

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY
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				Reference:	CA18/2/3/8070	
<b>Aircraft Registration</b>	ZS-IMZ	<b>Date of Accident</b>	15 February 2006		<b>Time of Accident</b>	1245Z
<b>Type of Aircraft</b>	Beech V35B		<b>Type of Operation</b>		Private	
<b>Pilot-in-command Licence Type</b>		Commercial	<b>Age</b>	28	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	314		Hours on Type	Unknown
<b>Last point of departure</b>		Wonderboom Aerodrome (FAWB)				
<b>Next point of intended landing</b>		Ermelo Aerodrome				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Open field inside a farm in Evander GPS Co-ordinate: S26°27'9.34" E029°08'0.35"						
<b>Meteorological Information</b>		Temperature: 25°C Wind: 03kts/140° Visibility: OK				
<b>Number of people on board</b>	1+0	<b>No. of people injured</b>	0	<b>No. of people killed</b>	1	
<b>Synopsis</b>						
<p>On 15 February 2006 the pilot collected the aircraft from the Aircraft Maintenance Organisation (AMO) at Wonderboom Aerodrome (FAWB) after undergoing a Mandatory Periodic Inspection (MPI) and it was released to service. After the aircraft was refuelled, it took off from FAWB on a private flight to Ermelo where it was based. The aircraft crashed on a farm in Evander approximately 0.43 hours after taking off from FAWB.</p> <p>When overhead Evander, the engine had stopped due to fuel exhaustion and the pilot was forced to land on an uneven open grass field on a farm. The aircraft possibly landed at a high speed. Upon landing it bounced, rolled and impacted with the ground nose-first in a left-wing low attitude before ground-looping and coming to a halt. The pilot was fatally injured in the accident.</p>						
<b>Probable Cause</b>						
<p>The accident was attributed to an unsuccessful forced landing due to engine stoppage.</p> <p>The engine stopped because of fuel exhaustion.</p>						
<b>IARC Date</b>				<b>Release Date</b>		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner/Operator** : Boshoff FJ & Janse Van Rensburg  
**Manufacturer** : Beechcraft  
**Model** : V35B  
**Nationality** : South African  
**Registration Marks** : ZS-IMZ  
**Place** : Evander  
**Date** : 15 February 2006  
**Time** : 1245Z

*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 of the Investigation:

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (1997) 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 establish legal liability.***

### Disclaimer:

*This report is given without prejudice to the rights of the CAA, which are reserved.*

## 1. FACTUAL INFORMATION

### 1.1 History of Flight

- 1.1.1 On 15 February 2006 the pilot collected the aircraft from the Aircraft Maintenance Organisation (AMO) at Wonderboom Aerodrome (FAWB) after undergoing a Mandatory Periodic Inspection (MPI) and was released to service. After the aircraft was refuelled, it took off from FAWB on a private flight to Ermelo where it was based.
- 1.1.2 According to the information received at the time, after taking off from FAWB the aircraft landed at Kitty Hawk (FAKT) and immediately took off again. There was no communication between the pilot and any person at FAKT.

1.1.3 The aircraft was later found to have crashed on an open field on a farm in the Evander area, which was determined as 8.40 kilometres from the Secunda Aerodrome.

1.1.4 According to the eyewitness, the aircraft was observed coming in to execute a forced landing on an open field. The engine was not running and the undercarriage was extended. The aircraft landed in an open field at a high speed, it bounced, rolled and impacted with the ground nose-first in a left-wing low attitude before ground-looping and coming to a halt facing in the opposite direction (the direction where the aircraft came from).

