



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Cummings, KS	<b>Accident Number:</b>	CEN17FA270
<b>Date &amp; Time:</b>	07/16/2017, 1018 CDT	<b>Registration:</b>	N251PW
<b>Aircraft:</b>	NORTH AMERICAN/AERO CLASSICS P 51	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The pilot and the pilot-certificated passenger departed on a local flight, and the airplane was seen performing aerobatics before the accident. A witness then saw the airplane fly low over the ground, pitch up at a steep angle, turn, descend, and impact the ground in a near vertical attitude. Ground scars and damage to the airplane were consistent with the airplane impacting trees with the right wing, and then the ground in a nose-low, wings-level attitude with a pitch in excess of 60° nose down. According to radar data, the airplane lost about 1,000 ft in altitude during the final 5 seconds of the flight; the rate of descent was about 12,000 ft per minute. The location of the accident was within 250 ft of the last known radar target.

The airplane wreckage was severely fragmented and all damage to the airframe, engine, propeller, and flight controls was consistent with a high-speed impact. Examination of the airframe, engine, and related systems revealed no evidence of any anomalies that would have precluded normal operations.

After performing in an air show the day before the accident, the pilot had agreed to take the pilot-certificated passenger for a ride in the airplane before he departed the area. The airplane was equipped with dual flight controls and it could not be determined who was manipulating the flight controls just before or at the time of the accident.

The pilot's autopsy revealed evidence of previous damage to his heart tissue, and this placed him at risk of a sudden cardiac event such as a heart attack or dysrhythmia. Such an event would likely cause acute symptoms such as chest pain, shortness of breath, palpitations, or loss of consciousness, and sudden impairment or incapacitation could result. However, although such an event might explain the loss of control, it does not explain why the plane was flying at a low altitude. Because of the unknown flight circumstances just before the loss of control, it could not be determined whether the pilot's heart disease contributed to the accident.

Although toxicology test results for both occupants identified ethanol in some tissues, the levels varied widely and were negative on two tests for the pilot-certificated passenger. As a result, it is most likely that the identified ethanol was from sources other than ingestions.

## Probable Cause and Findings

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

The loss of airplane control while maneuvering at low altitude for reasons that could not be determined.

### Findings

<b>Personnel issues</b>	Aircraft control - Other/unknown (Cause)
<b>Not determined</b>	Not determined - Unknown/Not determined (Cause)

## Factual Information

### History of Flight

Maneuvering	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On July 16, 2017, about 1018 central daylight time, a North American Aero Classics P-51-D airplane, N251PW, was destroyed when it impacted trees and the ground 2.5 miles northeast of Cummings, Kansas. The airline transport pilot and the commercial pilot-certificated passenger were fatally injured. The airplane was owned by Mustang Historic Military Aircraft, LLC., and it was operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no Federal Aviation Administration (FAA) flight plan had been filed for the flight. The local personal flight departed Amelia Earhart Airport (K59), Atchison, Kansas, about 1005.

According to several witnesses located between K59 and the accident site, the airplane performed aerobatics in the area south of the airport. A witness located several hundred feet from the accident location observed the airplane fly over nearby power lines between 25 ft and 30 ft above the ground. The airplane then pitched up to climb in a near vertical attitude, the nose of the airplane turned to the left, the airplane turned left and then pitched down in a nose-low attitude. The airplane descended towards the ground and just before impact the tail of the airplane came up. The airplane impacted the ground in a near vertical attitude. When the witness heard the airplane flying overhead, he initially thought it was the pilot-certificated passenger flying an agricultural airplane, as she routinely flew over that area in the same manner during agricultural operations.

Radar data, provided by the FAA in National Track Analysis Program (NTAP) format, identified and depicted the accident flight from shortly after departure at 1009:41 until the time of the accident. The airplane initially climbed to 2,000 ft mean sea level (msl); the altitude varied between 2,100 ft and 4,400 ft msl. During the last 30 seconds of the flight, the altitude was about 2,500 ft at 1018:04, increased to 2,700 ft at 1018:08, decreased to 2,500 ft at 1018:22, and continued to decrease to 1,600 ft at 1018:27. The last radar target was located 250 ft to the northeast of the initial impact point.

## Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor; Commercial; Flight Engineer	<b>Age:</b>	64, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	Glider	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Glider; Instrument Airplane	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	05/22/2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	03/18/2016
<b>Flight Time:</b>	(Estimated) 10879 hours (Total, all aircraft), 4000 hours (Total, this make and model)		

## Pilot-Rated Passenger Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	34, Female
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Rear
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	12/09/2016
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 2000 hours (Total, all aircraft), 0 hours (Total, this make and model)		

## Pilot

The pilot's most recent second-class airman medical certificate contained the limitations "Holder shall possess glasses for near/intermediate vision. Not valid for any class after 05/31/2018."

The pilot held a FAA Statement of Aerobatic Competency for four different warbird airplanes including the P-51. His altitude level was "Level 1: Unrestricted" and he held endorsements for solo and formation aerobatics. His endorsement expired in October 2019. According to the pilot's family, he had been flying the make and model of the accident airplane for over 20 years.

## Pilot-Certificated Passenger

The pilot-certificated passenger's most recent second-class airman medical certificate contained the limitations "must wear corrective lenses." On the application for this certificate,

she estimated her total flight time as 2,000 hours; of which 600 hours had been logged in the past 6 months.

The pilot-certificated passenger was the airport manager at K59 and was employed by McElwain Aerial Spraying as an agriculture pilot. She did not have any flight time or experience in the accident airplane make and model.

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	NORTH AMERICAN/AERO CLASSICS	<b>Registration:</b>	N251PW
<b>Model/Series:</b>	P 51 D	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1944	<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Limited	<b>Serial Number:</b>	44-72086
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	04/01/2017, Annual	<b>Certified Max Gross Wt.:</b>	11610 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1108.6 Hours as of last inspection	<b>Engine Manufacturer:</b>	Rolls-Royce
<b>ELT:</b>	C91 installed, not activated	<b>Engine Model/Series:</b>	V-1650-7
<b>Registered Owner:</b>	MUSTANG HISTORIC MILITARY AIRCRAFT LLC	<b>Rated Power:</b>	1590 hp
<b>Operator:</b>	Warbird Heritage Foundation	<b>Operating Certificate(s) Held:</b>	None

The North American P-51-D Mustang is a low-wing, single seat, single engine, propeller driven airplane originally designed and built as a long-range fighter for the military and used during World War II and the Korean War. The accident airplane, Serial Number (S/N) 44-72086, was delivered to the Army Air Forces on January 20, 1945. The airplane was acquired by the current owner in 1996 and restored to an airworthy condition in 2011. The airplane was painted in the markings of Capt. Herbert G. Kolb's "Baby Duck" from the U.S. Army 8th Air Force, 353rd Fighter Group, 350th Fighter Squadron.

The airplane was modified by the addition of a second seat aft of the standard single pilot seat. According to the airplane maintenance records, the aft seat was equipped with a second set of flight controls that were installed in 1968. The controls consisted of a control stick, rudder pedals without brake inputs, throttle lever, and a limited set of flight instruments. There were no trim controls, landing gear controls, or radios in the aft compartment.

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KSTJ, 826 ft msl	Distance from Accident Site:	25 Nautical Miles
Observation Time:	1053 CDT	Direction from Accident Site:	25°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.06 inches Hg	Temperature/Dew Point:	29° C / 24° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Atchison, KS (K59)	Type of Flight Plan Filed:	None
Destination:	Atchison, KS (K59)	Type of Clearance:	None
Departure Time:	1005 CDT	Type of Airspace:	Class E

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	39.482222, -95.204444

The accident site was located in rolling terrain at an elevation of 1,050 ft msl and the airplane impacted the ground on a magnetic heading of 259°.

Several branches were separated from a tree and the angle of damage through the tree was estimated at 60°. A long and narrow ground scar, oriented perpendicular to the debris path, was located just forward of the tree and contained the pitot tube from the wing. A large crater contained bent and torn metal, the engine, gearbox, and propeller assembly. The empennage and fragmented pieces of the fuselage were located 25 ft northwest of the propeller assembly. Fragmented pieces of both wings, the rudder, elevator, and the fuselage were scattered in the debris field that extended over 450 ft from the initial impact point.

