



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Kodiak, AK	<b>Accident Number:</b>	ANC11FA107
<b>Date &amp; Time:</b>	09/23/2011, 1930 AKD	<b>Registration:</b>	N361TT
<b>Aircraft:</b>	DEHAVILLAND DHC-3T	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal, 1 Serious, 1 Minor
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

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## Analysis

According to a passenger who was seated in the front, right seat, as the flight progressed toward the destination, the pilot decided to make an unscheduled landing at a lake that was surrounded by rising terrain. The passenger said that after making an easterly approach to the lake, before touching down, the pilot initiated a go-around. The passenger said they flew low over the surface of the lake toward a “V” shaped notch formed by a creek with hills on either side at the east end of the lake. He said that while flying through the notch, he thought the left wing of the airplane had hit the hillside. He said the pilot reacted by pulling back hard on the control yoke and rolling the airplane to the right. The airplane entered a steep climb, it began to shake, and stall warning horn sounded. The airplane then rolled left into a steep descent and impacted the ground in a nose-down attitude. The airplane’s left wing had impacted a tree on the creek bank prior to the crash. A postaccident examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

Toxicological tests detected the pilot’s recent use of over-the-counter medications used for relief of cold and flu symptoms. Two of these medications are sedating. The use of these sedating medications on the day of the accident or the underlying illness may have affected the pilot’s performance. Given the lack of mechanical deficiencies with the airplane, and the passenger’s account of the accident, it is likely the pilot failed to maintain adequate clearance with a tree while performing a low altitude maneuver following a go-around.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot’s failure to maintain clearance from a tree during a low altitude maneuver and his failure to maintain control of the airplane. Contributing to the accident was the pilot’s use of over-the-counter sedating medications.

## Findings

<b>Aircraft</b>	Altitude - Not attained/maintained (Cause)
<b>Personnel issues</b>	OTC medication - Pilot (Factor) Aircraft control - Pilot (Cause)

## Factual Information

### HISTORY OF FLIGHT

On September 23, 2011, about 1930 Alaska daylight time, a single engine, turbine-powered, amphibious float-equipped de Havilland DHC-3T airplane, N361TT, sustained substantial damage during a go-around and subsequent low altitude maneuver at Heitman Lake, about 5 miles south-southwest of Kodiak, Alaska. The airplane was being operated by Paklook Air Inc., Kodiak, as a visual flight rules (VFR) on-demand air taxi flight, under the provisions of 14 Code of Federal Regulations Part 135, when the accident occurred. Of the three people aboard, the commercial pilot sustained fatal injuries, one passenger received serious injuries, and the remaining passenger received minor injuries. Visual meteorological conditions prevailed, and company flight following procedures were in effect. The airplane departed Old Harbor, Alaska, bound for Kodiak, about 1905.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on September 23, an agent for the operator said that a passenger on the airplane reported that during a go-around on a lake, the airplane struck a tree on the shoreline and crashed. The passenger was able to make a cellphone call, and report the accident to authorities.

On September 24, the NTSB IIC and a Federal Aviation Administration (FAA) operations inspector from the Anchorage Flight Standards District Office (FSDO) examined the airplane at the crash site. The NTSB IIC noted evidence of the tree strike. The airplane collided with terrain in a steep, nose-low attitude, about 200 feet past the tree.

On September 24, during an interview with the NTSB IIC, the passenger in the rear passenger cabin said he boarded the airplane at Old Harbor. He said during the flight he knew that the airplane had descended and was flying over the surface of the lake. He did not know what had happened until he exited the wreckage.

On September 27, during an interview with the NTSB IIC, the front right seat passenger said that he was an employee of the company, and had accompanied the pilot to Old Harbor. At Old Harbor they picked up one passenger, and headed to Kodiak. He said that during the flight to Kodiak the pilot decided to land at Heitman Lake, for no particular reason. The passenger said after making an approach to the lake, but before touching down, the pilot decided to proceed to Kodiak without landing. He said the pilot flew low over the surface of the lake toward the "V" shaped notch at the east end of the lake. He said that as the airplane flew through the notch, he thought the left wing of the airplane had hit the hillside, but he didn't see the tree. He said that after the initial impact the pilot reacted by pulling back hard on the control yoke and rolling the airplane to the right. As the airplane entered a steep climb, it began to shake, and he heard the stall warning horn come on. The airplane then rolled left before entering into a steep, nose down descent, which was followed by an impact with the ground.

