



National Transportation Safety Board Aviation Accident Data Summary

Location:	Kalispell, MT	Accident Number:	SEA07FA014
Date & Time:	11/02/2006, 2055 MST	Registration:	N407KH
Aircraft:	Bell 407	Injuries:	3 None
Flight Conducted Under:	Part 91: General Aviation - Positioning - Air Medical (Medical Emergency)		

Analysis

While conducting EMS operations the helicopter sustained substantial damage after a loss of engine power, autorotation, and forced landing. The pilot reported hearing a loud bang, followed by the engine spooling down. The helicopter collided with a chain link fence during the forced landing sequence. Postaccident inspection of the engine revealed an uncontained second stage turbine wheel burst (on-speed) as a result of oil starvation and subsequent bearing failure. During the onsite examination, fresh oil residue was noted along the right side of the helicopter's fuselage, tail boom assembly and leading edges of the tail rotor blades. Oil wetting and staining was also observed on the concrete hangar apron, and a trail of fresh oil extended from apron to the helipad where the helicopter departed. Additionally, onsite investigators noted that the oil pressure transducer line coupling B-nut (near the foreword bulkhead) was found two flats loose, and four complete rotations from complete separation. Evidence of oil loss, sooting and localized fire damage was observed in the area of the fitting union. The accident flight was the helicopter's first flight following the completion of a maintenance action item in the general area of the aforementioned fitting. Following the maintenance action, an engine run (ground) and post run inspection was completed by a line pilot. No discrepancies were noted and the helicopter was returned to service. The mechanic who performed the maintenance action was not present during the post run inspection.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: On-speed failure of the second stage turbine wheel as the result of engine oil starvation. The lack of maintenance oversight was a contributing factor.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: CLIMB

Findings

1. (C) TURBINE ASSEMBLY, TURBINE WHEEL - BURST
2. (F) FLUID, OIL - STARVATION
3. (F) MAINTENANCE, INSPECTION - INADEQUATE - COMPANY MAINTENANCE PERSONNEL
4. TURBINE ASSEMBLY, SHAFT BEARING - FAILURE

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: LANDING

Findings

5. OBJECT - FENCE

Pilot Information

Certificate:	Commercial; Military	Age:	39
Airplane Rating(s):	Single-engine Land	Instrument Rating(s):	Helicopter
Other Aircraft Rating(s):	Helicopter	Instructor Rating(s):	
Flight Time:	3000 hours (Total, all aircraft), 593 hours (Total, this make and model), 2500 hours (Pilot In Command, all aircraft), 43 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Bell	Registration:	N407KH
Model/Series:	407	Engines:	1 Turbo Shaft
Operator:	Kalispell Regional Medical Center	Engine Manufacturer:	Rolls-Royce
Air Carrier Operating Certificate:	On-demand Air Taxi (135)	Engine Model/Series:	250 C47
Flight Conducted Under:	Part 91: General Aviation - Positioning - Air Medical (Medical Emergency)		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	KGPI, 2977 ft msl	Weather Information Source:	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	Overcast / 1700 ft agl
Condition of Light:	Night/Dark	Wind Speed/Gusts, Direction:	
Temperature:	-2° C / -3° C	Visibility	2 Miles
Precipitation and Obscuration:	Light - Showers - Snow		
Departure Point:	KALISPELL, MT (MT28)	Destination:	Kalispell, MT

Airport Information

Airport:	KALISPELL REGIONAL HOSPITAL (MT28)	Runway Surface Type:	Concrete; Grass/turf; Gravel
Runway Used:	H	Runway Surface Condition:	Dry; Snow
Runway Length/Width:			

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	In-Flight
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC): Dennis J Hogenson

Adopted Date: 11/29/2007

Investigation Docket: NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

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