Aviation Investigation Final Report

Location:	Zuni, New Mexico	**Accident Number:**	DEN01LA077
Date & Time:	March 25, 2001, 13:30 Local	**Registration:**	N56CF
Aircraft:	Bell UH-1H	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	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

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

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

Certificate:	Commercial	**Age:**	49,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	August 14, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 22, 2001
Flight Time:	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

Aircraft Make:	Bell	**Registration:**	N56CF
Model/Series:	UH-1H	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	64-13880
Landing Gear Type:	Skid	**Seats:**	13
Date/Type of Last Inspection:	March 20, 2001 100 hour	**Certified Max Gross Wt.:**	9500 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	13297 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	T53-13
Registered Owner:	Vertol Systems Inc.	**Rated Power:**	1100 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:	Vertol Systems Inc.	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KGUP,6472 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	355°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	20°C / -9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Albuquerque, NM (AEG)	**Type of Flight Plan Filed:**	None
Destination:	Winslow, AZ (INW)	**Type of Clearance:**	None
Departure Time:	12:30 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

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

Administrative Information

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