### INJURIES TO PERSONS

The pilot sustained fatal injuries. The right front seat passenger was seriously injured, and the passenger in the rear cabin received minor injuries.

### DAMAGE TO AIRCRAFT

The airplane sustained substantial damage to the wings and fuselage.

## PERSONNEL INFORMATION

The 49 year old pilot held a commercial pilot certificate, with ratings for airplane single-engine land, airplane single-engine sea, and instrument airplane. He was issued a second class FAA medical certificate on May 2, 2011, with limitations to wear corrective lenses for distance vision, and have lenses available for near vision.

In the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1) submitted by the operator, the pilot's total aeronautical experience was listed as 3,000 hours, with 280 hours in the accident airplane make and model. He had flown 180 hours in the previous 90 days, including 6 hours the day of the accident. The accident flight was his third flight of the day. The pilot had completed a required biennial flight review or equivalent on July 1, 2011.

## AIRCRAFT INFORMATION

The accident airplane was a de Havilland DHC-3, which was manufactured in 1952. The airplane had been modified under a supplemental type certificate (STC) SA 09866SC, for the installation of a 900 shaft horsepower, Honeywell TPE-331 turboprop engine by Texas Turbine Conversions, Inc., Denison, Texas. The engine was installed on June 6, 2003. The airplane was maintained under an Approved Airplane Inspection Program (AAIP), and at the most recent inspection, the engine had 3,424.0 hours. The airplane was also equipped with amphibious floats.

The last required inspection of the airplane was completed on June 10, 2011. Examinations of the airplane, engine, and propeller logbooks did not reveal any mechanical anomalies or concerns.

## METEOROLOGICAL INFORMATION

The accident occurred during daylight hours. The closest weather reporting facility was at the Kodiak Airport, Kodiak, about 5 miles north-northeast of the accident site. The Meteorological Terminal Air Report (METAR) at 1953 ADT was reporting, in part: sky condition, broken at 4,500 feet; temperature, 48; dew point 43 degrees F; altimeter 29.34 inHg; wind 260 degrees true at 4 knots.

## AIDS TO NAVIGATION

No aids to navigation were involved in this accident.

## FLIGHT RECORDERS

The pilot had a Garmin GPSMAP 696, which was recovered from the wreckage. The Garmin GPS was examined at the NTSB Recorder Laboratory, and data recovered from it showed the track of the accident flight. Track data includes latitude, longitude, GPS altitude (height above ground), groundspeed, and track heading. The data points are 10-15 seconds apart.

The track data showed the airplane depart Old Harbor, en route to Kodiak. About 5 miles south-southwest of Kodiak, the airplane descended toward the west end of Heitman Lake. Once over the lake, the airplane turned toward the east end of the lake while descending. About midpoint on the lake, the last data point shows the airplane descending toward the surface of the lake, in the direction of the creek (outlet) at the east end of the lake, and the airplane had slowed to 64 knots of groundspeed. At the east end of the lake there is a creek outlet, with

descending terrain beyond.

## WRECKAGE AND IMPACT INFORMATION

All of the airplane's major components were found at the main wreckage site. The airplane wreckage was located on a hillside, on the north side of a creek originating from the east end of Heitman Lake. The wreckage was about 300 feet east of the lake. The lake's elevation is about 900 feet above sea level, and the terrain is predominately rolling hills with sparse tree cover. The creek runs predominately west to east, and forms a "V" notch at the east end of the lake.

A single evergreen tree on the hillside, on the north side of the creek, about 20 vertical feet above the creek, is believed to be the initial point of impact. The tree was within the "V" notch created by the hills on either side of the creek. The terrain beyond the "V" notch descends steeply from the lake toward the Island's coast. Orange paint chips were found at the base of the tree. The distance between the initial impact point and the main wreckage site was about 200 feet.

The airplane impacted the ground nose first in a near vertical attitude, creating an impact signature slightly larger than the diameter of the propeller. The left wing had broken away at the wing root, but remained with the airplane. The left wing leading edge had an impact mark, about 18 inches from the tip. The impact area on the wing was painted orange, and orange paint chips found at the base of the lone evergreen tree were physically matched with missing paint at the wing's point of impact.