1.1.5 The accident occurred in daylight conditions.

## 1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	1	-	-	-
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-

## 1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed by impact forces.

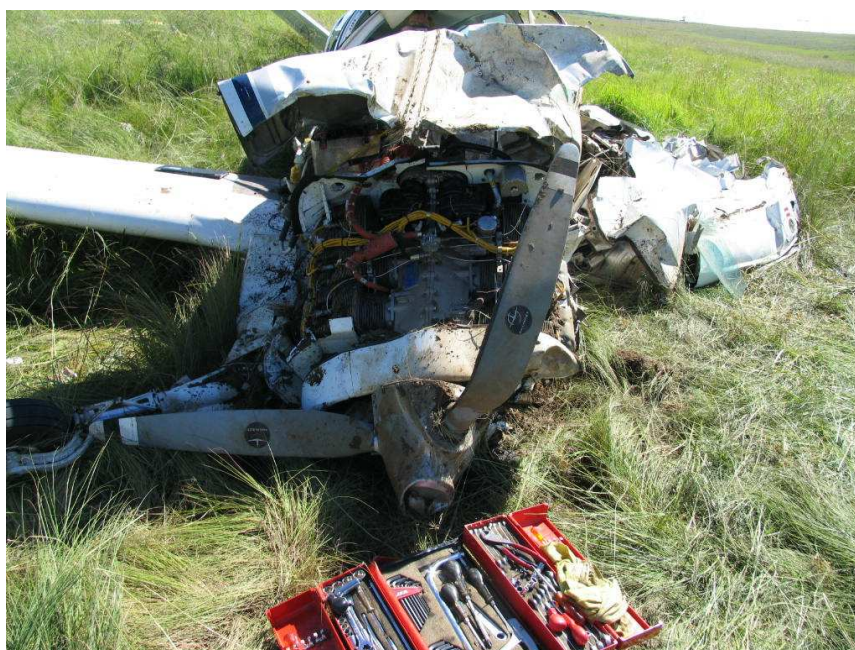


Figure 1: showing damage to the aircraft.

## 1.4 Other Damage

1.4.1 There was no other damage.

## 1.5 Personnel Information

Nationality	South African	Gender	Male	Age	28
Licence Number	*****	Licence Type	Commercial		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Instrument & Night				
Medical Expiry Date	31 January 2007				
Restrictions	None				
Previous Accidents	None				

Flying Experience:

Total Hours	314
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

The pilot logbook could not be located during the course of the investigation. According to the CAA records, the pilot had 314 hours during his last licence renewal on 22 January 2005.

## 1.6 Aircraft Information

**Airframe:**

Type	Beechcraft V35B	
Serial Number	D9278	
Manufacturer	Beechcraft	
Year of Manufacture	1971	
Total Airframe Hours (At time of Accident)	5329.6	
Last MPI (Date & Hours)	15 February 2006	5328.5
Hours since Last MPI	1.1	
C of A (Issue Date)	07 September 1971	
C of R (Issue Date) (Present owner)	15 June 1992	

Operating Categories	Standard
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### Engine:

Type	Continental IO-520-BA
Serial Number	822908-R
Hours since New	201.0
Hours since Overhaul	TBO not reached

### Propeller:

Type	McCauley 3A32C76
Serial Number	712318
Hours since New	4654
Hours since Overhaul	1284

- 1.6.1 The Accountable Manager from the AMO stated that during the final post MPI ground run of the aircraft, the engine stopped due to the left tank running dry. The fuel selector was switched to the right-hand selection and the aircraft was restarted to conclude the ground run. This was brought to the attention of the pilot before he took the aircraft.
- 1.6.2 The records show that 28.7 litres (7.58 gallons) of AVGAS was uplifted into the aircraft (using the credit card for payment) prior to taking off at FAWB. The unusable fuel for this aircraft type is 3 gallons per tank.
- 1.6.3 The flight time and used fuel from FAWB to the accident site was calculated using the following data:

Fuel consumption: 13.3 gallons/hour using 65% power and the cruise speed of 162 knots. The flight time was found to be 0.43 hours and used fuel to be 5.72 gallons. These calculations were done without taking into consideration taxi fuel and take-off fuel at FAWB and FAKT.

## 1.7 Meteorological Information

1.7 The below information was supplied by the South African Weather Services.

Wind direction	140°	Wind speed	03kts	Visibility	OK
Temperature	25°C	Cloud cover	SCT at 400 ft	Cloud base	Unknown
Dew point	15°C				

## 1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation instrumentation as per manufacture design. None were reported unserviceable prior or during the accident.

## 1.9 Communications

1.9.1 No information was available regarding the communication. The pilot never made a distress call.

1.9.2 The aircraft was equipped with standard communication systems and none were reported unserviceable prior or during the accident.

## 1.10 Aerodrome Information

1.10.1 The accident occurred in an open field inside a farm in Evander (GPS Co-ordinate: S26°27'9.34" E029°08'0.35"), 8.40 kilometres from Secunda Aerodrome.

## 1.11 Flight Recorders

1.11.1 The aircraft was not equipped with any flight recorders and it was not a regulatory requirement.

## 1.12 Wreckage and Impact Information

1.12.1 The aircraft landed on an uneven open field at a high speed, it bounced, rolled and impacted with the ground nose first, in a left-wing low attitude before ground-looping and coming to a halt facing in the opposite direction (the direction where the

aircraft came from).

1.12.2 The aircraft sustained damage to the undercarriage, propeller, fuselage and to both wings (left wing was destroyed).

### **1.13 Medical and Pathological Information**

1.13.1 According to the Forensic Pathologist's post-mortem report, the cause of death was determined to be multiple blunt injuries.

1.13.2 Forensic Chemistry submitted revealed no evidence of alcohol consumption with the alcohol concentration of 0.00 grams per 100 millilitres.

### **1.14 Fire**

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

### **1.15 Survival Aspects**

1.15.1 The high impact forces associated with this accident led to the destruction of the cabin. The pilot was exposed to high impact forces during the accident sequence, hence the accident was considered not survivable.

