



National Transportation Safety Board Aviation Accident Final Report

| | | | |
|--------------------------------|---|-------------------------|-------------|
| Location: | Hollywood, FL | Accident Number: | ERA16LA295 |
| Date & Time: | 08/19/2016, 1130 EDT | Registration: | N16499 |
| Aircraft: | PIPER PA34 | Aircraft Damage: | Substantial |
| Defining Event: | Part(s) separation from AC | Injuries: | 2 None |
| Flight Conducted Under: | Part 91: General Aviation - Instructional | | |

Analysis

During an instructional flight in a multiengine airplane, the pilot receiving instruction had just completed a right turn at an altitude of 3,300 ft mean sea level when the flight instructor heard a loud noise and saw something separate from the right engine. The flight instructor took the controls but was unable to maintain altitude with one engine operating and performed a forced landing into a swamp. Examination of the wreckage revealed that the right engine had separated from its mounts, one propeller blade was missing, and the right propeller hub was fractured. Metallurgical examination of the propeller hub revealed a fatigue fracture along a grease-fitting hole. An airworthiness directive had been issued about 8 years before the accident that required initial (within 50 flight hours) and repetitive (every 100 flight hours) eddy current inspection of the area around the lubrication holes of the propeller hub blade sockets. The right propeller had been overhauled about 14 months before the accident and had accrued about 440 hours at the time of the accident. The airplane's most recent 100-hour inspection (which included inspection of both propellers) occurred about 3 months before the accident. Review of maintenance records did not reveal any documentation that the airworthiness directive was complied with on the overhauled right propeller hub.

Probable Cause and Findings

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

Maintenance personnel's failure to comply with an airworthiness directive for the propeller, which resulted in a propeller hub failure due to fatigue.

Findings

| | |
|------------------|---|
| Aircraft | Propeller hub section - Failure (Cause) |
| Personnel issues | Scheduled/routine maintenance - Maintenance personnel (Cause) |

Factual Information

On August 19, 2016, at 1130 eastern daylight time, a Piper PA-34-200, N16499, was substantially damaged during a forced landing near Hollywood, Florida. The flight instructor and pilot receiving instruction were uninjured. The airplane was registered to and operated by American Flight Training LLC. Visual meteorological conditions prevailed, and no flight plan was filed for the local instructional flight, which was conducted under the provisions of 14 *Code of Federal Regulations* Part 91. The flight departed from North Perry Airport (HWO), Hollywood Florida, about 1100.

The purpose of the flight was to perform practice maneuvers in preparation for a multiengine instructor practical examination. According to the flight instructor, the pilot receiving instruction was at the controls and had just completed a right turn at an altitude of 3,300 feet mean sea level, when he heard a loud noise and observed something separate from the right engine. He took the controls and headed east toward the airport, when he noticed the airplane would not maintain altitude. According to the pilot receiving instruction, the right engine had partially separated from its mounts, and was angled downward. The instructor performed a forced landing to an area of tall sawgrass and shallow water.

Examination of the wreckage at the scene by a Federal Aviation Administration (FAA) inspector revealed that the right engine had separated from its mounts and was found about 75 feet in front of the airplane. One propeller blade was missing and the propeller hub was fractured. The left wing trailing edge and aileron were substantially damaged. The empennage was buckled on both sides near the mid-section attachment point.

Metallurgical examination of the right engine propeller hub revealed a features consistent with a fatigue fracture along a grease-fitting hole (for more information, see Materials Laboratory Factual Report for this accident in the NTSB public docket).

An FAA airworthiness directive (AD 2008-13-28) had been issued on July 2, 2008 (and was superseded by AD 2009-22-03 on November 12, 2009). The 2009 AD required initial (within 50 hours time in service) and repetitive (every 100 hours) eddy current inspection of the area around the lubrication holes of the propeller hub blade sockets. The AD resulted from four reports of propeller hub cracks and was applicable to the make and model accident propeller hub.

Maintenance records revealed that the airplane's most recent 100-hour inspection (which included inspection of both propellers) occurred on May 27, 2016, at which time the propeller installed on the right engine had accrued a total of 7,100 hours, with 380 hours since overhaul on June 2, 2015. The airplane flew about 60 hours since that inspection. Review of the maintenance records did not reveal any documentation that AD 2008-13-28 (or 2009-22-03) had been complied with on the overhauled accident propeller.

