



National Transportation Safety Board Aviation Accident Final Report

Location:	Akiachak, AK	Accident Number:	ANC09LA065
Date & Time:	07/11/2009, 1300 AKD	Registration:	N225BL
Aircraft:	NOORDUYN UC-64A	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	2 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The airline transport pilot was on a Title 14, CFR Part 135 passenger flight. The pilot said during cruise flight he heard a loud bang, and the engine started running rough. He said he diverted to the nearest airport, but the engine quit completely, and he was unable to reach the runway. The airplane subsequently collided with terrain, sustaining substantial damage to both wings and the fuselage. An examination of the engine revealed that a locking screw had backed out of one of the anti-vibration counterweights on the crankshaft, scoring the interior back surface of the engine case. The unsecured counterweight then moved from its position in the crankshaft, and was likely struck by the engine's master rod, which shattered the weight, and liberated it from its normal location. The liberated counterweight was struck by internal moving parts, creating several component failures, and ultimately an engine seizure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to the failure of a crankshaft component, resulting in an off-airport landing.

Findings

Aircraft	Engine (reciprocating) - Malfunction (Cause)
Environmental issues	Rough terrain - Contributed to outcome

Factual Information

On July 11, 2009, about 1300 Alaska daylight time, a Noordyun UC-64A (Norseman) airplane, N225BL, sustained substantial damage following a loss of engine power and an emergency landing about 300 feet short of runway 1 at the Akiachak Airport, Akiachak, Alaska. The airplane was being operated as a visual flight rules (VFR) passenger flight under Title 14, CFR Part 135, by Renfro's Alaska Adventures, Bethel, Alaska. The pilot and sole passenger were not injured. Visual meteorological conditions prevailed, and company flight following procedures were in effect.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on July 12, the pilot said he was flying from Bethel to Tuluksak, Alaska, when the engine started to run rough. He said he diverted to Akiachak which was near their position. The pilot said the engine quit completely, and he was unable to reach the runway. The airplane collided with terrain about 300 feet short of runway 1. The pilot said the engine had been rebuilt about 100 flight hours prior to the accident, after developing problems following a previous rebuild. He said that the airplane sustained substantial damage to both wings and the fuselage during the accident.

An internal examination of the engine by the NTSB IIC on November 6, showed that a locking screw had backed out of one of the two anti-vibration counterweights on the crankshaft, and scored the interior back surface of the engine case. The locking screw was not located. The engine case and oil passages had fractured metal pieces from piston skirts, piston rings, and ground pieces of connecting rods. A large part of the crankshaft counterweight and half of bolt that normally secures the counterweight halves were found in a piston cylinder. The other half of the counterweight was found in the crankcase; it was fractured into three large and many smaller pieces. The second counterweight was still bolted in its proper place. Piston heads were found in the crankcase, and the engine's master rod was bent.

History of Flight

Enroute-cruise	Loss of engine power (total) (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	39, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	01/31/2009
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	04/01/2009
Flight Time:	8500 hours (Total, all aircraft), 100 hours (Total, this make and model), 7200 hours (Pilot In Command, all aircraft), 180 hours (Last 90 days, all aircraft), 100 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	NOORDUYN	Registration:	N225BL
Model/Series:	UC-64A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	542
Landing Gear Type:	Tailwheel	Seats:	9
Date/Type of Last Inspection:	05/06/2009, 100 Hour	Certified Max Gross Wt.:	7540 lbs
Time Since Last Inspection:	20 Hours	Engines:	1 Reciprocating
Airframe Total Time:	15729 Hours at time of accident	Engine Manufacturer:	P&W
ELT:	C91A installed, not activated	Engine Model/Series:	R1340 SERIES
Registered Owner:	RENFRO MICHAEL W	Rated Power:	600 hp
Operator:	RENFRO MICHAEL W	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	Renfro's Alaskan Adventures	Operator Designator Code:	R59C

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	40 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	16 °C
Precipitation and Obscuration:			
Departure Point:	Bethel, AK (PABE)	Type of Flight Plan Filed:	Company VFR
Destination:	Tuluksak, AK (TLT)	Type of Clearance:	None
Departure Time:	1200 AST	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	60.905833, -161.426389

Administrative Information

Investigator In Charge (IIC):	Lawrence Lewis	Report Date:	05/11/2010
Additional Participating Persons:	Ken Clark; FAA FSDO-03; Anchorage, AK		
Publish Date:	05/10/2010		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=74291		

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