



National Transportation Safety Board Aviation Accident Factual Report

Location:	Montrose, CO	Accident Number:	CEN19TA280
Date & Time:	08/20/2019, 1030 MDT	Registration:	N1170W
Aircraft:	Bell 47G	Aircraft Damage:	Substantial
Defining Event:	Fuel starvation	Injuries:	1 Serious
Flight Conducted Under:	Part 137: Agricultural		

On August 20, 2019, about 1030 mountain daylight time, a Bell 47G-3B-1, N1170W, lost engine power during aerial application near Montrose, Colorado. The commercial pilot was seriously injured, and the helicopter sustained substantial damage to the tail boom and fuselage. The helicopter was registered to and operated by Olathe Spray Service, Inc., Olathe, Colorado, as a Title 14 *Code of Federal Regulations* Part 137 aerial application flight. Visual meteorological conditions prevailed at the accident site and at the time of the accident, and no visual flight rules flight plan had been filed for the local flight. The local flight departed about 1000.

The pilot stated that he had been performing agricultural spray operations in four different locations. He returned to Clifford Field Airport (1CO4), Olathe, Colorado, his home base, to take on additional chemical product. On the three previous trips, pesticide and about 30 gallons of Jet-A fuel were added as the helicopter sat idling. On this, the fourth trip, the helicopter was serviced with chemical, but no fuel was added.

Each spray pass was performed about 85 mph and just above the crop in order to achieve optimal product application and spray coverage to the crop. In order to do this the helicopter, at that speed, was flown in a nose-low attitude. The fuel delivery port/tube on both tanks is located at the aft, lower end of each tank, and both tanks deliver fuel to the engine simultaneously. There is no pilot-controlled fuel selector valve in the cockpit.

During the aerial application, the helicopter yawed left when the engine flamed out. The pilot slowed the airspeed and the helicopter impacted a cornfield.

The helicopter had been resting on its right side in a corn field for several days before a Federal Aviation Administration (FAA) inspector and a representative of the engine manufacturer examined it. As a result, it could not be determined if fuel had drained out of the right fuel tank through a vent line, loose filler cap, or breached tank, but approximately 2/3 to 3/4 gallon of clean, clear, odor-free fuel was drained from of the right tank, and 2-1/2 gallons were drained from the left tank. Fuel was also found from the inlet side of the airframe-mounted fuel filter to the fuel spray nozzle inlet on the engine. The fuel spray nozzle appeared normal with no signs

of excessive carbon deposits or blockage. Both the airframe and engine fuel filter bowls contained clean fuel, and both filters were void of contamination.

N1 (gas producer) and N2 (power turbine) rotor continuity was confirmed, and both rotors turned smoothly when rotated by hand. Cockpit controls from the throttle and collective back to the engine fuel control unit and power turbine governor were free and continuous. The engine oil system, including the filter and magnetic plugs, was checked and was unremarkable. Further examination revealed no evidence of mechanical malfunction or pre-existing conditions that would have precluded normal engine operation.

Pilot Information

Certificate:	Commercial	Age:	73, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	10/24/2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	11/16/2018
Flight Time:	34427 hours (Total, all aircraft), 3729 hours (Total, this make and model), 34487 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N1170W
Model/Series:	47G 3B-1	Aircraft Category:	Helicopter
Year of Manufacture:	1965	Amateur Built:	No
Airworthiness Certificate:	Restricted	Serial Number:	2944
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	06/24/2019, 100 Hour	Certified Max Gross Wt.:	2950 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:	13693 Hours at time of accident	Engine Manufacturer:	Rolls-Royce
ELT:	Not installed	Engine Model/Series:	250-C20B
Registered Owner:	Olathe Spray Service, Inc.	Rated Power:	420 hp
Operator:	Olathe Spray Service, Inc.	Operating Certificate(s) Held:	Agricultural Aircraft (137)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	4 Nautical Miles
Observation Time:	1100 MDT	Direction from Accident Site:	123°
Lowest Cloud Condition:	Clear	Visibility	
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:		Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.3 inches Hg	Temperature/Dew Point:	29° C
Precipitation and Obscuration:			
Departure Point:	Olathe, CO (1CO4)	Type of Flight Plan Filed:	None
Destination:	Olathe, CO (1CO4)	Type of Clearance:	None
Departure Time:	1000 MDT	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	38.000000, -107.000000

Administrative Information

Investigator In Charge (IIC):	Arnold W Scott
Additional Participating Persons:	Kevin Harvey; FAA Flight Standards District Office; Salt Lake City, UT
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=100104