



A00-034-7176

SOUTH AFRICAN CIVIL AVIATION AUTHORITY

ACCIDENT REPORT – EXECUTIVE SUMMARY

Date of Accident	30 March 2000	Time of Accident	0740Z	
Aircraft Registration	ZS-HMB	Type of Aircraft	Bell 206B	
Pilot-in-command Licence Type	Commercial		Licence Valid	Yes
Pilot-in-command Flying Experience	Total Flying Hours	4 919.0	Total Hours on Type	640.0
Type of Operation	International Charter Flight			
Last point of departure	FANS			
Next point of intended landing	FQMA (Maputo)			

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

Crocodile River Gorge (Nelspruit area)

Meteorological Information					
Number of people on board	1 + 3	No. of people injured	None	No. of people killed	None
Synopsis					

The pilot accompanied by three passengers was engaged in an international charter flight en route from Nelspruit to Maputo. While flying through the Crocodile Gorge to avoid cloudy conditions at higher levels there was a sudden bang and the helicopter yawed to the left. The pilot applied right rudder pedal to counter act the swing. At the same time the ENG OUT warning light illuminated followed by the ENG OUT Audio warning.

With the throttle still at full power the main rotor RPM was decreasing, the helicopter was established in autorotational flight. Due to the terrain limited-landing options were available and the pilot elected to land in an open area on the riverbank. During the descent the pilot noticed that the power turbine rpm was greater than the main rotor rpm. Due to recent recurrent training on type where they had discussed this exact scenario and symptoms he left the engine running until after the landing to maintain tail rotor control. During the descent he also noticed the ENG CHIP warning light illuminating.

On landing, one of the main rotor blades severed the tailboom and tail rotor drive shaft. On landing with the throttle still open the pilot observed that the engine Ng was at idle (58%) with the power turbine at 100% and the main rotor rpm at approximately 45% and decreasing. Once the main rotor blades stopped turning all the occupants disembarked uninjured. The main rotor brake was inoperative due to the failure of the input drive shaft coupling from the engine to the main rotor gearbox.

Probable Cause

The power transferred from the engine by the main drive shaft via the inner coupling to the outer coupling, combined with the relative movement between the two couplings causes the generation of heat.

The generation of excessive heat between the outer and inner coupling teeth mating faces is attributed to inadequate lubrication, resulting in seizure of the inner teeth mating faces and consequently fractures of the fixation bolts.