



National Transportation Safety Board Aviation Accident Data Summary

Location:	Fredericksburg, PA	Accident Number:	ERA13LA268
Date & Time:	06/01/2013, 0830 EDT	Registration:	N40337
Aircraft:	MAULE M-4-220C	Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot reported that, while the airplane was in cruise flight, the engine began to vibrate and lose power. The pilot shut down the engine and performed a forced landing to a field. During the landing roll, the airplane nosed over and was substantially damaged.

Examination of the engine revealed that the No. 4 cylinder head was partially separated and that the No. 4 piston pin was fractured. The piston pin fractured due to fatigue that had initiated at the pin's outer diameter, and the fracture corresponded to the location of the pin bearing separation from the connecting rod. The bearing fracture surface was obliterated. It is likely that pin and bearing wear altered the stress distribution and precipitated the failure.

A review of maintenance records revealed that the 41-year-old engine had been operated for about 1,400 total hours since new and about 50 flight hours since its most recent annual inspection, which was performed about 1 year before the accident. In addition, the No. 4 cylinder was overhauled about 23 years and 560 flight hours before the accident. It was also removed, reconditioned, and reinstalled about 4 years and 165 flight hours before the accident.

Flight Events

Enroute-cruise - Loss of engine power (total)
Emergency descent - Off-field or emergency landing
Landing-landing roll - Nose over/nose down

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
A total loss of engine power due to the fatigue failure of the No. 4 cylinder piston pin.

Findings

Aircraft-Aircraft power plant-Engine (reciprocating)-Recip eng cyl section-Fatigue/wear/corrosion - C

Aircraft-Aircraft power plant-Engine (reciprocating)-(general)-Not serviced/maintained

Pilot Information

Certificate:	Airline Transport	Age:	36
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:	8100 hours (Total, all aircraft), 250 hours (Total, this make and model), 6200 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 60 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	MAULE	Registration:	N40337
Model/Series:	M-4-220C	Engines:	1 Reciprocating
Operator:	On file	Engine Manufacturer:	FRANKLIN
Air Carrier Operating Certificate:	None	Engine Model/Series:	6A-350SER
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	MUI, 487 ft msl	Weather Information Source:	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	None
Condition of Light:	Day	Wind Speed/Gusts, Direction:	Calm
Temperature:	23°C / 19°C	Visibility	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fredericksburg, PA (9N7)	Destination:	BROGUE, PA (9W8)

Airport Information

Airport:	Farmers Pride (9N7)	Runway Surface Type:	Grass/turf
Runway Used:	28	Runway Surface Condition:	Vegetation
Runway Length/Width:	3410 ft / 150 ft		

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC):	Luke Schiada	Adopted Date:	08/25/2015
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=87094		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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