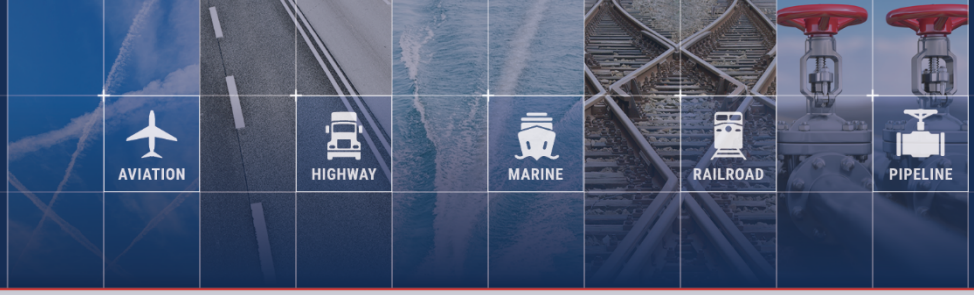

Aviation Investigation Final Report

Location:	Bethel, Alaska	**Accident Number:**	GAA19CA344
Date & Time:	June 6, 2019, 14:00 Local	**Registration:**	N4085L
Aircraft:	Bell UH 1H	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 None
Flight Conducted Under:	Part 133: Rotorcraft ext. load		

Analysis

The pilot reported that, before departure, he was told the helicopter was topped off with fuel for the multistop flight. He added that he did not verify the fuel quantity but that, when he departed for the last leg about 60 miles from the destination airport, the fuel gauge showed just below 600 lbs of fuel, and he decided to fly at 120 knots with a tailwind. He added that, about 3 miles from the destination airport, the engine lost power. He performed an autorotation, but the helicopter landed hard.

The helicopter sustained substantial damage to the tailboom and transmission mounts.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the helicopter that would have precluded normal operation.

The pilot reported that, after landing, the fuel quantity gauge showed that there was about 225 lbs of fuel remaining and that the 20-minute fuel light, which did not illuminate during the flight, illuminated once on the ground. He estimated that the helicopter's fuel burn was about 75 to 80 gallons per hour (gph).

The chief pilot, who was also the helicopter's owner, reported that he had refueled the helicopter on uneven terrain before the flight. He filled the tank to the bottom of the filler cap on the left side, which he estimated was about 10 to 15 gallons less than the total fuel capacity of the 210-gallon tank. He estimated that the helicopter burned about 90 gph. He added that there were no open mechanical squawks on the helicopter and that he was not aware of any mechanical issues.

The Federal Aviation Administrator inspector who examined the helicopter at the accident site reported that the fuel quantity gauge had been serviced and calibrated earlier in the year but continued to indicate that fuel was onboard even after the helicopter ran out of fuel. The 20-minute low fuel light appeared to be functioning normally.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's improper fuel planning, which resulted in fuel exhaustion and a total loss of engine power, and his improper landing flare during a forced autorotation, which resulted in a hard landing. Contributing to the accident were the inoperative fuel gauge, which was not accurately calibrated, and the pilot's reliance on the gauge.

Findings

Personnel issues	Fuel planning - Pilot
Aircraft	Fuel - Fluid level
Aircraft	Landing flare - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Aircraft	Fuel indication system - Incorrect service/maintenance
Personnel issues	Use of equip/system - Pilot
Aircraft	Fuel - Inadequate inspection

Factual Information

History of Flight

Maneuvering	Fuel exhaustion
Maneuvering	Loss of engine power (total) (Defining event)
Autorotation	Hard landing

Pilot Information

Certificate:	Commercial	**Age:**	50,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	January 7, 2019
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 12, 2019
Flight Time:	(Estimated) 5275 hours (Total, all aircraft), 2500 hours (Total, this make and model), 4795 hours (Pilot In Command, all aircraft), 78 hours (Last 90 days, all aircraft), 62 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N4085L
Model/Series:	UH 1H No Series	**Aircraft Category:**	Helicopter
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	68-15655
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	9500 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo shaft
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	T53-13
Registered Owner:	Yukon Helicopters Inc	**Rated Power:**	1400 Horsepower
Operator:	Yukon Helicopters Inc	**Operating Certificate(s) Held:**	Rotorcraft external load (133), Agricultural aircraft (137)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PABE,102 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	21:53 Local	**Direction from Accident Site:**	257°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 1600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.23 inches Hg	**Temperature/Dew Point:**	11°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bethel, AK (None)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Bethel, AK (BET)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class D

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	60.792221,-161.764724(est)

Administrative Information

Investigator In Charge (IIC):	Benhoff, Kathryn
Additional Participating Persons:	Paula Huckleberry; FAA; Anchorage, AK
Original Publish Date:	November 6, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=99641