



## AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8690	
<b>Aircraft Registration</b>	<b>ZS-OEG</b>	<b>Date of Accident</b>	2 September 2009	<b>Time of Accident</b>	1120Z	
<b>Type of Aircraft</b>	Mooney M20R		<b>Type of Operation</b>	Private		
<b>Pilot-in-command Licence Type</b>		Private	<b>Age</b>	42	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	3 070.55		Hours on Type	1 203.8
<b>Last point of departure</b>		Kuruman Aerodrome (FAKU)				
<b>Next point of intended landing</b>		Port Alfred Aerodrome (FAPA)				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Koffiefontein farm, 45 nautical miles from Kimberley, Northern Cape province. GPS position S 29°24.54" E 024°35.56"						
<b>Meteorological Information</b>		Surface wind: 270°/15-20 kts; Temperature: 30°C; Visibility: CAVOK				
<b>Number of people on board</b>	1 + 0	<b>No. of people injured</b>	0	<b>No. of people killed</b>	0	
<b>Synopsis</b>						
<p>The pilot reported that on 2 September 2009 at 0816Z, he took off from runway 20 at Kuruman Aerodrome on a visual flight rules flight to Port Alfred Aerodrome. On approach to Orania, approximately 50 nautical miles south-west of Kimberley, he smelt plastic burning and saw hazy smoke emanating from the passenger side at the back of the glare shield. He contacted Johannesburg Central on frequency 120.30 Mhz, requested to divert to Kimberley and was given a heading of 330 degrees. Kimberley ATC was informed about the problem. He then switched the master switches off.</p> <p>After this, the smoke became worse, and the pilot identified a farm landing strip to the east and decided to execute an emergency landing. After switching the masters on and informing Johannesburg Central accordingly, he declared an emergency. He approached the field from the west but realized it was downwind. He therefore turned right, lowered the undercarriage and landed normally, stopping 300 m from touchdown.</p> <p>He evacuated the aircraft and tried without success to extinguish the blaze. Ten minutes after landing, the fuselage was engulfed in flames and thick black smoke.</p>						
<b>Probable Cause</b>						
Aircraft destroyed by fire following a successful forced landing as a result of smoke in the cockpit.						
IARC Date				Release Date		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner/Operator** : Dr R F Odendaal Incorporated  
**Manufacturer** : Mooney  
**Model** : M20R  
**Nationality** : South African  
**Registration Marks** : ZS-OEG  
**Place** : Koffiefontein farm near Kimberley  
**Date** : 2 September 2009  
**Time** : 1120Z

*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 2 September 2009 at 0816Z, the pilot took off from runway 20 at Kuruman Aerodrome on a visual flight rules flight to Port Alfred Aerodrome. The aircraft had a total of four-and-a-half hours' fuel endurance plus reserves. The pilot climbed to 6 000 feet, contacted Johannesburg West and activated his flight plan. He was cleared to flight level 095. Fifteen minutes into the flight, the auto-pilot gave a trim warning and stopped working. The electric trim also stopped working and the pilot therefore disengaged the auto-pilot and pulled the circuit breaker to reset the auto pilot. This was not successful and he continued flying manually. He stated that he was not alarmed as this problem had occurred before with no effect other than the necessity of manual flight.
- 1.1.2 Near Orania, approximately 50 nautical miles south-west of Kimberley, he smelled plastic burning and saw hazy smoke emanating from the passenger side at the back of the glare shield. He contacted Johannesburg Central and requested to divert to Kimberley Aerodrome. He was given a heading of 330 degrees and Kimberley ATC was informed about the incident. After this, he switched off the master switches and continued to Kimberley
- 1.1.3 Although the engine was running normally, the smoke became worse. The pilot identified a landing strip to the east and decided to execute an emergency landing. He switched the master switches back on again, informed Johannesburg Central accordingly and declared an emergency. He approached the field from the west but

realised that it was downwind, so turned right and carried out a normal short-field landing, stopping 300 m from touchdown. There was no damage to the aircraft, but the smoke increased and turned dark.

1.1.4 The pilot evacuated the aircraft and emptied the fire extinguisher onto the avionics stack. But flames began pouring out, so he retrieved his personal belongings and retreated. Ten minutes after landing, the entire fuselage was engulfed in flames and thick black smoke,

1.1.5 The pilot received a phone call from Bloemfontein ATC, but declined medical help. He also declined fire services from Kimberley as they were two hours away and the aircraft was almost entirely ablaze. In due course the aircraft burnt out, and police, farmers and friends arrived.

## 1.2 Injuries to Persons

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

## 1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed by fire after landing.



**Figure 1.** The burnt-out aircraft.

## 1.4 Other Damage

1.4.1 None.

## 1.5 Personnel Information

Nationality	South African	Gender	Male	Age	42
Licence Number	*****	Licence Type	Private		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Tug pilot rating; Night rating and flight tests				
Medical Expiry Date	31 May 2010				
Restrictions	None				
Previous Accidents	None				

### Flying Experience

Total Hours	3 070.55
Total Past 90 Days	27.75
Total on Type Past 90 Days	22.95
Total on Type	1 203.8

## 1.6 Aircraft Information

### Airframe

Type	Mooney M20R	
Serial Number	29-0078	
Manufacturer	Mooney	
Date of Manufacture	1996	
Total Airframe Hours (At time of Accident)	820	
Last MPI (Date & Hours)	3 October 2008	734.3
Hours since Last MPI	85.7	
C of A (Issue Date)	28 June 2002	
C of R (Issue Date) (Present Owner)	11 May 2006	
Operating Categories	Standard	

1.6.1 The aircraft was involved in an accident on 7 July 2000 and, according to the report, was extensively damaged.

### Engine

Type	Continental 10-550-G
Serial Number	679182
Hours since New	820
Hours since Overhaul	TOB not reached

## Propeller

Type	McCauley 3A32C418
Serial Number	011649
Hours since New	515.0
Hours since Overhaul	91.3
Date of Overhaul	17 September 2008

### 1.6 Meteorological Information

1.6.1 The following information was provided by the pilot:

Wind direction	270°	Wind speed	15-20 kts	Visibility	CAVOK
Temperature	30°C	Cloud cover	CAVOK	Cloud base	No cloud
Dew point	-----				

### 1.8 Aids to Navigation

1.8.1 The aircraft was fitted with standard navigational aids certified for this type of aircraft. There was no record of equipment failure prior to the accident.

