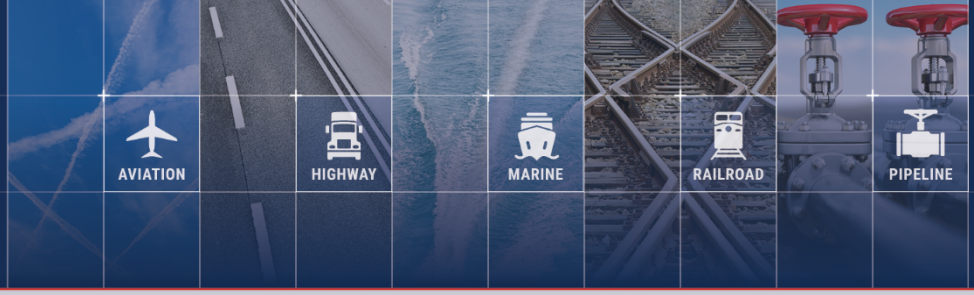

Aviation Investigation Final Report

Location:	Sedalia, Missouri	**Accident Number:**	CEN18LA321
Date & Time:	August 6, 2018, 15:15 Local	**Registration:**	N4996R
Aircraft:	Cessna A188	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The commercial pilot was conducting an agricultural application flight. He stated that he felt a loss of engine power when he pulled up during a second pass over a field. He pushed the throttle and mixture controls forward, but the engine power did not increase. He dumped the payload and then located a landing area. The pilot flew the airplane at its best glide speed, and the airplane struck a tree short of the landing area. Subsequently, the airplane spun right. He pulled the control stick back and applied right rudder to maintain the airplane in an upright attitude before it impacted the ground and erupted into a postimpact fire.

Postaccident examination of the airplane revealed that the two propeller blades were relatively straight, consistent with a lack of torsion, indicating that the engine lost all power before impact. Postimpact fire destroyed the engine, engine accessories, and airframe, which precluded functional testing of any components. The reason for the loss of engine power could not be determined.

Probable Cause and Findings

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

A total loss of engine power during low-altitude maneuvering for reasons that could not be determined due to postimpact fire damage.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Maneuvering-low-alt flying	Loss of engine power (total) (Defining event)
Maneuvering-low-alt flying	Attempted remediation/recovery
Maneuvering-low-alt flying	Loss of control in flight
Landing	Off-field or emergency landing
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On August 6, 2018, at 1515 central daylight time, a Cessna A188B, N4996R, experienced a total loss of engine power and impacted terrain during an aerial application flight about 10 miles north of Sedalia, Missouri. The airplane was destroyed by impact forces and post-crash fire. The commercial pilot sustained minor injuries. The airplane was registered to an individual and operated by Lloyd Darter Aviation under Title 14 *Code of Federal Regulations* Part 137 as an aerial application flight that was not operating on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The local flight originated from Marshall Memorial Municipal Airport (MHL), Marshall, Missouri about 1430.

The pilot did not submit a National Transportation Safety Board Pilot/Operator Aircraft Accident/Incident Report (form 6120), as required under Part 830.

The pilot provided a written statement to the Federal Aviation Administration Inspector assigned to the accident investigation. The pilot stated that during the second pass over an agricultural field, he pulled up and "felt a loss of power." He stated that he pushed the throttle and mixture controls full forward but there were "no results." He dumped the payload and located a landing area. He said he flew the airplane's best glide speed and struck a tree short of the landing area, spinning the airplane to the right. He pulled the control stick back and applied right rudder to maintain the airplane in an upright attitude prior to impacting the ground.

Post-accident examination of the airplane revealed the airframe was consumed by post-crash fire from the empennage, to the engine firewall, and to the mid-wingspan of both wings. Ground scarring was limited to the airplane's planform with nose-down crushing. The flaps were in the retracted position. Neither of the two propeller blades displayed S-shaped bending and were relatively straight, consistent with a lack of torsion. The bottom half of the engine case was melted to the accessory section exposing the crankshaft and accessory gears. The internal engine drive and valve train components were connected, secure, and did not display any fractures. The engine accessories were destroyed by the fire. The number four-cylinder fuel line with an attached adapter leading from the fuel manifold was loose and was pulled out by hand. The remaining fuel lines were attached and secure in the fuel manifold. The fuel line, the fuel line adapter fitting, and the manifold were removed for metallurgical examination at the National Transportation Safety Board Material Laboratory.

The metallurgical examination revealed the fuel line with its adapter fitting were separated from the fuel manifold. The adapter had tapered pipe thread where it would screw into the fuel manifold. Examination of the adapter fitting did not reveal evidence of thread deformation on the fitting. The first few threads of the adapter appeared to contain aluminum material from the fuel manifold.

The threaded port on the fuel manifold for the number-four fuel line exhibited deformation and the appearance of incipient melting of the aluminum housing.

Pilot Information

Certificate:	Commercial	**Age:**	27,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Center
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 None	**Last FAA Medical Exam:**	March 1, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 29, 2019
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4996R
Model/Series:	A188 B	**Aircraft Category:**	Airplane
Year of Manufacture:	1975	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	18802483T
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	May 10, 2018 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	9077 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	IO-540-S1A5
Registered Owner:		**Rated Power:**	290 Horsepower
Operator:		**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:	DMO,910 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	14:53 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	33°C / 21°C
Precipitation and Obscuration:			
Departure Point:	Marshall, MO (MHL)	**Type of Flight Plan Filed:**	None
Destination:	Marshall, MO (MHL)	**Type of Clearance:**	None
Departure Time:	14:30 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	38.704444,-93.228332(est)

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	David Johnson; Federal Aviation Administration; MKC FSDO; Kansis City, MO John Butler; Lycoming Engines; Williamsport, PA
Original Publish Date:	December 16, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98013