### **1.16 Tests and Research**

1.16.1 During the on-site investigation all the control surfaces were inspected and found intact except for accident damage. The airframe was also inspected and all the noted damage was found to be consistent with accident or impact damage.

1.16.2 The assessment of the accident site and the propeller scratch marks indicated that the aircraft's engine was not running when the accident occurred.

1.16.3 The fuel selector was found selected on the right-hand tank. The left-hand tank had ruptured (was destroyed); the right-hand tank was still intact and there was a very low quantity of fuel which was noted as unusable fuel.

1.16.4 The fuel distributor cap was opened in order to check if there was fuel inside the distributor and none was found.

## **1.17 Organisational and Management Information**

1.17.1 This was a private flight.

1.17.2 The Aircraft Maintenance Organisation (AMO) that certified the last MPI on the aircraft prior to the accident was correctly licensed and had authority to perform maintenance on the aircraft type.

## **1.18 Additional Information**

1.18.1 The following paragraph was extracted from the aircraft flight manual page 7-30, under the topic "FUEL REQUIRED FOR THE FLIGHT":

It is the pilot's responsibility to ascertain that fuel quantity indicators are functioning and maintaining a degree of accuracy, and to be certain of ample fuel for the flight. Take off is prohibited if the fuel quantity indicators do not indicate above the yellow arc. An inaccurate indicator could give an erroneous indication of the fuel quantity. A minimum of 13 gallons of fuel is required in each tank before take-off. The filter caps should be removed and the fuel quantity checked to give the pilot an indication of the fuel on board. The airplane must be approximately level for visual inspection of the tank. If the pilot is not sure that at least 13 gallons are in each tank, add necessary fuel so that the amount of fuel will not be less than 13 gallons per tank at take-off. Plan for an ample margin of fuel for any flight.

1.18.2 The Civil Aviation Regulations (CAR) Part 91.07.12 states the following regarding the fuel required in the aircraft:

- (1) The pilot-in-command of an aircraft shall not commence a flight unless he or she is satisfied that the aircraft carries at least the planned amount of fuel and oil to complete the flight safely, taking into account operating and meteorological conditions and the expected delays.
- (2) The pilot-in-command shall ensure that the amount of usable fuel remaining in-flight is not less than the fuel required to proceed to an aerodrome or, in the case of a helicopter, a suitable landing place, where a safe landing can be made.

## **1.19 Useful or Effective Investigation Techniques**

1.19.1 None.



## **2. ANALYSIS**

- 2.1 On 15 February 2006 the pilot collected the aircraft from the Aircraft Maintenance Organisation (AMO) at Wonderboom Aerodrome (FAWB) after undergoing a Mandatory Periodic Inspection (MPI) and was released to service. After the aircraft was refuelled, it took off from FAWB on a private flight to Ermelo where it was based. The aircraft crashed on a farm in Evander approximately 0.43 hours after taking off from FAWB.
- 2.2 There was no evidence of maintenance anomalies and/or defects reported on the aircraft prior to the flight. The pilot had sufficient experience on the aircraft type. He had no previous incidents or accidents. His flight medical certificate was also valid.
- 2.3 The factual information above indicates that the aircraft took off from FAWB without sufficient fuel required to safely reach the intended destination. The reasons why the aircraft was only uplifted with 7.58 gallons and as to why the aircraft landed at FAKT and immediately took off, could not be determined.
- 2.4 The possibility exists that the pilot was aware of the aircraft's fuel state and might have intended to divert to Secunda Aerodrome where he could have rectified the situation. When overhead Evander the engine stopped due to fuel exhaustion and the pilot was forced to land on an uneven open grass field on a farm. The aircraft possibly landed at a high speed; upon landing it bounced, rolled and impacted with the ground nose-first in a left-wing low attitude before ground-looping and coming to a halt. The pilot was fatally injured in the accident.

## **3. CONCLUSION**

### **3.1 Findings**

- 3.1.1 The pilot was licensed and qualified for the flight in accordance with existing regulations.
- 3.1.2 The maintenance records indicated that the aircraft was equipped and maintained in accordance with existing regulations and approved procedures.

- 3.1.3 The aircraft took off without having sufficient fuel to safely reach the intended destination.
- 3.1.4 The engine stopped due to fuel exhaustion, resulting in a forced landing.
- 3.1.5 The weather was not considered to be factor in this accident.

### **3.2 Probable Cause/s**

- 3.2.1 The accident was attributed to an unsuccessful forced landing due to engine stoppage.
- 3.2.3 The engine stopped because of fuel exhaustion.

## **4. SAFETY RECOMMENDATIONS**

- 4.1 None.

## **5. APPENDICES**

- 5.1 None.

Submitted through the office of the SM.