History of Flight

| | |
|--------------------------|--|
| Maneuvering | Part(s) separation from AC (Defining event) Powerplant sys/comp malf/fail |
| Emergency descent | Off-field or emergency landing |
| Landing | Collision with terr/obj (non-CFIT) |

Flight Instructor Information

| | | | |
|----------------------------------|---|--|------------|
| Certificate: | Airline Transport | Age: | 51, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Right |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | Airplane Multi-engine; Airplane Single-engine; Instrument Airplane | Toxicology Performed: | No |
| Medical Certification: | Class 1 With Waivers/Limitations | Last FAA Medical Exam: | 04/18/2016 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | 02/02/2015 |
| Flight Time: | 10995 hours (Total, all aircraft), 1150 hours (Total, this make and model), 9300 hours (Pilot In Command, all aircraft), 135 hours (Last 90 days, all aircraft), 89 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft) | | |

Pilot-Rated Passenger Information

| | | | |
|----------------------------------|--|--|------------|
| Certificate: | Commercial | Age: | 22, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | Airplane Single-engine; Instrument Airplane | Toxicology Performed: | No |
| Medical Certification: | Class 1 Without Waivers/Limitations | Last FAA Medical Exam: | 08/12/2014 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | 06/22/2016 |
| Flight Time: | 429 hours (Total, all aircraft), 40 hours (Total, this make and model), 335 hours (Pilot In Command, all aircraft), 86 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft) | | |

Aircraft and Owner/Operator Information

| | | | |
|-------------------------------|--------------------------------|--------------------------------|--------------------|
| Aircraft Make: | PIPER | Registration: | N16499 |
| Model/Series: | PA34 200 | Aircraft Category: | Airplane |
| Year of Manufacture: | 1973 | Amateur Built: | No |
| Airworthiness Certificate: | Normal | Serial Number: | 34-7350132 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 6 |
| Date/Type of Last Inspection: | 05/27/2016, 100 Hour | Certified Max Gross Wt.: | 3999 lbs |
| Time Since Last Inspection: | 61 Hours | Engines: | 2 Reciprocating |
| Airframe Total Time: | 7160 Hours at time of accident | Engine Manufacturer: | LYCOMING |
| ELT: | Installed | Engine Model/Series: | IO-360-C1E6 |
| Registered Owner: | AMERICAN FLIGHT TRAINING LLC | Rated Power: | 200 hp |
| Operator: | AMERICAN FLIGHT TRAINING LLC | Operating Certificate(s) Held: | Pilot School (141) |

Meteorological Information and Flight Plan

| | | | |
|----------------------------------|----------------------------------|--------------------------------------|-------------------|
| Conditions at Accident Site: | Visual Conditions | Condition of Light: | Day |
| Observation Facility, Elevation: | KHOW, 9 ft msl | Distance from Accident Site: | 19 Nautical Miles |
| Observation Time: | 1155 EDT | Direction from Accident Site: | 95° |
| Lowest Cloud Condition: | | Visibility | 10 Miles |
| Lowest Ceiling: | Broken / 4000 ft agl | Visibility (RVR): | |
| Wind Speed/Gusts: | 3 knots / | Turbulence Type Forecast/Actual: | None / None |
| Wind Direction: | 120° | Turbulence Severity Forecast/Actual: | N/A / N/A |
| Altimeter Setting: | 30.06 inches Hg | Temperature/Dew Point: | 32° C / 23° C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | HOLLYWOOD, FL (HWO) | Type of Flight Plan Filed: | None |
| Destination: | HOLLYWOOD, FL (HWO) | Type of Clearance: | None |
| Departure Time: | 1100 EDT | Type of Airspace: | Class G |

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: | 26.026667, -80.592778 |

Administrative Information

| | | | |
|--|---|---------------------|------------|
| Investigator In Charge (IIC): | Douglass P Brazy | Report Date: | 03/18/2019 |
| Additional Participating Persons: | Juan C Garcia; FAA/FSDO; Miramar, FL Les Doud; Hartzell Propeller Inc; Piqua, OH | | |
| Publish Date: | 03/18/2019 | | |
| Note: | The NTSB did not travel to the scene of this accident. | | |
| Investigation Docket: | http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=93862 | | |

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](#).