



National Transportation Safety Board Aviation Accident Final Report

Location:	Gallatin, TN	Accident Number:	ERA16LA183
Date & Time:	05/13/2016, 1430 CDT	Registration:	N5823Z
Aircraft:	PIPER PA 22	Aircraft Damage:	Substantial
Defining Event:	Fire/smoke (non-impact)	Injuries:	3 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

During preflight inspection of the airplane, the pilot discovered three baby birds in the cockpit. After removing the birds, he continued his preflight inspection, looking for a nest. He noticed that the rag normally used to cover one of the elevator openings was missing, but he did not find a nest inside. Immediately after takeoff, about 100 ft above ground level, a fire started within the engine compartment, and smoke began to enter the cockpit. The pilot turned the airplane back toward the runway, but lost control as the airplane touched down because his visibility was limited by the smoke. The occupants egressed the airplane, which was subsequently consumed by fire. Postaccident examination of the wreckage revealed remnants of a bird nest between the exhaust manifold and the engine firewall, which was the likely origin of the fire.

Probable Cause and Findings

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

The pilot's inadequate preflight inspection, which resulted in an inflight fire due to the presence of a bird nest in the engine compartment.

Findings

Personnel issues	Preflight inspection - Pilot (Cause)
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Factual Information

On May 13, 2016, about 1430 central daylight time, a Piper PA-22, N5823Z, was substantially damaged during an emergency landing at Sumner County Regional Airport (M33) Gallatin, Tennessee. The private pilot and two passengers were uninjured. The airplane was privately owned and operated. Visual meteorological conditions prevailed and no flight plan was filed for the local, personal flight that was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

The pilot stated that when he arrived at the airplane to conduct his preflight inspection, the cockpit area contained "three live baby birds." He did not see any sign of a nest, but did notice that one of the elevator openings was not covered up by a rag that he placed in the opening several months before. He resumed his preflight inspection and did not see any additional evidence of bird activity or a nest. After engine start and a 5-minute taxi, he departed runway 35.

During the initial climb, about 100 feet above ground level, black smoke started pouring out of the left side rudder area. The pilot attempted to make a 180-degree steep turn back to runway 17. During the turn, fire emanated out of the left side of the rudder pedal area. The pilot stated he attempted to stomp out the fire near his left foot but was unable to extinguish the blaze. The cockpit filled with smoke and limited ability to see the runway. He touched down at an airspeed between 30 and 40 knots but could not see the runway.

A witness reported that after touching down on the runway, the airplane's "tail started going back and forth." The airplane bounced several times, swerved and departed the right side of the paved surface of the runway and nosed over into the grass, approximately two-thirds of the way down the runway. After it came to rest, the passengers and pilot evacuated before the airplane became engulfed in flames.

According to the pilot and Federal Aviation Administration (FAA) records, the pilot held a private pilot certificate with a rating for airplane single-engine land. The pilot reported 959 total hours of flight experience, and 159 of those hours where in the accident airplane make and model.

According to FAA and airplane maintenance records, an annual inspection was completed on September 1, 2015 and at that time the airframe had accumulated 4,013 total hours.

The airplane came to rest on its nose, about 45 degrees nose down, approximately 3,700 feet down runway 17, and 6 feet off the paved surface. Both propeller blades exhibited chordwise scraping and were curled aft. The engine compartment was fire-damaged, with the most severe damage located aft of the engine near the firewall. The fire propagated aft from the engine compartment, through the cockpit and to the left wing, fuselage and tail. The right wing and right elevator remained covered with fabric and remained largely intact. An exterior examination of the engine revealed remnants of a bird nest between the top of the exhaust manifold and the firewall. No other abnormalities were noted.

History of Flight

Prior to flight	Aircraft inspection event
Initial climb	Fire/smoke (non-impact) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Loss of control on ground

Pilot Information

Certificate:	Private	Age:	74, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap Only
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 None	Last FAA Medical Exam:	07/06/2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	06/06/2014
Flight Time:	959 hours (Total, all aircraft), 159 hours (Total, this make and model), 959 hours (Pilot In Command, all aircraft), 1 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N5823Z
Model/Series:	PA 22 108	Aircraft Category:	Airplane
Year of Manufacture:	1963	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	22-9680
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	09/01/2015, Annual	Certified Max Gross Wt.:	1649 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	4013.75 Hours as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	O-235
Registered Owner:	HARMS GREGORY F	Rated Power:	108 hp
Operator:	HARMS GREGORY F	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	M33, 583 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1935 UTC	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots / 13 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	340°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.11 inches Hg	Temperature/Dew Point:	23° C / 8° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Gallatin, TN (M33)	Type of Flight Plan Filed:	None
Destination:	Gallatin, TN (M33)	Type of Clearance:	None
Departure Time:	1420 CDT	Type of Airspace:	Class G

Airport Information

Airport:	SUMNER COUNTY RGNL (M33)	Runway Surface Type:	Asphalt
Airport Elevation:	583 ft	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	6300 ft / 100 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	In-Flight
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	36.373333, -86.408333

Preventing Similar Accidents

Is Your Aircraft Talking to You? Listen!

Some pilots do not pay adequate attention to indications of aircraft mechanical problems, which can lead to in-flight emergencies and accidents. Powerplant system and component failures are the third-most common defining event for general aviation fatal accidents; nonpowerplant system or component failures also rank high on the list.

Safety should take precedence over all other considerations. Listen to what your aircraft is telling you; it is better to address a problem on the ground than risk having to deal with an emergency in the air. Maintenance diagnostic flights should not have passengers onboard because such flights are conducted to identify problems, which the pilot should be prepared to

handle. Maintenance troubleshooting sometimes takes time, and the aircraft must perform correctly after maintenance. If any indication of a potential problem persists, additional maintenance or a second opinion may be needed.

The most critical aspect of safe flying is to always be prepared. If an in-flight emergency should occur, the pilot must quickly and successfully execute the aircraft's emergency procedures. All pilots should ensure that flight and ground training are current and that their skills are not rusty; an emergency is not the time to practice.

See http://www.nts.gov/safety/safety-alerts/documents/SA_021.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Lawrence A Mccarter	Report Date:	01/26/2017
Additional Participating Persons:	Richard E Horner; FAA-FSDO; Nashville, TN		
Publish Date:	01/26/2017		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=93167		

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](#).