



Ref: 7950

**SOUTH AFRICAN CIVIL AVIATION AUTHORITY****ACCIDENT REPORT – EXECUTIVE SUMMARY**

<b>Aircraft Registration</b>	ZS-RHE	<b>Date of Accident</b>	23 April 2005	<b>Time of Accident</b>	0600Z
<b>Type of Aircraft</b>	ROBINSON R22 BETA		<b>Type of Operation</b>	Private	
<b>Pilot-in-command Licence Type</b>	Commercial	<b>Age</b>	55	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>	<b>Total Flying Hours</b>	10 350.0	<b>Hours on Type</b>	5 350.0	
<b>Last point of departure</b>	Babalela Conservancy near Beestekraal, North of Brits				
<b>Next point of intended landing</b>	Babalela Conservancy near Beestekraal, North of Brits				

**Location of the accident site with reference to easily defined geographical points (GPS readings if possible)**

Babalela Conservancy, (GPS position: South 25° 18' 18.0" East 027° 39' 24.3" elevation 3 650 feet AMSL)

<b>Meteorological Information</b>	Surface wind: SE/5kts, Temperature: 13°C, Cloud cover: 7/8 at 500 ft with recent light rain.				
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<b>Number of people on board</b>	1 + 0	<b>No. of people injured</b>	0	<b>No. of people killed</b>	0
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**Synopsis**

For the last 13 days the pilot was involved in a game capturing operation. On the morning of 23 April 2005 he carried out a pre-flight inspection of the aircraft. The pre-flight inspection was followed by a normal start. Lift-off was normal and he climbed to approximately 150 feet AGL (above ground level) for a short flight to a landing area near the "Plastic Boma". About 1 minute into the flight he noted a vibration through the tail section of the aircraft, simultaneously the clutch warning light illuminated faintly on and off in the cockpit. The clutch circuit breaker was deactivated, as referred to in the POH (Pilot Operating Handbook).

It was decided to carry out a controlled precautionary landing. Due to dense bush the pilot had to look for an appropriate landing area. While descending through 50 feet AGL the engine RPM increased very rapidly, with the engine RPM needle indicating above the red line. The rotor RPM needle indicated a rapid decrease, and the low rotor RPM warning sounded. The pilot then realised that he had lost all power to the main and tail rotor transmission, the pilot had very little time to cushion the landing.

A hard landing followed and the aircraft ended up against a tree. The pilot was not injured in the accident. He switched the engine off after the aircraft came to rest and closed the fuel shut-off lever. Assessing the damage to the aircraft after the pilot had disembarked it was noted that the engine-cooling fan had departed the aircraft in-flight, which was later located approximately 100-200m from the wreckage in the bush.

The aircraft was subjected to a major overhaul inspection (2200 hours) that was certified on 21 October 2004, at 4 090.9 airframe hours. The last MPI (Mandatory Periodic Inspection) that was certified on the aircraft prior to the accident was on 12 January 2005, at 4 185.7 airframe hours. Since the MPI was certified a further 78.8 hours were flown

**Probable Cause**

It would appear that the lower clutch actuator bearing had seized in operation due to lubrication failure. During rotation of the shaft within the bearing inner race frictional heating occurred resulting in the failure of the bearing, the bearing housing and the fan shaft. The failure of the shaft resulted in an engine over-speed condition and secondary engine damage, followed by a hard landing in dense bush type terrain.