SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Occurrence Investigation** Form Number: CA 12-12a

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/9002		
Aircraft Registration	**ZU-LOL**	**Date of Accident**	16 January 2012		**Time of Accident**	1145Z	
Type of Aircraft	Van's RV7		**Type of Operation**		Private Flight		
Pilot-in-command Licence Type		ATP	**Age**	53	**Licence Valid**	Yes	
Pilot-in-command Flying Experience		Total Flying Hours	15070		Hours on Type	79.7	
Last point of departure	South Africa – FAGM (Rand Airport) Gauteng						
Next point of intended landing	South Africa – FALA (Lanseria Airport) Gauteng						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Rand Airport between Runways 35 and 11 (GPS co-ordinates 26°14'37.83"S 28°08'55.18"E)							
Meteorological Information	Wind: 270°/10kts Visibility: CAVOK Temperature: 25 °C						
Number of people on board	1+1	**No. of people injured**	0	**No. of people killed**	0		

Synopsis

On 16 January 2012 at approximately 1130Z, the pilot accompanied by a passenger off from Runway 17 at Rand aerodrome on a private flight to Lanseria Airport.

The pilot stated that shortly after take-off from runway 17 at Rand Airport, the engine back-fired twice, lost power and subsequently failed. As the aircraft was already in a right hand climb turn when this occurred, he was committed to execute a forced landing and selected the flat grass covered surface between the two runways.

During the forced landing the aircraft sustained substantial damage to the fuselage, landing gear and propeller.

The occupants sustained no injuries.

Probable Cause

Unsuccessful forced landing followed by engine failure

Contributory Factors:
Pilot failed to deactivate the electronic system which would have converted back to the magneto system.

IARC Date		Release Date	

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Radcool Investments
Manufacturer : Van's Aircraft
Model : VANS RV-7
Nationality : South Africa
Registration Marks : ZU-LOL
Place : Rand Aerodrome, Germiston
Date : 16 January 2012
Time : 1145Z

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 16 January 2012, the pilot accompanied by a passenger took off from Runway 17 at Rand Airport on a private flight to Lanseria Airport.

1.1.2 The pilot stated that shortly after take-off from runway 17 at Rand aerodrome, the engine back-fired twice, lost power and subsequently failed. As the aircraft was already in a right hand turn when this occurred, he was committed to execute a forced landing on the grass covered area between Runways 35 and 11at Rand aerodrome.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft sustained substantial damage to airframe, under-carriage and propeller.

Fig.1 – Damage to the propeller

Fig. 2 – Collapsed undercarriage

Fig. 3 – Damage to fuselage

1.4 Other Damage

1.4.1 There was no other damaged caused

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	53
Licence Number	0270007198	Licence Type	ATP		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Test Pilot Rating, Class 2 MNPS/RVSM Night Rating				
Medical Expiry Date	31-03-2012				
Restrictions	Must wear corrective lenses				
Previous Accidents	Yes - ZS-AWJ dated 07/11/2010				

Flying Experience:

Total Hours	15070
Total Past 90 Days	135.0
Total on Type Past 90 Days	11.6
Total on Type	79.7

1.6 Aircraft Information

1.6.1 Airframe :

Type	VAN RV-7	
Serial Number	71903	
Manufacturer	Van's Aircraft	
Date of Manufacture	2008	
Total Airframe Hours (At time of Accident)	281.6	
Last Annual (Date & Hours)	27/06/2011	203
Hours since Last Annual Inspection	78.6	
Authority to Fly (Issue Date)	15 July 2011	
Authority to Fly (Expiry Date)	11 July 2012	
C of R (Issue Date) (Present owner)	21/06/2011	
Operating Categories	Private Operation Authority to Fly	

1.6.2 Engine :

Type	Lycoming 0-320
Serial Number	L-7834-27
Hours since New	281.6
Hours since Overhaul	Not yet reached

1.6.3 Propeller :

Type	Whirlwind (Composite)
Serial Number	Unknown
Hours since New	281.6
Hours since Overhaul	Not yet reached

1.7 Meteorological Information

1.7.1 The weather information below was obtained from the pilot's questionnaire

Wind direction	270°	Wind speed	10kts	Visibility	CAVOK
Temperature	25℃	Cloud cover	N/A	Cloud base	N/A
Dew point	11ºC				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the regulator for the aircraft type.

1.8.2 There were no recorded defects reported prior to or during the flight.

1.9 Communications.

1.9.1 The aircraft was equipped with standard communication equipment as approved by the regulator for the aircraft type.

