Aviation Investigation Final Report

Location:	Kula, Hawaii	**Accident Number:**	LAX05FA011
Date & Time:	October 17, 2004, 21:24 Local	**Registration:**	N7049L
Aircraft:	Cessna 310K	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

About seven minutes after takeoff, the airplane impacted a volcanic mountain at the 3,750-foot level. Recorded radar data showed that after departure, the airplane made a turn towards the accident site, and made a steady climb to 3,600 feet on a heading of about 143 degrees. Radar data showed that the flight track was steady and level, and the last 2 minutes of flight were at 3,600 feet. Radio communications between the pilot and tower controllers were normal, and the pilot made no distress calls prior to the accident. The weather was clear beneath a high overcast, with a dark night, and no moon. Examination of the airframe revealed no discrepancies with the flight controls. Both engines were examined, with no mechanical anomalies noted that would have precluded normal operations, and abundant evidence of symmetrical power being developed at impact.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to maintain adequate clearance from mountainous terrain during cruise flight. A factor in the accident was the dark night lighting conditions.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: CRUISE

Findings

1. (F) LIGHT CONDITION - DARK NIGHT
2. TERRAIN CONDITION - MOUNTAINOUS/HILLY
3. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On October 17, 2004, at 2124 Hawaiian standard time, a twin-engine Cessna 310K, N7049L, impacted terrain during the climb to cruise altitude 13 miles southeast of Kahului Airport (OGG), Kahului, Hawaii, on the northwest side of the Haleakala volcano in Kula. The owner/pilot operated the airplane under the provisions of 14 CFR Part 91. The post impact fire destroyed the airplane. The airline transport pilot, the sole occupant, sustained fatal injuries. Visual meteorological conditions prevailed for the cross-country flight from Kahului to Kona International Airport at Keahole (KOA), Kailua-Kona, Hawaii, which departed about 2118. No flight plan had been filed.

According to witnesses near the accident site, the weather was clear and dark, with no moon. One witness reported seeing lights on the wings of an airplane, about 3,000 feet. About 2 minutes later, he heard and saw an explosion.

Maui County Police Department received the first 911 calls at 2126, regarding an explosion near the old Thompson Ranch (Ulupalakua area), with more calls received shortly thereafter. Maui County Fire Department located the accident site about 2200.

According to a close friend of the pilot, the pilot had flown passengers from Honolulu International Airport (HNL), Oahu, Hawaii, to Molokai Airport (MKK), Kaunakakai, Hawaii, on October 2, 2004. On October 11, 2004, the pilot flew the passengers (customers) from Molokai to Kona for the Ironman triathlon. The pilot had spent the last week on Kona providing tours to family members of the triathlon athletes. Trips included flights around the Big Island to Kilauea to view the lava flows, and day trips to Maui and Molokai. On the evening of the accident the pilot had flown two passengers to Maui. The friend indicated that the pilot was returning to Kona to transport more passengers on Monday from Kona to Maui. The friend also mentioned that about mid-week the pilot had gotten a cold and was not participating in the after hours activities that were planned for the athletes.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed the pilot held an airline transport pilot certificate with commercial privileges for airplane single engine land and sea, and glider. The pilot also held a certified flight instructor certificate with ratings for airplane single and multiengine land, instrument airplane, and glider.

The pilot held a first-class medical certificate issued on September 3, 2003. It had the limitation that the pilot must wear corrective lenses. On his medical application, he reported

an estimated total time of 15,000 hours, with an estimated 175 hours flown in the past 6 months.

An examination of the pilot's logbook indicated an estimated total flight time of 10,341.0 hours. He had an estimated 246 hours in the accident make and model. The last entry in the pilot's logbook was dated April 20, 2004.

AIRCRAFT INFORMATION

The airplane was a 1966 Cessna 310K, serial number 310K0149. A review of the airplane's logbooks revealed a total airframe time of 5,875.5 hours at the last annual inspection. An annual inspection was completed on December 20, 2003.

The airplane had a Teledyne Continental Motors IO-470-VO engine, serial number 118258-70-V-C, installed on the left side. Total time on the engine at the last annual inspection was 3,601.0 hours, with 754.5 hours since major overhaul.

The airplane had a Teledyne Continental Motors IO-470-V(2) engine, serial number 170426-73-U-R, installed on the right side. Total time on the engine at the last annual inspection was 3,601.0 hours, with 754.5 hours since major overhaul.

Fueling records from Air Service Hawaii at OGG, established that the airplane was last fueled on October 17, 2004, with the addition of 59.78 gallons of 100LL-octane aviation fuel. Examination of the maintenance and flight department records revealed no unresolved maintenance discrepancies against the airplane prior to departure.

COMMUNICATIONS

The Federal Aviation Administration (FAA) reviewed taped radio communications for the accident flight. At 2113, the pilot received a clearance from a ground controller to taxi to the runway. At 2118, the pilot departed Kahului airport and the tower controller instructed him to turn to a heading of 165 degrees, and to climb and maintain 1,000 feet. At 2118:30, the pilot checked in with Honolulu Center (Control) Facility (HCF); they gave him radar advisories, and told him that his altitude was at his discretion. At 2121, he switched to another HCF frequency and the pilot radioed that he was leaving 3,000 feet. At 2124, HCF lost radar and radio contact.

