



National Transportation Safety Board Aviation Accident Final Report

Location:	Dunnellon, FL	Accident Number:	ERA17LA077
Date & Time:	12/30/2016, 1010 EST	Registration:	N6627U
Aircraft:	BEECH 76	Aircraft Damage:	Substantial
Defining Event:	Powerplant sys/comp malf/fail	Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The private pilot and an examiner were conducting a practical examination flight in a multiengine airplane. The pilot stated that, after takeoff and about 100 ft above ground level, he raised the landing gear and heard a "thud"; seconds later, the airplane began an uncommanded turn to the right, consistent with a right engine failure. The examiner took control of the airplane and determined that it lacked the climb performance to clear the obstacles in its path. He then retarded the throttles and landed gear-up in the grass between the runway and hangars on the airport. During the landing, the left wing struck a concrete drain and was substantially damaged.

Examination of the airplane revealed that the right engine single-drive dual magneto had separated from the accessory pad and was laying in the engine compartment. Because both magnetos were attached to the engine at a single point, the right engine lost power completely when this event occurred. The two nuts and clamps used to attach the magneto to the mounting studs were missing; the mounting studs appeared undamaged. Given this information, it is likely that the mounting nuts loosened over time, allowing the magneto to separate from the engine. The airplane's most recent 100-hour inspection was performed about 3 weeks (27 flight hours) before the accident. A required item of that inspection was to check studs and nuts for proper torqueing and obvious defects. Had the loose mounting nuts of the magneto been detected and corrected at this time, the magneto likely would not have separated from the engine.

Probable Cause and Findings

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

An inadequate 100-hour maintenance inspection that failed to detect and correct loose nuts on a single-drive dual magneto, which led to the subsequent separation of the magneto from the engine during initial climb and the total loss of engine power.

Findings

Aircraft	Magneto/distributor - Inadequate inspection (Cause)
Personnel issues	Scheduled/routine inspection - Maintenance personnel (Cause)
Environmental issues	Object/animal/substance - Contributed to outcome

Factual Information

On December 30, 2016, at 1010 eastern daylight time, a Beech 76, N6627U, was substantially damaged during a forced landing after takeoff from Marion County Airport (X35), Dunnellon, Florida. The private pilot and designated pilot examiner (DPE) were not injured. Visual meteorological conditions prevailed, and no flight plan was filed, for the instructional evaluation flight operated under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The flight was destined for the Crystal River Airport (CGC), Crystal River, Florida.

According to the private pilot, the purpose of the flight was to conduct the practical test for his commercial pilot certificate, with a rating for airplane multiengine land. The flight departed CGC about 0945, conducted some navigation and maneuvering exercises, and landed at X35. The pilot then performed a normal takeoff with a simulated right engine failure at an altitude of 800 feet above ground level, followed by a single-engine landing to a full stop. Next, the pilot performed a short-field takeoff from runway 5, which was 5,000 feet long by 100 feet wide).

About 100 feet above ground level, the pilot raised landing gear, heard a "thud," and seconds later the airplane began an "uncontrollable turn to the right much as one would expect from a right engine failure." The examiner took control of the airplane and determined it lacked the climb performance to clear the obstacles in its path. He then retarded the throttles and landed gear-up in the grass between the runway and the hangars on the east side of the airport. During the landing, the left wing struck a concrete drain and was substantially damaged.

According to the examiner, he took control due to a "delay in maintaining directional control" by the pilot.

The examiner held an airline transport pilot certificate with ratings for airplane single- and multiengine land, airplane single- and multiengine sea, and glider. He also held flight and ground instructor certificates. His most recent second-class medical certificate was issued on April 14, 2016, at which time he reported 24,600 total hours of flight experience.

The pilot held a private pilot certificate with ratings for airplane single- and multiengine land, and instrument airplane. His most recent second-class medical certificate was issued on August 18, 2016. The pilot reported 2,100 total hours of flight experience.

Examination of the airplane by a Federal Aviation Administration inspector revealed damage to the nose, propellers and fuselage belly. Flight control continuity was confirmed from each control surface to the cockpit controls. Examination of the right engine revealed that the single-drive dual magneto had separated from the accessory pad and was laying in the engine compartment. The two nuts and clamps used to attach the magneto to the mounting studs were missing. The mounting studs appeared undamaged.

Review of the airplane's maintenance records revealed that the magneto was installed on December 10, 2014, about 466 flight hours prior to the accident. The most recent 100-hour inspection was performed on December 7, 2016, about 27 flight hours prior to the accident.

Review of 14 CFR 41, Appendix D, Scope and Detail of Items (as applicable to the particular aircraft) to be Included in Annual and 100-hour Inspections revealed, "... (7) (2) Studs and nuts – for proper torquing and obvious defects..."

Review of engine failure after lift-off and in-flight information from an airplane make and model pilot operating handbook revealed, "An immediate landing is advisable regardless of take-off weight. Continued flight can not be assured if take-off weight exceeds the weight determined from the TAKE-OFF WEIGHT graph."

History of Flight

Prior to flight	Aircraft inspection event
Initial climb	Powerplant sys/comp malf/fail (Defining event) Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Private	Age:	26, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	08/05/2016
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	2145 hours (Total, all aircraft), 20 hours (Total, this make and model), 2037 hours (Pilot In Command, all aircraft), 18 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Check Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	89, Male
Airplane Rating(s):	Multi-engine Land; Multi-engine Sea; Single-engine Land; Single-engine Sea	Seat Occupied:	Right
Other Aircraft Rating(s):	Glider	Restraint Used:	
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	04/14/2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 24000 hours (Total, all aircraft), 24 hours (Total, this make and model), 23300 hours (Pilot In Command, all aircraft), 72 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	Registration:	N6627U
Model/Series:	76 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1979	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	ME-214
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	12/07/2016, 100 Hour	Certified Max Gross Wt.:	3900 lbs
Time Since Last Inspection:	27 Hours	Engines:	2 Reciprocating
Airframe Total Time:	10534 Hours at time of accident	Engine Manufacturer:	Lycoming
ELT:	C91A installed, not activated	Engine Model/Series:	LO-360-A1G6D
Registered Owner:	CRYSTAL AERO GROUP INC	Rated Power:	180 hp
Operator:	CRYSTAL AERO GROUP INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KOCF, 87 ft msl	Distance from Accident Site:	9 Nautical Miles
Observation Time:	0950 EST	Direction from Accident Site:	50°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.32 inches Hg	Temperature/Dew Point:	9°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Dunnellon, FL (X35)	Type of Flight Plan Filed:	None
Destination:	CRYSTAL RIVER, FL (CGC)	Type of Clearance:	None
Departure Time:	1015 EST	Type of Airspace:	

Airport Information

Airport:	MARION COUNTY (X35)	Runway Surface Type:	Asphalt
Airport Elevation:	65 ft	Runway Surface Condition:	Dry
Runway Used:	05	IFR Approach:	None
Runway Length/Width:	5000 ft / 100 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	29.065000, -82.371111 (est)

Administrative Information

Investigator In Charge (IIC):	Douglass P Brazy	Report Date:	07/08/2019
Additional Participating Persons:	Gerald Litzkey; FAA/FSDO; Orlando, FL		
Publish Date:	07/08/2019		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=94564		

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.

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](#).