

<b>AIRCRAFT INCIDENT SHORT REPORT</b>
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**CA18/3/2/1196: ZU-EED, Forced landing after engine stoppage**

**Date and time** : 17 February 2018, 0800Z

**Location** : Middleburg Aerodrome (FAMB)

**Occurrence Category** : Serious incident

**Aircraft registration** : ZU-EED

**Aircraft manufacturer and model** : Cubby Wings Tri-Cubby

**Last point of departure** : FAMB

**Next point of intended landing** : FAMB

**Location of incident site with reference to easily defined geographical points (GPS readings if possible)** : 25°41'14" South 029°26'43" East

**Meteorological Information** : Surface wind: 135°/2 kt, temperature 22°C, CAVOK

**Type of operation** : Training (Part 141)

**Persons on board** : 2 + 0

**Injuries** : None

**Damage to aircraft** : Damage to the landing gear and propeller, and distortion of the fuselage

*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 (2011) this report was compiled in the interests of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and **not to establish blame or liability.***

**Disclaimer:**

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

## **SYNOPSIS**

On 17 February 2018, a flight instructor accompanied by a student pilot departed FAMB to carry out a national pilot's licence (NPL) skills test. The flight instructor requested the student to carry out one touch and go. On completion of the landing phase, the student pilot applied full throttle to get airborne again. At approximately 20 m above ground level (AGL), the aircraft experienced a sudden engine stoppage. The student pilot attempted to land back on the remaining runway surface and impacted the ground at a high rate of descent. The investigation revealed that the ignition lead between the distributor and the spark plugs had failed.

## **FACTUAL INFORMATION**

On 17 February 2018, a flight instructor accompanied by a student pilot departed FAMB to carry out a national pilot's licence (NPL) skills test. On returning to the aerodrome from the general flying area (GFA), the flight instructor requested the student to carry out one touch and go. On completion of the landing phase, the student pilot applied full throttle to get airborne again. At approximately 20 m above ground level (AGL), the aircraft experienced a sudden engine stoppage. The student pilot attempted to land back on the remaining runway surface and impacted the ground at a high rate of descent, which caused the main landing gear to collapse and the nose gear strut assembly to bend. The student pilot lost control of the aircraft, which came to rest on the side of the runway. Neither of the occupants were injured. The aircraft sustained damage to the landing gear, propeller and fuselage.

## **FINDINGS**

- The student pilot was undergoing an initial skills test for an NPL. His aviation medical certificate was valid. The flight instructor's licence and aviation medical certificate were valid.
- The aircraft held a valid Authority to Fly and Certificate of Release to service. The last annual inspection had been carried out on 9 January 2018.
- At the last inspection the hours were:
  - Airframe: 360 hours
  - Engine: 352 hours

- The aircraft had flown a total of 7,7 hours since the last inspection. The aircraft was fitted with a Volkswagen 2,1 engine. This engine had a single ignition source. The aircraft had approximately 50 L of fuel on-board after the incident.
- Due to the wind being light and variable, the pilots selected runway 14 for the touch and go.
- No on-site investigation was conducted by the Accident and Incident Investigation Division (AIID).