Aside from the single impact mark on the left wing the remainder of the leftwing leading edge, and the right wing leading edge were relatively undamaged.

The upper leading edges of the wing flaps were creased, consistent with the flaps being extended during impact.

The airplane impacted on its nose and the tip of both floats. The tips of both floats showed impact damage, and the retractable land wheels were retracted. The float support structure had collapsed.

The nose of the airplane had been crushed aft, and the engine and support structure intruded into the cockpit. The cockpit was open to the elements.

The aft passenger cabin was relatively intact, and the empennage was bent at the aft passenger cabin bulkhead. The tail was intact, however the left horizontal and elevator were pushed inward toward the fuselage when the wreckage landed on its left side.

Control continuity was established for all controls.

The engine had plastic folding of the exhaust manifold, and the propeller blades had extreme longitudinal bending, leading edge gouging, and torsional twisting.

There were no preaccident mechanical problems discovered during the NTSB IIC's on-scene wreckage examination.

## MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Alaska State Medical Examiner, 5455 Dr. MLK Jr. Avenue, Anchorage, Alaska. The cause of death was

determined to be blunt force injury to the head, and the manner of death was accidental.

A toxicological examination was conducted by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma, on January 24, 2012. The examination revealed the presence of Doxylamine (0.047 ug/ml) in the pilot's blood, and both dextrorphan and ranitidine in the pilot's urine.

Ranitidine is an over the counter medication used for the suppression of gastric acid and reflux symptoms. It is not generally considered to be sedating.

Dextrorphan is a metabolite of Dextromethorphan, a cough suppressant. Dextromethorphan and Doxylamine are commonly found in over-the-counter cold medicines used for relief of cold and flu symptoms. Doxylamine is a sedating antihistamine with a therapeutic blood level range of 0.05-0.15ug/ml; the pilot's level was just below therapeutic at the time of his death. This medication carries the warning that it may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery).

The FAA recommends that pilots allow five dosing intervals to elapse (30 hours for dextromethorphan and doxylamine) from the time of the last dose of any sedating medication before returning to flying.

## History of Flight

Approach-VFR go-around	Collision with terr/obj (non-CFIT)
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## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	49, Male
<b>Airplane Rating(s):</b>	Single-engine Land; Single-engine Sea	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last Medical Exam:</b>	05/02/2011
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	3000 hours (Total, all aircraft), 280 hours (Total, this make and model), 2960 hours (Pilot In Command, all aircraft), 180 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	DEHAVILLAND	Registration:	N361TT
Model/Series:	DHC-3T	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	361
Landing Gear Type:	Amphibian	Seats:	11
Date/Type of Last Inspection:	08/23/2011, AAIP	Certified Max Gross Wt.:	8000 lbs
Time Since Last Inspection:		Engines:	1 Turbo Prop
Airframe Total Time:	14634 Hours	Engine Manufacturer:	Honeywell
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	TPE-331
Registered Owner:	KAKELDEY LEASING CORP	Rated Power:	900 hp
Operator:	PAKLOOK AIR INC	Air Carrier Operating Certificate:	On-demand Air Taxi (135)
Operator Does Business As:	Paklook Air	Operator Designator Code:	T72C

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PADQ, 78 ft msl	Observation Time:	1953 ADT
Distance from Accident Site:	5 Nautical Miles	Direction from Accident Site:	30°
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	9°C / 6°C
Lowest Ceiling:	Broken / 4500 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 260°	Visibility (RVR):	
Altimeter Setting:	29.34 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	Old Harbor, AK	Type of Flight Plan Filed:	Company VFR
Destination:	Kodiak, AK (PADQ)	Type of Clearance:	None
Departure Time:	1930 ADT	Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious, 1 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Serious, 1 Minor	Latitude, Longitude:	57.685278, -152.509167

## Administrative Information

**Investigator In Charge (IIC):** Lawrence Lewis **Adopted Date:** 02/27/2013

**Additional Participating Persons:** Patrick Sullivan; FAA FSDO-03; Anchorage, AK

**Publish Date:** 02/27/2013

**Investigation Docket:** <http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=81883>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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