



Aviation Investigation Final Report

Location:	Fort Pierre, South Dakota	Accident Number:	GAA15CA097
Date & Time:	May 28, 2015, 14:30 Local	Registration:	N112SH
Aircraft:	Bell 47G 3B 1	Aircraft Damage:	Substantial
Defining Event:	Miscellaneous/other	Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot reported that during cruise flight the helicopter's engine had a total loss of power and he made an emergency landing in a wheat field. He said the main rotor blades contacted the tail boom and sheared off the tail rotor during the landing. The helicopter sustained substantial damage to the tail rotor, tail rotor drive shaft, and tail boom. The pilot reported no preimpact mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The pilot reported using a placard as a reference for a fuel tank sight gauge. A postaccident examination by an FAA Aviation Safety Inspector revealed approximately three and one-half gallons of fuel in the right fuel tank and approximately one and one-half gallons of fuel in the left fuel tank. This make and model of helicopter has a capacity of 61 gallons of fuel of which 57.5 gallons of fuel is useable and three and one-half gallons of fuel are unusable. The fuel lines to the engine are located in the rear of the fuel tanks. A pitch attitude change such as a banking turn or nose down attitude, could have caused a disruption in fuel flow to the engine with the low fuel levels that were found in the fuel tanks.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight fuel planning that resulted in a total loss of engine power due to fuel exhaustion, and the pilot's failure to maintain control of the helicopter during the subsequent autorotation landing.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Enroute-cruise	Fuel exhaustion
Enroute-cruise	Loss of engine power (total)
Autorotation	Miscellaneous/other (Defining event)
Landing	Off-field or emergency landing

Pilot Information

Certificate:	Commercial	Age:	49
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Unknown
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	March 9, 2015
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 12, 2015
Flight Time:	(Estimated) 8000 hours (Total, all aircraft), 550 hours (Total, this make and model), 60 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N112SH
Model/Series:	47G 3B 1	Aircraft Category:	Helicopter
Year of Manufacture:	1966	Amateur Built:	
Airworthiness Certificate:	Normal; Restricted (Special)	Serial Number:	6567
Landing Gear Type:	N/A; High skid	Seats:	1
Date/Type of Last Inspection:	January 21, 2015 Annual	Certified Max Gross Wt.:	2950 lbs
Time Since Last Inspection:		Engines:	1 Turbo shaft
Airframe Total Time:	7343 Hrs	Engine Manufacturer:	Allison
ELT:	Not installed	Engine Model/Series:	250-C18
Registered Owner:	SCOTTS HELICOPTER SERVICE	Rated Power:	
Operator:	SCOTTS HELICOPTER SERVICE	Operating Certificate(s) Held:	Agricultural aircraft (137)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KPIR, 1726 ft msl	Distance from Accident Site:	21 Nautical Miles
Observation Time:	18:53 Local	Direction from Accident Site:	109°
Lowest Cloud Condition:	Clear	Visibility:	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.84 inches Hg	Temperature/Dew Point:	26°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		Type of Flight Plan Filed:	None
Destination:	Fort Pierre, SD	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

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:	44.493888,-100.746109(est)

Administrative Information

Investigator In Charge (IIC):	Bigelow, Bradley
Additional Participating Persons:	Jim Badhorse; Federal Aviation Administration; Rapid City, SD
Original Publish Date:	July 27, 2015
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.nts.gov/Docket?ProjectID=91268

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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](#).