



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Sedalia, MO	<b>Accident Number:</b>	CEN18LA321
<b>Date &amp; Time:</b>	08/06/2018, 1515 CDT	<b>Registration:</b>	N4996R
<b>Aircraft:</b>	Cessna A188	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 Minor
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

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## 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

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

## Factual Information

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.

## History of Flight

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

## Pilot Information

Certificate:	Commercial	Age:	27, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Center
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 None	Last FAA Medical Exam:	03/01/2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	06/29/2019
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:	No
Airworthiness Certificate:	Restricted	Serial Number:	18802483T
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	05/10/2018, Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	9077 Hours as of last inspection	Engine Manufacturer:	Lycoming
ELT:		Engine Model/Series:	IO-540-S1A5
Registered Owner:	Lloyd Darter	Rated Power:	290 hp
Operator:	Lloyd Darter Aviation	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:	DMO, 910 ft msl	Distance from Accident Site:	10 Nautical Miles
Observation Time:	1453 CDT	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:	1430 CDT	Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	38.704444, -93.228333 (est)

## Administrative Information

Investigator In Charge (IIC):	Mitchell F Gallo	Report Date:	12/16/2019
Additional Participating Persons:	David Johnson; Federal Aviation Administration; MKC FSDO; Kansas City, MO John Butler; Lycoming Engines; Williamsport, PA		
Publish Date:	12/16/2019		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=98013">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=98013</a>		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).