1.9.2 There were no recorded defects prior to or during the flight.

1.10 Aerodrome Information

Aerodrome Location	FAGM	
Aerodrome Co-ordinates	26°14′33″S 028°09′04″E	
Aerodrome Elevation	5424ft AMSL	
Runway Designations	RWY 35/17	RWY 11/29
Runway Dimensions	4800ft x 49ft	1680ft x 49ft
Runway Used	35/17	
Runway Surface	Asphalt	
Approach Facilities	NDB/VOR/DME/PAPIs/Landing Lights	

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with a Flight Data Recorder (FDR) or a Cockpit Voice Recorder (CVR) as neither was required by regulations to be installed into the aircraft type.

1.12 Wreckage and Impact Information

1.12.1 As soon as the engine lost power and subsequently failed during the right hand climb on take off, the pilot executed a forced landing on the grass covered surface between runway 35 and runway 11 at Rand aerodrome.

1.12.3 The aircraft was heading approximately 30 degrees when the pilot performed the forced landing.

1.12.4 Upon landing, the right wing impacted the ground first. The right landing gear then collapsed, followed by the left landing gear also to collapse.

1.12.5 The aircraft was on a slightly right wing low attitude when it landed on the slightly rough grass covered terrain. The aircraft came to a stop in approximately 50 metres.

1.12.5 During the forced landing the aircraft sustained substantial damage to the airframe, landing gear and propeller

1.13 Medical and Pathological Information

1.13.1 Not applicable.

1.14 Fire

1.14.1 There were no pre- or post-impact fires.

1.15 Survival Aspects

1.15.1 The accident was considered survivable due to the fact that the aircraft did a forced landing during take-off whilst the aircraft was still at a low altitude which resulted in low impact forces being involved.

1.15.2 Due to fact that pilot and passenger were properly restrained by the appropriate aircraft safety harnesses, they did not sustain any injuries.

1.16 Tests and Research

1.16.1 It was established that a sufficient amount of fuel was in the fuel tanks for the intended flight.

1.16.2 The Generation 3 Ignition system installed on the engine was to convert and connect both the left and right hand magnetos to the G3i module. In the event of a malfunction, the ignition system can be manually deactivated by an ON-OFF switch which will allow both magnetos to function as normal. The pilot who is also the owner of the aircraft concluded that when the engine back-fired, he failed to deactivate the 3 Ignition system during the time available.

1.17 Organizational and Management Information

1.17.1 This was a private flight.

1.17.2 The aircraft was maintained by an approved Aircraft Maintenance Organisation (AMO) at the time of the accident.

1.18 Additional Information

1.18.1 The SACAA Aircraft file for the aircraft could not be located at all at the SACAA offices.

1.19 Useful or Effective Investigation Techniques

1.19.1 None considered necessary for this investigation

2. ANALYSIS

2.1 The pilot accompanied by a passenger was taking off from runway 17 at Rand aerodrome when the engine back-fired with a loss of power during the right hand climb turn and subsequently failed. The pilot was then committed to execute a forced landing on the grass covered surface between runway 35 and runway 11 at Rand aerodrome.

2.2 The pilot admitted that when the engine back-fired with a subsequent loss of power, he had the option to deactivate the Generation 3 Ignition system but failed to do so within the time available.

2.3 The aircraft was recovered to an AMO at Rand aerodrome for further investigation. It was found that there was sufficient fuel in the fuel tanks and the fuel was free from any contamination.

2.4 The carburettor was stripped and examined. The fuel that was still inside the carburettor bowl was found without any evidence of contamination.

3. CONCLUSION

3.1 Findings

3.1.1 The pilot was properly licenced and type rated on the aircraft type.

3.1.2 The pilot was the holder of a valid aviation medical certificate that was issued by a CAA approved medical examiner.

3.1.3 The pilot was committed to execute a forced landing on the grass covered surface between runway 29 and runway 11 during take-off after the engine back fired and failed.

3.1.4 The aircraft sustained substantial damage to the fuselage, landing gear and propeller.

3.1.5 The pilot and passenger were not injured during the impact sequence.

3.1.6 The Authority to Fly for the aircraft was valid at the time of the accident

3.2 Probable Cause/s

3.2.1 Unsuccessful forced landing following an engine failure.

3.3 Contributory Factor's

3.3.2 Pilot failed to deactivate the ignition system which would have converted the ignition system back to both the magneto's

4. SAFETY RECOMMENDATIONS

5. APPENDICES

5.1 None

Compiled by:

..... Date: ……..
For: Director of Civil Aviation

Investigator-in-charge: ……. Date: ……..

Co-Investigator: ……..……. Date: ……