



# Aviation Investigation Final Report

<b>Location:</b>	Talkeetna, Alaska	<b>Accident Number:</b>	ANC12LA051
<b>Date &amp; Time:</b>	June 13, 2012, 19:15 Local	<b>Registration:</b>	N121KT
<b>Aircraft:</b>	DEHAVILLAND DHC-2	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (partial)	<b>Injuries:</b>	7 None
<b>Flight Conducted Under:</b>	Part 135: Air taxi & commuter - Non-scheduled - Sightseeing		

## Analysis

The pilot and six passengers were on an air tour flight over a remote area. After departure, and about 1200 feet above the ground, the engine began to run rough followed by a total loss of engine power. The pilot made a forced landing to a gravel bar along a river. On landing, the airplane bounced over logs and ditches and sustained substantial damage. A postaccident examination revealed that the No. 2 cylinder head had cracks radiating from the spark plug hole throughout the cylinder head, and it had begun to separate from the cylinder base.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power after departure due to the separation of an engine cylinder.

## Findings

<b>Aircraft</b>	Recip eng cyl section - Failure
-----------------	---------------------------------

## Factual Information

### History of Flight

<b>Enroute-climb to cruise</b>	Loss of engine power (partial) (Defining event)
<b>Enroute-climb to cruise</b>	Loss of engine power (total)
<b>Emergency descent</b>	Collision with terr/obj (non-CFIT)

On June 13, 2012, about 1915 Alaska daylight time, a de Havilland DHC-2 airplane, N121KT, sustained substantial damage during a forced landing, following a loss of engine power after takeoff from the Talkeetna Airport (PATK), Talkeetna, Alaska. The certificated commercial pilot, and six passengers were not injured. The airplane was registered to, and operated by Rusts Flying Service, doing business as K2 Aviation, under the provisions of Title 14 Code of Federal regulations Part 135, as a visual flight rules (VFR) sightseeing flight. Visual meteorological conditions prevailed, and company flight following procedures were in effect.

The pilot reported that he had departed runway 18, at PATK, on a scenic tour flight, and had reduced power to a cruise climb setting. At approximately 1200 feet above the ground, the engine began to run rough, and lose power. The pilot turned back toward PATK, and performed emergency procedures to restore power. The engine continued to run rough at reduced power, and the pilot could not maintain altitude, followed by a total loss of engine power. He made a forced landing to a sand bar on the Chulitna River. On landing the airplane bounced over logs and ditches, and sustained substantial damage to the horizontal stabilizer, elevators, empennage, and main landing gear.

After the aircraft was recovered, a Federal Aviation Administration (FAA) inspector from the Anchorage Flight Standards District Office (FSDO), examined the airplane in Talkeetna, on June 14. The inspector reported that the number two cylinder head had cracks radiating from the spark plug hole throughout the cylinder head, and it had begun to separate from the cylinder base.

## Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	41, Male
<b>Airplane Rating(s):</b>	Single-engine sea	<b>Seat Occupied:</b>	Left
<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>	Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	April 4, 2012
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	May 30, 2012
<b>Flight Time:</b>	5338 hours (Total, all aircraft), 287 hours (Total, this make and model), 5244 hours (Pilot In Command, all aircraft), 95 hours (Last 90 days, all aircraft), 73 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	DEHAVILLAND	<b>Registration:</b>	N121KT
<b>Model/Series:</b>	DHC-2	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1407
<b>Landing Gear Type:</b>	Tailwheel; Ski/wheel	<b>Seats:</b>	8
<b>Date/Type of Last Inspection:</b>	June 2, 2012 100 hour	<b>Certified Max Gross Wt.:</b>	5370 lbs
<b>Time Since Last Inspection:</b>	13 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	14901 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Pratt & Whitney
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	R-985
<b>Registered Owner:</b>	RUSTAIR INC	<b>Rated Power:</b>	450 Horsepower
<b>Operator:</b>	RUSTAIR INC	<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>	K2 Aviation	<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>	PATK,358 ft msl	<b>Distance from Accident Site:</b>	5 Nautical Miles
<b>Observation Time:</b>	18:57 Local	<b>Direction from Accident Site:</b>	200°
<b>Lowest Cloud Condition:</b>	Few / 5500 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	200°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.97 inches Hg	<b>Temperature/Dew Point:</b>	12°C / 7°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Talkeetna, AK (PATK)	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>	Talkeetna, AK	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	19:10 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	Talkeetna Airport PATK	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	358 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	6 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	7 None	<b>Latitude, Longitude:</b>	62.349998,-150.28334(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Banning, David
<b>Additional Participating Persons:</b>	Steven W Wolletz; Federal Aviation Administration; Anchorage, AK
<b>Original Publish Date:</b>	November 5, 2012
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=83966">https://data.nts.gov/Docket?ProjectID=83966</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](#).