Aviation Safety Investigation Report 199000079

Hughes 269-C

26 March 1990

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 199000079 **Occurrence Type:** Accident
Location: Mt Wynne - 120km SE of Derby WA
Date: 26 March 1990 **Time:** 530
Highest Injury Level: Nil
Injuries:

	Fatal	Serious	Minor	None
Crew	0	0	1	1
Ground	0	0	0	-
Passenger	0	0	0	0
Total	**0**	**0**	**0**	**1**

Aircraft Details: Hughes 269-C
Registration: VH-CHV
Serial Number: 1030246
Operation Type: Aerial Work
Damage Level: Substantial
Departure Point: Liveringa WA
Departure Time: 0500
Destination: Fitzroy Crossing WA

Approved for Release: 18th July 1991

Circumstances:

The aircraft was cruising at 1500 feet above ground level when the engine lost power. As the engine stopped there was a cloud of white smoke and a loud noise. The pilot lowered the collective control and as the aircraft entered autorotation he turned through 180 degrees to make an approach into the only reasonable area. The surface conditions were rougher than the pilot had expected and whilst attempting to reduce forward speed for the landing he misjudged the altitude and the tail struck the ground. The pilot had not completed an autorotational approach and landing for approximately two years although he had completed an autorotational approach, with power recovery prior to landing, about four months before the accident. The engine failure was caused by a fractured crankshaft. The fracture followed the growth of a fatigue crack in the No. 4 connecting rod journal. It was apparent that the bearing shells fitted to the big end of the No. 4 connecting rod had rotated in their housing and had moved forward to contact the forward fillet radius of the No. 4 connecting rod journal. Fatigue crack initiation occurred as a result of the damage caused by the contact of the rotating bearing shells. The fatigue cracking had occurred during the fourteen hour period of operation since the last overhaul. Fretting damage on the mating surfaces of the No. 4 connecting rod big end bearing housing indicates that the clamping force achieved by the connecting rod bolts had been poor thus allowing the bearing shells to move. Other deficiencies, in the way in which the engine was assembled and which were not connected with the engine failure, were found. Although some of the deficiencies may have been caused at the time of the crankshaft failure, others indicated that the engine may have been delivered to the operator, following the overhaul, in a defective condition.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. It was possible that the engine overhaul had not been completed correctly. Indicated by the deficiencies found during the post accident investigation.

2. There was a fatigue failure of the crankshaft causing complete engine failure.

3. The pilot misjudged the aircraft's altitude during the termination of the autorotational descent and he was unable to prevent the aircraft's tail from striking the ground.

4. The landing area terrain was rough and uneven.