According to tower personnel at 2121, the pilot made a request that the controller could not understand. He asked the pilot to repeat himself, and the pilot again was unreadable. The controller asked the pilot to repeat his request, and the pilot requested advisories from center. The controller gave him another frequency for center. The pilot checked in with center and radar showed the accident airplane climbing through 3,000 feet.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board investigator-in-charge (IIC), FAA inspectors, Cessna Aircraft Company, and Teledyne Continental Motors, who were parties to the investigation, examined the airframe and engines on scene on October 20, 2004.

The accident site was at the 3,750-foot level of the Haleakala volcano on rising terrain, on a 30-degree slope, at Global Positioning System (GPS) coordinates of 20 degrees 40.82 minutes north latitude and 156 degrees 21.369 minutes west longitude. The airplane came to rest on its belly on a magnetic bearing of 284 degrees. The first identified point of contact (FIPC), a 4-foot berm, was 210 feet below the main wreckage, at an elevation of 3,700 feet. The pilot had been ejected from the airplane and came to rest about 50-feet upslope of the FIPC.

The post impact fire destroyed the airplane cockpit and cabin area. Investigators established flight control continuity from the cockpit to the ailerons and flaps, and the elevator and rudder.

Investigators visually examined both engines with no obvious defects noted that would have precluded normal operation.

Left Engine

The left engine remained connected to its engine mounts and had been forced into the firewall. The engine had sustained thermal damage from the post impact fire. The right top ignition harness leads were burned. The bottom front portion of the case had been aft. The oil sump, exhaust, and induction tubing had all been crushed and broken. The top spark plugs were removed. According to the Champion Aviation Check-A-Plug Chart AV-27, the plugs were worn but serviceable. Manual rotation produced thumb compression in firing order and spark at the top ignition leads.

Right Engine

The right engine remained connected to its engine mounts and had been forced into the firewall. The engine had sustained thermal damage from the post impact fire. The bottom front portion of the case had been crushed aft. The oil sump, exhaust, and induction tubing had all been crushed and broken. The starter had broken from its mounting pad, and the propeller flange had separated from the crankshaft. The top spark plugs were removed. According to the Champion Aviation Check-A-Plug Chart AV-27, the plugs were worn but serviceable. Manual rotation produced thumb compression in firing order and spark at the top ignition leads.

Investigators examined both engines' propellers. Both the left and right propeller blades showed similar impact damage. All of the propeller blades were bowed and showed s-bending, chordwise scratching, and leading edge gouging. The left propeller hub had been stripped from its mounting bolts. The right propeller hub had separated from the engine, and the crankshaft flange remained bolted to the hub.

MEDICAL AND PATHOLOGICAL INFORMATION

The Maui Memorial Medical Center Department of Pathology conducted an autopsy on the pilot on October 18, 2004. The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed a toxicological analysis from samples obtained during the autopsy. The results of analysis of the specimens were negative for carbon monoxide, cyanide, and volatiles.

The report contained the following positive results for tested drugs:
0.016 (ug/ml, ug/g) Chlorpheniramine detected in blood
Chlorpheniramine present in urine
Dextrorphan not detected in blood
Dextrorphan present in urine
Dextromethorphan not detected in blood
Dextromethorphan detected in urine
Pseudoephedrine detected in blood
Pseudoephedrine present in urine

TESTS AND RESEARCH

A discrete transponder code was issued to the flight. The radar track showed the flight departing OGG, with a turn towards the south. The airplane's radar track was identified at 2117, at an altitude of 400 feet. The airplane climbed to an altitude of 3,600 feet at 2122, and remained at that altitude until the radar target was terminated at 2124. The entire flight was identified by HCF and showed a straight-line track to the accident site, and lasted approximately 7 minutes. The average rate of climb was 676 feet per minute on a magnetic heading of 143 degrees.

ADDITIONAL INFORMATION

The IIC released the wreckage to the owner's representative.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor; Private	**Age:**	54,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1	**Last FAA Medical Exam:**	September 1, 2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	10341 hours (Total, all aircraft), 246 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N7049L
Model/Series:	310K	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	310K0149
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	November 1, 2003 Annual	**Certified Max Gross Wt.:**	5200 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	5875.5 Hrs as of last inspection	**Engine Manufacturer:**	Teledyne Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-470-VO
Registered Owner:	WardAir Aviation, Inc.	**Rated Power:**	260 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	OGG,54 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	20:54 Local	**Direction from Accident Site:**	315°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 7500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	25°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kahului, HI (OGG)	**Type of Flight Plan Filed:**	None
Destination:	Kailua-Kona, HI (KOA)	**Type of Clearance:**	VFR
Departure Time:	21:18 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	20.680276,-156.356109

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Ed Santa Elena; Federal Aviation Administration; Honolulu, HI Henry Soderlund; Cessna Aircraft Company; Wichita, KS Scott Boyle; Teledyne Continental Motors; Mobile, AL
Original Publish Date:	September 14, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60368