



National Transportation Safety Board Aviation Accident Final Report

Location:	Granbury, TX	Accident Number:	CEN15FA422
Date & Time:	09/24/2015, 1908 CDT	Registration:	N929DS
Aircraft:	PIERCE, HENRY BUSHBY MUSTANG II	Aircraft Damage:	Destroyed
Defining Event:	Aerodynamic stall/spin	Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Witnesses observed the airplane takeoff, and level off as it flew down the runway at a low altitude. It then entered a steep nose-up climb, followed by a sudden roll to the right and a steep nose-down descent. Video images from a security camera, showed the airplane descended at about 20° to 30° nose-down attitude until it impacted the terrain. Examination of the wreckage did not find any anomalies that would have contributed to the accident. Signatures on the propeller were consistent with the propeller being driven during the impact sequence. A review of the pilot's video camera found recordings of similar maneuvers that had a right rolling tendency during the airplane's recovery to level flight. The circumstances of the accident were consistent with the pilot's exceedance of the airplane's critical angle of attack during a steep climb resulting in an aerodynamic stall and collision with terrain.

Probable Cause and Findings

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

The pilot's exceedance of the airplane's critical angle of attack resulting in an aerodynamic stall and collision with terrain.

Findings

Aircraft	Angle of attack - Capability exceeded (Cause)
Personnel issues	Aircraft control - Pilot (Cause)

Factual Information

History of Flight

Takeoff	Abrupt maneuver
Initial climb	Aerodynamic stall/spin (Defining event) Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)
Post-impact	Part(s) separation from AC Explosion (post-impact) Fire/smoke (post-impact)

On September 24, 2015, at 1908 central daylight time, a kit-built Mustang II airplane, N929DS, impacted terrain during initial climb at Granbury Regional Airport (GDJ), Granbury, Texas. The pilot and the passenger were fatally injured, and the airplane was destroyed. The airplane was registered to and operated by a private individual, as a 14 Code of Federal Regulations Part 91 personal flight. Day visual meteorological conditions prevailed and a flight plan had not been filed. At the time of the accident the airplane was departing GDJ for a local flight.

Witnesses at the north end of the runway, reported that after the airplane took off to the south, it briefly leveled off and flew down the runway at low altitude. It then entered a steep nose-up climb, followed by a sudden roll to the right, and a steep nose-down descent. Video images from a security camera, about 700 feet away, showed the airplane descended in a 20° to 30° nose-down attitude. The airplane impacted the terrain and a postimpact fire ensued.

Pilot Information

Certificate:	Commercial; Private	Age:	40, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Unknown
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	06/11/2015
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	06/03/2014
Flight Time:	(Estimated) 6379.5 hours (Total, all aircraft), 35 hours (Total, this make and model), 6136.5 hours (Pilot In Command, all aircraft), 126.6 hours (Last 90 days, all aircraft), 58.5 hours (Last 30 days, all aircraft)		

The pilot was employed as a helicopter pilot for an air ambulance company. He normally operated Bell 206L3 and 407 helicopters. He purchased, N929DS, a completed Mustang II on August 18, 2015. The pilot had accumulated 33.5 hours in the accident airplane. The pilot's last biannual flight review was conducted on June 3, 2014, in a Bell 206L3. The pilot's last biannual flight review in a fixed-wing aircraft was not located during the investigation. It could not be determined when the pilot last practiced stall recoveries.

Aircraft and Owner/Operator Information

Aircraft Make:	PIERCE, HENRY	Registration:	N929DS
Model/Series:	BUSHBY MUSTANG II	Aircraft Category:	Airplane
Year of Manufacture:	1987	Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	1242
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	05/19/2015, Annual	Certified Max Gross Wt.:	1500 lbs
Time Since Last Inspection:	33 Hours	Engines:	1 Reciprocating
Airframe Total Time:	436.3 Hours at time of accident	Engine Manufacturer:	LYCOMING
ELT:		Engine Model/Series:	O-360-D1A
Registered Owner:	On file	Rated Power:	168 hp
Operator:	On file	Operating Certificate(s) Held:	None