### 1.9 Communications

1.9.1 The aircraft were fitted with standard communication equipment for the aircraft type and no failures were reported before the accident. The pilot was in contact with Johannesburg Central and Bloemfontein ATC during the flight.

### 1.10 Aerodrome Information

1.10.1 The accident occurred on a maintained private airfield: Koffiefontein farm, 45 nautical miles from Kimberley (GPS position S 29°24.54" E 024°35.56")

### 1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a cockpit voice recorder (CVR) or a flight data recorder (FDR). Neither was a regulatory requirement for the aircraft.

### 1.11 Wreckage and Impact Information

1.11.1 A normal landing was carried out and the aircraft came to a stop 300 m from touchdown. There was no damage to the aircraft at that point, but the smoke increased and turned dark.



Figure 2. Rear view of the wreckage and air strip.

1.11.2 The pilot evacuated the aircraft and emptied the fire extinguisher upwards towards the aviation stack from the passenger side. But flames began pouring out, so he retrieved his personal belongings and retreated. Ten minutes after landing, the entire fuselage was engulfed in flames and thick black smoke.



Figure 3. Front view of the wreckage.

1.11.3 The fuselage burned from the front to the back, and the wings dropped after structural failure, followed by the engine and propeller. The fire was contained on the cabin side by the firewall.

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

1.13.1 None

### **1.14 Fire**

1.14.1 The pilot reported that post-impact fire, which destroyed the aircraft, took hold ten minutes after landing,

### **1.15 Survival Aspects**

1.15.1 The accident was considered survivable because the pilot executed a normal landing without any damage and evacuated the aircraft before the fire engulfed the aircraft.

### **1.16 Tests and Research**

1.16.1 None

### **1.17 Organisational and Management Information**

1.17.1 The aircraft was privately owned by the pilot-in-command.

1.17.2 The AMO who maintained the aircraft had a valid licence at the time of the accident. The last audit was conducted on 1 July 2009 and no major findings were identified by SACAA.

### **1.18 Additional Information**

1.18.1 The pilot reported that the autopilot had disengaged to manual on two previous occasions. Maintenance records were reviewed, and it was confirmed that in each case the autopilot computer had been removed, bench-tested, the trim logic set up and the pre-flight logic tested. On both occasions it was found to be satisfactory.

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

1.19.1 None

## **2. ANALYSIS**

- 2.1 The pilot was correctly licensed and was the holder of a valid flight medical certificate.
- 2.2 The aircraft was serviceable prior to the accident flight and there was no record of any malfunction or defect that could have contributed to, or caused, the accident. However, the autopilot had disengaged to manual on two previous occasions.
- 2.3 The prevailing weather conditions at the time were not considered to be a factor in the accident.
- 2.4 According to the pilot, a normal landing was made and the aircraft came to a stop 300 m from the point of touchdown. The pilot evacuated the aircraft and after ten minutes the fuselage was engulfed in flames.
- 2.5 The pilot reported that near Orania, approximately 50 nautical miles south-west of Kimberley, he smelled plastic burning and saw thin smoke emanating from the passenger side at the back of the glare shield. The cause of the smoke could not be determined, and the aircraft was destroyed by fire after landing.

## **3. CONCLUSION**

### **3.1 Findings**

- 3.1.1 The pilot was the holder of a valid private pilot's licence with the aircraft type endorsed in it.
- 3.1.2 There was no evidence of any pre-existing medical or behavioural condition that might have adversely affected the pilot's performance during the accident.
- 3.1.3 According to available records, the aircraft was serviceable prior to the accident flight and there was no history of any malfunctions that could have contributed to the accident.
- 3.1.4 Fifteen minutes into the flight, the auto pilot gave a trim warning and stopped working. The electric trim also stopped working, and the pilot therefore disengaged the auto pilot. He then pulled the circuit breaker to reset the auto pilot. This met with no success, and he continued in manual flight.
- 3.1.5 The pilot reported that near Orania, about 50 nautical miles south-west of Kimberley, he smelled plastic burning and saw thin smoke emanating from the passenger side at the back of the glare shield. After requesting a diversion to Kimberley, he switched the master switches off.
- 3.1.6 The smoke became worse, and he identified a landing strip to the east and decided to do an emergency landing. He switched the masters on, informed Johannesburg Central accordingly and declared an emergency. As he approached the field from the west, he realized that it was downwind, so he turned right, and made a normal landing, stopping 300 m from the first point of touchdown. There was no damage to the aircraft. However, the smoke increased and turned dark.



- 3.1.7 The pilot evacuated the aircraft, and emptied the fire extinguisher upwards towards the avionics stack from the passenger side. However, flames started to emerge so he salvaged his personal belongings and retreated.
- 3.1.8 The fuselage burned from the front to the back and was destroyed.

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

- 3.2.1 Aircraft destroyed by fire following a successful forced landing as a result of smoke in the cockpit.

## **4. SAFETY RECOMMENDATIONS**

- 4.1 None

## **5. APPENDICES**

- 5.1 None

Report reviewed and amended by the Advisory Safety Panel on 19 January 2010  
-END-