



# Aviation Investigation Final Report

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<b>Location:</b>	Bettles Field, Alaska	<b>Accident Number:</b>	ANC10TA080
<b>Date &amp; Time:</b>	August 30, 2010, 21:34 Local	<b>Registration:</b>	N20HY
<b>Aircraft:</b>	AVIAT AIRCRAFT INC A-1B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Collision with terr/obj (non-CFIT)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Public aircraft		

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## Analysis

The pilot reported that during the flight he observed smoke in the cockpit and smelled burning oil. He noted a rise in oil temperature, followed by a decrease in oil pressure, and an unusual vibration in the floorboards, control stick, and rudder. He elected to make a precautionary landing on a sandbar. He reported that on short final to the sandbar, he turned the fuel and electrical systems off, and that the propeller was windmilling. While landing, the left wingtip hit brush and the airplane veered to the left, at which point the right wingtip struck the ground. The airplane then nosed down and the propeller struck the sandbar. A postaccident examination revealed that the engine oil was at a normal level and did not smell burned; no evidence of leaks were found. The engine was removed from the airplane and successfully run on an engine test stand with no mechanical anomalies or leaks noted. An examination of the propeller showed aft bending and torsional twisting, with multiple leading edge gouges and chordwise scratching, consistent with the propeller being under power and striking the ground multiple times during the landing.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's selection of an unsuitable off-airport landing site for a precautionary landing.

## Findings

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<b>Environmental issues</b>	(general) - Contributed to outcome
<b>Aircraft</b>	(general) - Not specified
<b>Personnel issues</b>	(general) - Pilot

## Factual Information

### History of Flight

<b>Enroute-cruise</b>	Miscellaneous/other
<b>Enroute-cruise</b>	Off-field or emergency landing
<b>Landing-flare/touchdown</b>	Collision with terr/obj (non-CFIT) (Defining event)
<b>Landing</b>	Nose over/nose down

On August 30, 2010, about 2134 Alaska daylight time, an Aviat A-1B airplane, N20HY, sustained substantial damage during a landing on a sandbar, about 35 miles northwest of Bettles Field, Alaska. The airplane was being operated by the U.S. National Park Service as a law enforcement surveillance public use flight, under Title 14, Code of Federal Regulations Part 91.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on September 3, an investigator for the Department of the Interior (DOI) said the pilot related to him that during cruise flight in a remote area, he saw that the engine oil temperature was increasing, and the engine oil pressure was decreasing into the yellow caution area of the pressure gauge. The pilot reported that he selected a sandbar upon which to land. The pilot related that during the landing flare the left wingtip hit some brush causing the airplane to yaw to the left. He reported that the right wing and propeller struck the ground.

In a written report to his employer, the pilot reported that during the flight he saw smoke in the cockpit, and smelled hot/burning oil. He also said he saw a rise in engine oil temperature, and a decrease in oil pressure. Based on those observations he elected to make a precautionary landing on a sandbar. He noted that he also felt an uncharacteristic vibration in the stick, rudder, and floorboards.

The pilot reported that on short final to the sandbar he turned the fuel and electrical systems off, and indicated the propeller was windmilling. During the landing he said the left wingtip got into the brush, and the airplane veered to the left, with the right wingtip striking the ground. The airplane nosed down, and the propeller struck the sandbar.

At the accident site, the DOI investigator said he checked the airplane engine oil level, and the dipstick indicated about 6 quarts. After recovery, sitting on a level ramp, he said the dipstick indicated 6.5 quarts. After removing the cowlings, he said he found a small spot of oil on the exhaust pipe below the engine oil dipstick/filler tube.

The engine was removed from the airplane, and on September 10, under the supervision of the NTSB IIC, the engine was started and run on an engine test stand. No mechanical anomalies or

leaks were noted, and temperatures and pressures were within normal limits during the test run.

An examination of the propeller showed aft bending, torsional twisting, and numerous leading edge gouges and chordwise scratching, consistent with the propeller contacting the ground several times.

In their final report provided to the NTSB, the DOI investigator reported that "from the mishap site to the Bettles airport was actually 30.4 miles, which at a cruise speed of 110 mph would take just over 16 minutes. A direct route to Coldfoot was 28 miles and would have taken approximately 15 minutes. An NPS [National Park Service] mentor pilot who flew the route between the accident site and Bettles stated that since the engine was still operating the pilot could have flown towards Bettles and if the engine failed there were numerous areas of willow and alder trees that could have been used for a forced landing. He also stated there are ample, suitable gravel bars closer to Bettles."

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	33, Male
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	February 16, 2010
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 3, 2010
<b>Flight Time:</b>	1600 hours (Total, all aircraft), 450 hours (Total, this make and model), 1450 hours (Pilot In Command, all aircraft), 175 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	AVIAT AIRCRAFT INC	<b>Registration:</b>	N20HY
<b>Model/Series:</b>	A-1B	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	2001
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	June 21, 2010 Annual	<b>Certified Max Gross Wt.:</b>	2000 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1903 Hrs at time of accident	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	O-360-A1D
<b>Registered Owner:</b>	UNITED STATES DEPARTMENT OF INTERIOR	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	National Park Service	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	Gates of the Arctic National Park	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	PABT,647 ft msl	<b>Distance from Accident Site:</b>	35 Nautical Miles
<b>Observation Time:</b>	21:53 Local	<b>Direction from Accident Site:</b>	210°
<b>Lowest Cloud Condition:</b>	Scattered / 10000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	2 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	360°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.77 inches Hg	<b>Temperature/Dew Point:</b>	16°C / 2°C
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Coldfoot, AK (PACX)	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>	Bettles Field, AK (PABT)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	20:30 Local	<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	67.343887,-151.221115

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Lewis, Lawrence
<b>Additional Participating Persons:</b>	Brice Banning; FAA FSDO-01; Fairbanks, AK Stephen Rauch; U S Department of the Interior; Boise, ID
<b>Original Publish Date:</b>	May 11, 2011
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=77149">https://data.ntsb.gov/Docket?ProjectID=77149</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).