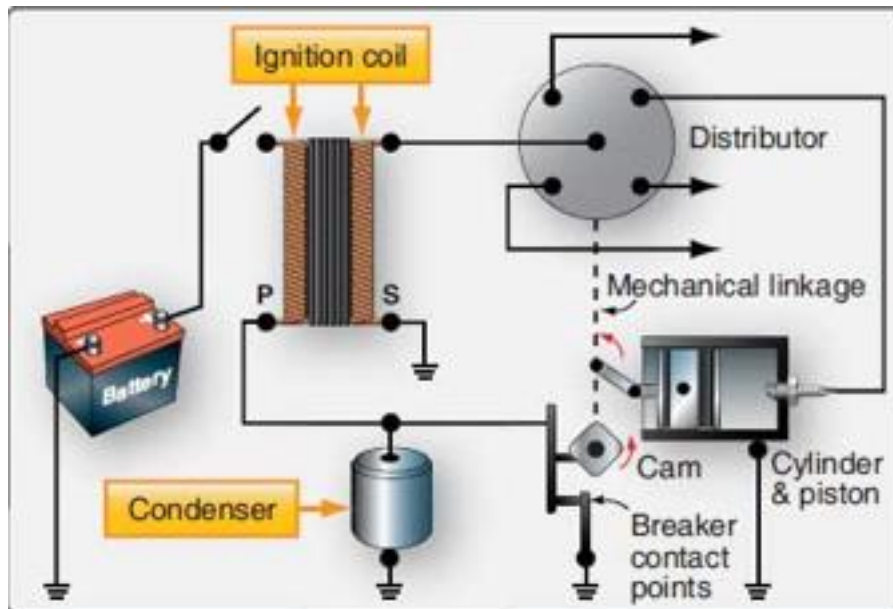
**Figure 1:** Final position of the aircraft at FAMB (Google Earth overlay)



**Figure 2:** Damage to the landing gear (photograph courtesy of Mr J Bronkhorst)



**Figure 3:** Damage to the landing gear and propeller (photograph courtesy of Mr J Bronkhorst)



**Figure 4:** A simple ignition system similar to the one used by the aircraft. A break in the connection between the distributor and the spark plugs will render the engine inoperative (source: [www.flightmechanic.com](http://www.flightmechanic.com))

## PROBABLE CAUSE

The probable cause of the incident was due to an unsuccessful forced landing with the aircraft impacting the ground at a high rate of descent.

## CONTRIBUTING FACTOR

The contributing factor was failure of the ignition lead fitted on the engine. Due to the engine being a single ignition source system, a failure of the lead would cut off the spark required to create combustion in the cylinders, and therefore shut down the engine.

## REFERENCES USED IN THE REPORT

- *Authorised Persons Engine Report*
- The South African Civil Aviation Authority *Technical Standards* Part 44.01.6, Annexure A

## **SAFETY RECOMMENDATION**

None

## **ORGANISATION**

None.

## **TYPE OF SAFETY ACTION**

None.

## **SAFETY MESSAGE**

It is recommended that aircraft operators that operates this type of aircraft fitted with engine that operate using a single ignition source should have a more frequent inspection schedule related to the ignition system.

It is recommended that aircraft operators that operates this type of aircraft fitted with engine that use a single ignition source, replace the ignition lead during the annual inspection or 100 hours whichever comes first.

## **APPENDICES**

Appendix A (Authorised Person report)



## Appendix A

To whom it may concern

AIRCRAFT

ZS – EED

Power plant report

VOLKSWAGEN 2.1

S/N: EAK 0509E

POWERPLANT WAS INSPECTED AND VARIFIED  
NEW BATTERY AND CABLE LEADS CONNECTED  
ENGINE WAS STARTED / BROUGHT TO TEMP. / NO PROPELLOR.

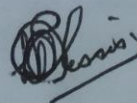
THROTTLE IDLE STAGE STATISFACTORILY  
THROTTLE MID.STAGE STATISFACTORILY  
THROTTLE FULL STAGE STATISFACTORILY

TEMPRETURES, PRESSURES NORMAL IN THE GREEN.  
RUN ENGINE AT ALL STAGES SEVERAL TIMES  
CONTINOUS FULL THROTTLE 3 MINUTES

### CONCLUSION:

POWER PLANT RUNS SATISFACTORILY  
ALTERNATOR SATISFACTORILY  
OLD BATTERY COULD NOT BE CHECK ED (VOLAGE AND AMPS.)  
FUEL PUMP, PIPE SYSTEM NO LEAKS, SATISFACTORILY  
FUEL PUMP SWITCH ON / OFF SUSPECT (CONTACT)  
POWERPLANT TO BE SEND TO VOLKSWAGEN SERVICE CENTRE

APPROVED PERSON: L. G. DU PLESSIS



Date: 03/04/2018

