



Aviation Investigation Final Report

Location:	Chillicothe, Missouri	Accident Number:	WPR23LA218
Date & Time:	June 7, 2023, 14:15 Local	Registration:	N731UF
Aircraft:	Cessna A188B	Aircraft Damage:	Destroyed
Defining Event:	Powerplant sys/comp malf/fail	Injuries:	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The airplane sustained a partial loss of engine power while maneuvering to apply fertilizer to a corn field. The pilot initiated a forced landing to a clearing, during which the airplane struck trees and powerlines before it came to rest upright in an open field; a postaccident fire ensued.

Examination of the of the airplane revealed that the cockpit and fuselage structure was mostly destroyed by thermal and impact damage. Examination of the engine revealed a tear on the fuel manifold assembly diaphragm. The tear in the diaphragm likely result in the fuel manifold’s inability to provide sufficient fuel pressure to maintain engine power, resulting in a partial loss of engine power.

Probable Cause and Findings

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

A partial loss of engine power due to a tear in the fuel manifold diaphragm, which prevented sufficient fuel flow to the engine.

Findings

Aircraft	Fuel distribution - Malfunction
Environmental issues	Tree(s) - Contributed to outcome
Environmental issues	Wire - Contributed to outcome

Factual Information

History of Flight

Maneuvering-low-alt flying	Powerplant sys/comp malf/fail (Defining event)
Maneuvering-low-alt flying	Fuel starvation

On June 7, 2023, about 1415 central daylight time, a Cessna A188B, N731UF, was destroyed when it was involved in an accident near Chillicothe, Missouri. The pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 137 agricultural flight.

The pilot reported that the airplane sustained a partial loss of engine power while he was maneuvering to apply fertilizer to a corn field about ½ mile from the departure airport. He ensured the throttle was in the full forward position and turned on the emergency electric auxiliary fuel pump to no avail. Unable to maintain altitude, the pilot elected to conduct an off-airport landing and, during the descent, the airplane struck trees and powerlines before it came to rest upright in an open field; a postaccident fire ensued.

Postaccident examination of the airplane revealed that the cockpit and fuselage structure was mostly destroyed by thermal and impact damage. The engine, engine mount, firewall, main landing gear, instrument panel, flight controls, and seats were separated and exhibited varying degrees of thermal and impact damage. Examination of the fuel manifold revealed it remained attached to its respective mount and was undamaged. The No. 6 fuel injector line and the nozzle pressure gauge fitting were fracture separated. The fuel manifold assembly was removed and subsequently disassembled. The internal diaphragm exhibited an approximate 1-inch tear and the spring was undamaged. No additional anomalies were noted with the engine or airframe.

No reference to any maintenance performed on the fuel manifold was observed within the engine and airframe logbooks. The engine was last overhauled on July 10, 2009.

Pilot Information

Certificate:	Commercial	Age:	51, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Single
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	February 9, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 30, 2022
Flight Time:	4710 hours (Total, all aircraft), 1626 hours (Total, this make and model), 4660 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N731UF
Model/Series:	A188B	Aircraft Category:	Airplane
Year of Manufacture:	1978	Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	18803160T
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	May 8, 2023 Annual	Certified Max Gross Wt.:	4200 lbs
Time Since Last Inspection:	15 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	8247.6 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Not installed	Engine Model/Series:	IO-540-K1A5
Registered Owner:	On file	Rated Power:	300 Horsepower
Operator:	On file	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:	KCDJ,758 ft msl	Distance from Accident Site:	4 Nautical Miles
Observation Time:	13:51 Local	Direction from Accident Site:	74°
Lowest Cloud Condition:	Clear	Visibility	
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.84 inches Hg	Temperature/Dew Point:	32°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chillicothe, MO	Type of Flight Plan Filed:	None
Destination:	Chillicothe, MO	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-ground
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	39.8,-93.67(est)

Administrative Information

Investigator In Charge (IIC):	Gutierrez, Eric
Additional Participating Persons:	Thomas Davis; FAA; MO Ryan Enders; Lycoming Engines Inc.; Williamsport, PA Peter J. Basile ; Textron Aviation; Wichita, KS
Original Publish Date:	November 7, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=192332

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