Aviation Investigation Final Report

Location:	TOWNSEND, Montana	**Accident Number:**	DEN83LA154
Date & Time:	June 30, 1983, 09:40 Local	**Registration:**	N1334X
Aircraft:	BELL 47G-3B-1 SOLOY	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE HELICOPTER MADE A HARD TOUCHDOWN DURING AN AUTOROTATIVE FORCED LANDING AFTER THE ENGINE QUIT. DURING THE LANDING THEMAIN ROTOR SEVERED THE TAIL BOOM. THE PILOT STRETCHED THE AUTOROTATIONAL GLIDE TO REACH A HAY FIELD AND LOST MAIN ROTOR RPM IN THE PROCESS. THE ENGINE DIED OF FUEL STARVATION BECAUSE OF A LOW FUEL STATE AND BECAUSE THE PILOT WAS DESCENDING AT HIGH SPEED WITH NOSE LOW. IN THIS ACFT ACCORDING TO A TEST PILOT WHO SPECIALIZES IN THIS MODEL CAUTION MUST BE USED TO AVOID UNUSUAL PITCH ATTITUDES WITH A LOW FUEL STATE. THE PILOT SAID HE HAD A 30 DEGREE NOSE LOW ATTITUDE. THE FUEL TANKS ARE SLANTED 10 DEGREES AFT TO COMPENSATE FOR A 7 DEGREE NOSE LOW ATTITUDE IN NORMAL HIGH SPEED (80 MPH) CRUISE. THE PILOT SAID THE GAUGES SHOWED ABOUT 10 GALLONS JUST BEFORE THE ENGINE QUIT. HE ALSO STATED THAT HE FELT STARVATION OCCURRED.

Probable Cause and Findings

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

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: DESCENT - EMERGENCY

Findings
1. (F) FLUID,FUEL - STARVATION
2. (C) PERFORMANCE DATA - NOT IDENTIFIED - PILOT IN COMMAND
3. (F) FLUID,FUEL - LOW LEVEL
4. (C) MANEUVER - EXCESSIVE - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
5. (F) AUTOROTATION - PERFORMED - PILOT IN COMMAND
6. (F) ADEQUATE ROTOR RPM - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	36,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 15, 1983
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	10260 hours (Total, all aircraft), 1100 hours (Total, this make and model), 10260 hours (Pilot In Command, all aircraft), 350 hours (Last 90 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	**Registration:**	N1334X
Model/Series:	47G-3B-1 SOLOY 47G-3B-1 S	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	6555
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	March 15, 1983 100 hour	**Certified Max Gross Wt.:**	2950 lbs
Time Since Last Inspection:	22 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:		**Engine Manufacturer:**	ALLISON
ELT:	Installed, not activated	**Engine Model/Series:**	250-C20
Registered Owner:	BLAIN SALES, INC.	**Rated Power:**	400 Horsepower
Operator:	BEAR TOOTH HELICOPTERS	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	30 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	27°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	E. OF TOWNSEND , MT	**Type of Flight Plan Filed:**	None
Destination:	TOWNSEND , MT	**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	Grass/turf
Airport Elevation:		**Runway Surface Condition:**	Dry
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	46.480636,-111.340736(est)

Administrative Information

Investigator In Charge (IIC):	Winningham, Fred
Additional Participating Persons:	
Original Publish Date:	
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=16105