



# Aviation Investigation Final Report

<b>Location:</b>	Zuni, New Mexico	<b>Accident Number:</b>	DEN01LA077
<b>Date &amp; Time:</b>	March 25, 2001, 13:30 Local	<b>Registration:</b>	N56CF
<b>Aircraft:</b>	Bell UH-1H	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Ferry		

## Analysis

While in cruise flight, the pilot noticed an illuminated master caution light and high engine oil temperature. A few moments later, he received a report from a pilot in a second helicopter telling him that his engine was on fire. The pilot then noticed an engine chip light. He shut down the engine and "initiated an autorotation." The engine seized at approximately 200 feet above ground level (AGL) and the helicopter hit the ground hard. The skids grabbed in the soft dirt and collapsed. The helicopter sustained substantial damage to the skids, bottom of fuselage and fire damage to the engine. The fire extinguished prior to landing. An examination of the engine at a helicopter repair station in Redding, California, identified that the "engine's number three and four bearing pack seal had failed." The failure resulted in "high engine oil temperature, which led to the engine fire and subsequent failure of the engine."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a hard landing due to the pilot's failure to maintain aircraft control during autorotation/flare. A factor was the total loss of engine power due to mechanical failure.

## Findings

Occurrence #1: FIRE  
Phase of Operation: CRUISE - NORMAL

Findings

1. TURBOSHAFT ENGINE, FREE (POWER) TURBINE - FIRE

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Occurrence #2: LOSS OF ENGINE POWER (TOTAL) - MECH FAILURE/MALF  
Phase of Operation: DESCENT - EMERGENCY

Findings

2. (F) TURBINE ASSEMBLY, SEAL - FAILURE, TOTAL
3. AUTOROTATION - INITIATED - PILOT IN COMMAND

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Occurrence #3: HARD LANDING  
Phase of Operation: EMERGENCY LANDING

Findings

4. (C) FLARE - NOT MAINTAINED - PILOT IN COMMAND
5. (F) TERRAIN CONDITION - OPEN FIELD
6. (F) LANDING GEAR, SKID ASSEMBLY - COLLAPSED

## Factual Information

On March 25, 2001, at approximately 1330 mountain standard time, a Bell UH-1H helicopter, N56CF, was substantially damaged when it collided with the terrain during an emergency landing near Zuni, New Mexico. The commercial pilot and sole occupant was not injured. Visual meteorological conditions prevailed for this ferry flight being conducted under Title 14 CFR Part 91. The flight originated from Double Eagle II Airport, Albuquerque, New Mexico, at approximately 1230.

According to the pilot, he noticed an illuminated master caution light and high engine oil temperature. A few moments later, he received a report from a pilot in a second helicopter telling him that his engine was on fire. The pilot then noticed an engine chip light. He shut down the engine and "initiated an autorotation." The engine seized at approximately 200 feet above ground level (AGL) and the helicopter hit the ground hard. The pilot stated that he "elected to run the A/C on because of the altitude (7,800') and being downwind. The landing worked out fine until the skids grabbed in the soft dirt and collapsed." The helicopter sustained substantial damage to the skids, bottom of fuselage and fire damage to the engine. The fire extinguished prior to landing.

An examination of the engine at a helicopter repair station in Redding, California, identified that the "engine's number three and four bearing pack seal had failed." The failure resulted in "high engine oil temperature, which led to the engine fire and subsequent failure of the engine."

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	49, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim	<b>Last FAA Medical Exam:</b>	August 14, 2000
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	February 22, 2001
<b>Flight Time:</b>	17000 hours (Total, all aircraft), 13557 hours (Pilot In Command, all aircraft), 173 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft), 8 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Bell	<b>Registration:</b>	N56CF
<b>Model/Series:</b>	UH-1H	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Utility	<b>Serial Number:</b>	64-13880
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	13
<b>Date/Type of Last Inspection:</b>	March 20, 2001 100 hour	<b>Certified Max Gross Wt.:</b>	9500 lbs
<b>Time Since Last Inspection:</b>	6 Hrs	<b>Engines:</b>	1 Turbo shaft
<b>Airframe Total Time:</b>	13297 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	T53-13
<b>Registered Owner:</b>	Vertol Systems Inc.	<b>Rated Power:</b>	1100 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	Vertol Systems Inc.	<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>	KGUP,6472 ft msl	<b>Distance from Accident Site:</b>	30 Nautical Miles
<b>Observation Time:</b>	13:53 Local	<b>Direction from Accident Site:</b>	355°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	15 knots / 0 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	240°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.06 inches Hg	<b>Temperature/Dew Point:</b>	20°C / -9°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Albuquerque, NM (AEG )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Winslow, AZ (INW )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	12:30 Local	<b>Type of Airspace:</b>	Class E

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	In-flight
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	35.079769,-108.759513(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Wiemeyer, Norman
<b>Additional Participating Persons:</b>	Tamara Bell; FAA FSDO; Albuquerque, NM
<b>Original Publish Date:</b>	November 1, 2001
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=51975">https://data.ntsb.gov/Docket?ProjectID=51975</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](#).