The cockpit instruments had separated from their cockpit locations and did not convey reliable readings. All the major portions of the airplane were accounted for on scene.

## Medical And Pathological Information

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### Pilot

The Forensic Medical Morgue of Kansas City, Kansas, performed the autopsy on the pilot on July 17, 2017, as authorized by the Atchison County Coroner's office. The autopsy concluded that the cause of death was "blunt traumatic injuries sustained in a plane crash" and the report listed the specific injuries. The autopsy was limited by the severity of trauma but revealed coronary artery disease described as "mild" and focal hypertrophic cardiac myocytes and a focal healed endomyocardial scar by microscopy. The pilot had longstanding diabetes, hypertension, and high cholesterol, which were controlled with medications. He had reported these conditions and their treatment to the FAA.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological tests on specimens that were collected during the pilot's autopsy. Tests of the tissue revealed 54 mg/dL ethanol in the liver, 10 mg/dL ethanol in muscle, atorvastatin in the lung and liver, and losartan in the liver. Putrefaction was present in the samples. Atorvastatin and losartan do not cause impairment or incapacitation. When ethanol is ingested, it is quickly distributed throughout the body's tissues and fluids fairly uniformly. Ethanol may also be produced in the body after death by microbial activity.

### Pilot-Certificated Passenger

The Forensic Medical Morgue of Kansas City, Kansas, performed the autopsy on the pilot-certificated passenger on July 17, 2017, as authorized by the Atchison County Coroner's office. The autopsy concluded that the cause of death was "blunt traumatic injuries sustained in a plane crash" and the report listed the specific injuries. No significant natural disease was identified.

The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological tests on specimens that were collected during the pilot-certificated passenger's autopsy. Results were negative for carbon monoxide and tested drugs. Tests of the blood revealed 36 mg/dL ethanol. Putrefaction was present in the samples.

## Tests And Research

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The wreckage of the airplane was recovered to a secured facility for further examination.

The forward and aft flight control components were reconstructed to ascertain continuity. The controls were deformed, fractured, and separated in numerous places, and all fractures had a dull, grainy appearance consistent with overstress separation. The empennage wreckage consisted of the left and right horizontal stabilizers, elevator, vertical stabilizer, and aft fuselage. There was significant impact damage and deformation.

The propeller separated from the engine at the reduction gear box and one propeller blade fractured at the hub flange. All four propeller blades exhibited leading edge damage and chordwise scratching on the camber sides. The blower assembly separated from the aft end of the engine. The first stage impeller blades in the blower were all bent clockwise, opposite the direction of rotation.

For a detailed description of the wreckage examination see the Airworthiness Group Chairman's factual report available in the public docket for this accident.

### Additional Information

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The accident airplane was owned by Historic Military Aircraft, LLC, and was operated by the Warbird Heritage Foundation. The pilot was hired through Dacy Airshows to perform in an airshow; part of the Amelia Earhart Festival which took place the day before the accident.

The pilot-certificated passenger approached the pilot on the evening before the accident and queried about a flight in the airplane. It was agreed that they would fly together before he departed the next day. One witness stated that he was not aware of any agreement for the pilot-certificated passenger to manipulate the flight controls. The pilot-certificated passenger was seated in the back seat and had access to the flight controls; however, investigators were not able to determine who was manipulating the flight controls just before or at the time of the accident.

### Administrative Information

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<b>Investigator In Charge (IIC):</b>	Jennifer Rodi	<b>Report Date:</b>	03/18/2019
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<b>Additional Participating Persons:</b>	Jeff L Smith; Federal Aviation Administration; Wichita, KS Paul R Wood; Warbird Heritage Foundation; Waukegan, IL Sam Taber; Tab-Air Maintenance & Restoration; East Troy, WI
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<b>Publish Date:</b>	03/18/2019
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<b>Note:</b>	The NTSB traveled to the scene of this accident.
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<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=95581">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=95581</a>
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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](#).