Aviation Investigation Final Report

Location:	Cody, Wyoming	**Accident Number:**	DEN01LA125
Date & Time:	July 17, 2001, 15:15 Local	**Registration:**	N2128Z
Aircraft:	Aerospatiale SA315B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor
Flight Conducted Under:	Part 133: Rotorcraft ext. load		

Analysis

The pilot reported that he was starting his 27th move of geophysical drilling equipment for the day. He was pulling in power to lift (long line) an engine and a compressor when he heard two loud "pops." He lost engine power, but did not release the long line because his ground helper was underneath the load. He moved forward a short distance, and autorotated to a 45 degree hill side. The aircraft landed and immediately rolled on its side with the mast pointing down slope which stopped the rolling. The ground helper said that he saw "fire shooting out of the tailpipe" as the helicopter descended towards the earth. Postaccident examination of the engine revealed that all the turbine blades had experienced an extreme over temperature condition. The density altitude was computed to be 9,205 feet.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the turbine assembly due to an over temperature condition. A contributing factor was the lack of suitable terrain for a forced landing.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: HOVER

Findings
1. (C) TURBINE ASSEMBLY,TURBINE BLADE - OVERTEMPERATURE

2. (C) TURBINE ASSEMBLY,TURBINE BLADE - FAILURE

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. AUTOROTATION - INITIATED - PILOT IN COMMAND
4. TERRAIN CONDITION - MOUNTAINOUS/HILLY
5. (F) TERRAIN CONDITION - NONE SUITABLE

Factual Information

On July 17, 2001, at approximately 1515 mountain daylight time, an Aerospatiale SA315B helicopter, N2128Z, was destroyed when it rolled over following an emergency autorotation near Cody, Wyoming. The commercial pilot, the sole occupant in the aircraft, received minor injuries. Geo-Seis Helicopters, Fort Collins, Colorado, was operating under Title 14 CFR Part 133. Visual meteorological conditions prevailed at the time of the accident. The long line operation originated from a remote landing zone approximately 45 minutes before the accident. No flight plan was filed.

The pilot reported that he was starting his 27th move of geophysical drilling equipment for the day. He was increasing power to lift an engine and compressor when he heard two loud "pops." The engine lost power, but the pilot did not release the long line because his ground helper was underneath the load. He moved forward a short distance, and autorotated to a 45 degree hill side. The aircraft landed and immediately rolled on its side with the mast pointing down slope, which stopped the aircraft from rolling. The ground helper said that he saw "fire shooting out of the tailpipe" as the helicopter descended.

Postaccident examination of the engine revealed that all the turbine blades had experienced an extreme over temperature condition. The density altitude was computed to be 9,205 feet. The pilot had approximately 5,510 hours of flight experience in SA315B Lamas.

Pilot Information

Certificate:	Commercial	**Age:**	52,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	February 15, 2001
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 4, 2001
Flight Time:	16550 hours (Total, all aircraft), 5510 hours (Total, this make and model), 16490 hours (Pilot In Command, all aircraft), 111 hours (Last 90 days, all aircraft), 88 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerospatiale	**Registration:**	N2128Z
Model/Series:	SA315B	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	06-201
Landing Gear Type:	Skid	**Seats:**	5
Date/Type of Last Inspection:	July 17, 2001 Unknown	**Certified Max Gross Wt.:**	5070 lbs
Time Since Last Inspection:	2.6 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	21475 Hrs as of last inspection	**Engine Manufacturer:**	Turbomeca
ELT:	Installed, not activated	**Engine Model/Series:**	Artouste III
Registered Owner:	Robert's Aircraft Company	**Rated Power:**	856 Horsepower
Operator:	GEO-SEIS HELICOPTERS INC	**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	EKKA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	COD,5098 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	15:15 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Few / 10000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	25°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cody, WY (NONE)	**Type of Flight Plan Filed:**	Company VFR
Destination:		**Type of Clearance:**	None
Departure Time:	14:30 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	In-flight
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	44.665279,-109.135002

Administrative Information

Investigator In Charge (IIC):	Struhsaker, James
Additional Participating Persons:	Michael J Maglione; Federal Aviation Administration; Casper, WY
Original Publish Date:	April 1, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=52742