N929DS, was an amateur built, low wing, single engine airplane. On May 19, 2015, the airplane was inspected in accordance with Federal Aviation Rule 43 Appendix D and found to be in a condition for safe operation. At the time of that inspection, the airplane and engine had accumulated 402.88 hours. Using data obtained from the pilot's log book, at the time of the accident, the airplane had accrued no less than 436.3 hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KGDJ, 778 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1855 CDT	Direction from Accident Site:	331°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	40°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.03 inches Hg	Temperature/Dew Point:	31° C / 9° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Granbury, TX (GDJ)	Type of Flight Plan Filed:	None
Destination:	Granbury, TX (GDJ)	Type of Clearance:	None
Departure Time:	1908 CDT	Type of Airspace:	Class G

Airport Information

Airport:	GRANBURY RGNL (GDJ)	Runway Surface Type:	Asphalt
Airport Elevation:	778 ft	Runway Surface Condition:	Dry
Runway Used:	14	IFR Approach:	None
Runway Length/Width:	3603 ft / 60 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	2 Fatal	Latitude, Longitude:	32.438889, -97.813611 (est)

The wreckage came to rest in a grass field near the departure end of runway 14. Impact signatures were consistent with a nose low collision with terrain. The airplane's propeller, spinner, and hub fractured from the engine at the propeller flange and was partially embedded in the ground. The main wreckage was several yards away from the propeller and consisted of

the remainder of the airplane. A postimpact fire consumed much of the wreckage. Flight control continuity was established. Examination of the propeller found deep pitting and gouging on the leading edges of both blades. In addition, both blades exhibited deep chord wise scratches. One blade was fractured near its mid-span with grainy, gravelly fracture surfaces. No anomalies were detected with the airframe.

The engine was examined. Engine continuity and compression was verified to each cylinder. The carburetor and magnetos were heat damaged and could not be tested. There were no preimpact defects noted with the engine.

Several cockpit electronic devices which had the potential for retaining data via non-volatile memory were sent to the NTSB laboratory for examination and data download. Fire damage precluded the download of data from any of the devices. A GoPro Hero 2 camera found in the wreckage was also sent to the lab for download.

Medical And Pathological Information

An autopsy was performed on the pilot by Tarrant County Medical Examiner as authorized by the Justice of the Peace of Hood County. The cause of death was "multiple blunt force injuries due to [an] aircraft crash with [a] post-crash fire." The manner of death was ruled an accident.

The FAA Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. Testing was negative for all tested substances.

Tests And Research

GoPro Camera

An exterior examination revealed the camera unit had not sustained any damage and image recording information was extracted from the associated SD card. The card contained 26 aviation related video files. Of the 26 video files, 18 were determined to have been recorded in the accident airplane. None of the 18 video files recorded in the accident airplane contained a recording of the accident flight.

Of the 18 video files, eight recordings contained a maneuver similar to the maneuver described by witnesses. In the eight recordings, the aircraft began a takeoff roll, became airborne, and remained at a low altitude as it traveled down the runway. Near the departure end of the runway, the aircraft climbed quickly and subsequently was brought to a level attitude. In most recordings where this maneuver was conducted, the aircraft exhibited a varying degree of right roll, either at the same time the aircraft was brought to a level attitude or within moments thereafter. During the 8 recordings when this maneuver was conducted, the aircraft's airspeed indicator never displayed a value of less than 80 mph. During one recording in which this

maneuver was conducted, an electronic tone was heard on the audio track. The electronic tone was consistent with the stall warning tone heard on the aircraft's previous landings. The indicated airspeed at the time of this tone was approximately 105 mph and the aircraft's attitude was about 10° in pitch and 45° in roll to the right. At this time, the pilot was exiting the climb maneuver and leveling the airplane. Though the stall warning horn did briefly sound, there were no other indications the aircraft was approaching a stalled condition.

Administrative Information

Investigator In Charge (IIC):	Jason T Aguilera	Report Date:	05/31/2017
Additional Participating Persons:	Cameron Baker; FAA North Texas FSDO; Arlington, TX Mike Ailport; FAA North Texas FSDO; Arlington, TX John Butler; Lycoming Motors; Williamsport, PA		
Publish Date:	05/31/2017		
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=92052		

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](#).