

1.10. Aerodrome Information

1.10.1. Bram Fischer International Airport (FABL)

Aerodrome Name	Bram Fischer International Airport (FABL)
Aerodrome Location	Free State Province
Aerodrome Status	Licensed
Aerodrome GPS coordinates	29°05’37.64” South, 026°18’14.27” East
Aerodrome Elevation	4457 feet
Runway Headings	12/30 02/20
Dimensions of Runway Used	30
Heading of Runway Used	030˚
Surface of Runway Used	Paved
Approach Facilities	PAPI
Radio Frequency	Approach 124.30MHz; Tower 120.80MHz

1.11. Flight Recorders

1.11.1. The aircraft was neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the aircraft type.

1.12. Wreckage and Impact Information

1.12.1. During approach for landing at FABL, a cabin door warning indication illuminated on the annunciator panel and the captain requested the paramedic to check the four visual indicators if they were aligned. The paramedic indicated that the top-right corner indicator was not aligned. Thereafter, the captain advised the medical personnel to put on their seatbelts and to not temper with the door. During the downwind checks, the door opened and detached from the fuselage. It landed on a shopping mall parking lot. The door sustained substantial damage. No person was injured and no property was damaged during the serious incident.

Figure 5: The damaged cabin door.

1.12.2. Other damage to the aircraft included the cable attachments that kept the door in place when open.

1.13. Medical and Pathological Information

1.13.1. None.

1.14. Fire

1.14.1. There was no pre- or post-impact fire.

1.15. Survival Aspects

1.15.1. The serious incident was survivable because only the door was damaged; the occupants had used their seatbelts and the aircraft landed safely.

1.16. Tests and Research

1.16.1. To be discussed in the final report.

1.17. Organisational and Management Information

1.17.1. The aircraft maintenance organisation (AMO) that conducted maintenance on the aircraft had the AMO Certificate that was issued by the Regulator on 31 August 2024 with an expiry date of 31 August 2025.

1.17.2. The operator had an Air Operating Certificate (AOC) that was issued by the Regulator on 26 July 2024 with an expiry date of 30 June 2025. The operator's operational specifications included emergency medical services.

1.18. Additional Information

1.18.1. To be discussed in the final report.

1.19. Useful or Effective Investigation Techniques

1.19.1. None.

2. FINDINGS

2.1. General

From the available evidence, the following preliminary findings were made with respect to this serious incident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusions heading:

- **Findings —** are statements of all significant conditions, events, or circumstances in this serious incident. The findings are significant steps in this serious incident sequence, but they are not always causal or indicate deficiencies.

2.2. Findings

2.2.1. The captain had an Airline Transport Pilot Licence (ATPL) that was initially issued on 5 November 1999. The ATPL was reissued on 12 October 2024 with an expiry date of 31 July 2025. The licence had the aircraft type endorsed on it.

2.2.2. The captain had a Class 1 aviation medical certificate that was issued on 5 December 2024 with an expiry date of 30 June 2025.

2.2.3. The first officer had a Commercial Pilot Licence (CPL). The details will be added in the final report.

2.2.4 The last maintenance inspection of the aircraft was conducted and certified on 6 February 2025 at 18072 airframe hours by an approved aircraft maintenance organisation (AMO). The aircraft had accrued 8.3 hours since the last maintenance.

2.2.5 The aircraft had a Certificate of Airworthiness (C of A) that was issued on 29 April 1997. The latest reissued C of A had an expiry date of 30 April 2025.

2.2.6 The Certificate of Registration (C of R) was issued to the present owner on 28 July 2015.

2.2.7 The aircraft was issued a Certificate of Release to Service (CRS) on 5 February 2024 with an expiry date of 5 February 2026 or at 18263.51 airframe hours, whichever comes first.

2.2.8 The operator had an Air Operating Certificate (AOC) that was issued by the Regulator on 26 July 2024 with an expiry date of 30 June 2025. The operator's operational specifications included emergency medical services.

2.2.9 The status report printed on 20 January 2025 indicated that the cabin door forward and aft side latches were installed on 17 October 2019 at 14958 cycles. They have a life of 5000 cycles and, on the day of the serious incident, they had 936 cycles remaining before replacement.

3. ON-GOING INVESTIGATION

3.1 The AIID investigation is on-going and the investigator will look into other aspects of this investigation which may or may not have safety implications.

4. SAFETY RECOMMENDATIONS

4.1. General

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report. The AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

4.2. Safety Recommendation/s

4.2.1. None.

5. APPENDICES

5.1. None.

This report is issued by:

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