



National Transportation Safety Board Aviation Accident Final Report

Location:	KAMUELA, HI	Accident Number:	LAX96LA104
Date & Time:	02/01/1996, 1240 HST	Registration:	N90194
Aircraft:	Bell 206BIII	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

The pilot experienced two engine chip warning light illuminations while conducting local air tours. After the second warning light illumination, the operator instructed the pilot to ferry the helicopter to the company's maintenance base. The engine sustained a total loss of power while en route to the maintenance facility and the pilot executed an emergency landing. The helicopter sustained a hard landing. The engine examination disclosed that the nose case (No. 1) bearing failed and the engine sustained a catastrophic failure due to oil starvation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: failure of the nose case (No.1) bearing resulting in oil starvation.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE

Findings

1. (C) ENGINE ASSEMBLY,BEARING - FAILURE,TOTAL
2. (C) FLUID,OIL - STARVATION

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

3. AUTOROTATION - PERFORMED - PILOT IN COMMAND

Occurrence #3: HARD LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Factual Information

On February 1, 1996, at 1240 hours Hawaiian standard time, a Bell 206BIII Helicopter, N90194, experienced a hard landing while executing an emergency autorotation near Kamuela, Hawaii. The pilot was conducting a visual flight rules positioning flight to Waimea-Kohala Airport, Kamuela, at the time of the accident. The helicopter, registered to and operated by Kenai Air Hawaii, Inc., Kailua Kona, Hawaii, sustained substantial damage. The certificated commercial pilot, the sole occupant, was not injured. Visual meteorological conditions prevailed. The flight originated at Hilo International Airport, Hilo, Hawaii, at 1205 hours.

The investigating FAA inspector reported the engine nose case (No. 1) bearing failed and the entire rotating group seized. He also said that the pilot reported that the helicopter experienced metal chip detector warning lights on two previous flights.

The pilot reported in the accident report that he had been assigned to fly a tour flight schedule on the accident date. He departed Keahole Airport, Kailua Kona, at 0800 and arrived at Hilo Airport at 0836 in another helicopter.

He departed Hilo Airport in the accident helicopter on a tour flight at 0910. When returning from the tour flight, about 0950, the engine chip light illuminated. After landing at Hilo Airport, a mechanic removed the upper engine chip plug. The plug contained a small "metal flaking/fuzz" particle. The chip light did not illuminate during a post maintenance engine run-up.

The pilot departed on another tour flight at 1040. The engine chip light again illuminated during the return flight, about 1125. The mechanic removed the upper engine chip plug and found that it again contained a small "metal flaking/fuzz" particle.

The company management decided that the helicopter should not be used for further tour flights and that it should be ferried to Keahole Airport, the company's principal maintenance facility.

Selected portions of the pilot's written statement follows:

I departed Hilo Airport at 1205 local northwest bound and passing Honokaa I turned toward Waimea Airport climbing to 3,600 Ft. msl. Passing southeast of Lakeland, the ENG Chip light illuminated. [The] engine oil pressure began to fluctuate between 50 - 100 psi while the engine oil temperature remained constant at 95C [95 degrees Celsius]. [The] engine torque pressure began to fluctuate with the engine oil pressure. Two (2) minutes later the TOT [Total Oil Temperature] rose to 750 degrees at 70 percent torque. I then felt a slight shudder and brief vibration [which was] later determined probably caused by a windshear line (normal in this area). [The] TOT [gauge] then went to 800 degrees at minimum torque. I was approximately 1 1/2 miles east of the Waimea runway and turned directly toward the runway. After the turn I smelled what seemed to be hot oil, followed by initial [main] rotor decay. I entered autorotation at 3,000 Ft. msl indicated. After entry the LOW ROTOR RPM warning horn, followed by the ENGINE OUT warning horn, sounded. I maintained my autorotative descent and flared at 50 Ft. agl [above ground level] and applied full collective. [The] rotor RPM had deteriorated to 50 percent to full application, not much cushioning, resulting in a hard autorotative landing at 1240 local 1/2 mile southeast of midfield at Waimea Airport.

The engine was sent to Allison for examination. The disassembly examination revealed the

engine sustained a catastrophic failure due to oil starvation. According to an Allison representative, the oil starvation resulted from the failure of the nose case bearing.

Pilot Information

Certificate:	Commercial	Age:	59, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	05/02/1995
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	9984 hours (Total, all aircraft), 5714 hours (Total, this make and model), 9230 hours (Pilot In Command, all aircraft), 183 hours (Last 90 days, all aircraft), 52 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N90194
Model/Series:	206BIII 206BIII	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	1697
Landing Gear Type:	High Skid	Seats:	4
Date/Type of Last Inspection:	01/20/1996, AAIP	Certified Max Gross Wt.:	3200 lbs
Time Since Last Inspection:	24 Hours	Engines:	1 Turbo Shaft
Airframe Total Time:	17094 Hours	Engine Manufacturer:	Allison
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	250C20
Registered Owner:	KENAI AIR HAWAII, INC.	Rated Power:	420 hp
Operator:	KENAI AIR HAWAII, INC.	Operating Certificate(s) Held:	On-demand Air Taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 4000 ft agl	Visibility	15 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	225°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	27° C
Precipitation and Obscuration:			
Departure Point:	HILO, HI (IT0)	Type of Flight Plan Filed:	None
Destination:	(MUE)	Type of Clearance:	None
Departure Time:	1205 HST	Type of Airspace:	Class G

Airport Information

Airport:	WAIMEA-KOHALA (MUE)	Runway Surface Type:	
Airport Elevation:	2671 ft	Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	A. D LLORENTE	Report Date:	09/24/1996
Additional Participating Persons:	STEVEN DOUGLAS; HONOLULU, HI		
Publish Date:			
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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