



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Ponca City, Oklahoma	<b>Accident Number:</b>	CEN18FA310
<b>Date &amp; Time:</b>	August 4, 2018, 10:45 Local	<b>Registration:</b>	N13EP
<b>Aircraft:</b>	Extra EA 400	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	5 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot was conducting a personal flight with four passengers. A witness observed the airplane take off and climb slowly from the airport. A pilot flying in the vicinity observed the airplane maneuver erratically before the airplane impacted terrain in a near-vertical attitude. The airplane was destroyed by impact forces and a postimpact fire.

The wreckage was contained to a confined area in the field and the remains of the major airplane components were all accounted for. Extensive thermal damage to the airframe and engine limited the scope of the postaccident examination. The impact energy needed to drive the engine into the ground suggested that the engine was producing power at the time of the accident. A postaccident examination of the remaining airframe and engine components did not reveal any anomalies which would have precluded normal operation of the airplane.

Depending on the amount of fuel, baggage and equipment on board, and the location of the adult passenger, the center of gravity (CG) could have been within or aft of the recommended CG. Since fuel load and location of the passengers could not be determined or may have shifted during flight, it is not known if loading contributed to the accident.

The pilot was not operating with valid medical certification. His second-class medical certificate had expired several years prior to the accident and Federal Aviation Administration records did not indicate that he had obtained BasicMed medical certification. A pilot-rated passenger was seated in the right-front seat. Investigators were unable to determine who was manipulating the flight controls of the airplane at the time of the accident.

The circumstances of the accident are consistent with the pilot's loss of control. However, the reason for the loss of control could not be determined with the available evidence.

## Probable Cause and Findings

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

The pilot's loss of control for reasons that could not be determined with the available evidence.

### Findings

<b>Personnel issues</b>	Aircraft control - Pilot
<b>Aircraft</b>	(general) - Not attained/maintained
<b>Not determined</b>	(general) - Unknown/Not determined

## Factual Information

### History of Flight

<b>Maneuvering</b>	Loss of control in flight (Defining event)
<b>Uncontrolled descent</b>	Collision with terr/obj (non-CFIT)
<b>Unknown</b>	Unknown or undetermined

On August 4, 2018, about 1045 central daylight time, an Extra EA-400 airplane, N13EP, was destroyed when it was involved in an accident near Ponca City, Oklahoma. The pilot and 4 passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

A witness saw the airplane depart Ponca City Regional Airport (PNC), Ponca City, Oklahoma, on runway 17. He reported that the airplane was slow to climb as it departed to the south, especially for the shallow angle of climb. Another witness who saw the airplane depart remarked that the engine sounded unusual. This witness watched the airplane slowly climb from the runway and head toward the south before it turned toward the west. A pilot flying near the accident airplane recalled that the airplane maneuvered with large changes to the pitch and bank; later, it appeared to maneuver back toward the airport when it pitched nose down and turned, but “not like a spin.” He saw the wings level and the airplane impacted the ground. A post-impact fire ensued and largely consumed the airplane’s composite structure, destroying the airplane.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	55,Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<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 3 None	<b>Last FAA Medical Exam:</b>	July 28, 2016
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 4200 hours (Total, all aircraft), 200 hours (Total, this make and model)		

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	66, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Waiver time limited special	<b>Last FAA Medical Exam:</b>	February 15, 2018
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	9500 hours (Total, all aircraft)		

### Pilot

The pilot's logbook was not located during the investigation. On the pilot's last application for a medical certificate, he reported 4,000 total hours of flight time.

The pilot's last medical certificate was issued on July 28, 2016. He did not reapply for a medical certificate and there is no record of the pilot having completed the Basic Med checklist.

### Pilot-Rated Passenger

The pilot-rated passenger's logbook was not located during the investigation. On the application for his medical certificate, he reported 450 hours of flight time in the preceding 6 months.

The airplane was equipped with flight controls at both occupants' seat. It could not be determined whether the pilot or pilot-rated passenger was flying the airplane at the time of the accident.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Extra	<b>Registration:</b>	N13EP
<b>Model/Series:</b>	EA 400 500	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2000	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	10
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	March 23, 2018 Annual	<b>Certified Max Gross Wt.:</b>	4407 lbs
<b>Time Since Last Inspection:</b>	59 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1198.7 Hrs at time of accident	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	C126 installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	TSIOL-550-C1B
<b>Registered Owner:</b>		<b>Rated Power:</b>	350 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

The pilot purchased the airplane in July 2017; maintenance logbook entries from that time reported that the airplane had flown 211.3 hours in total. The last maintenance performed on July 13, 2018, recorded 412.3 hours total flight time.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KPNC, 1000 ft msl	<b>Distance from Accident Site:</b>	3 Nautical Miles
<b>Observation Time:</b>	10:53 Local	<b>Direction from Accident Site:</b>	125°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	11 knots / 21 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	170°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.97 inches Hg	<b>Temperature/Dew Point:</b>	29°C / 16°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Ponca City, OK (PNC )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Independence, KS (IDP )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:30 Local	<b>Type of Airspace:</b>	Class G

The density altitude was calculated at 3,025 ft.

## Airport Information

<b>Airport:</b>	PONCA CITY RGNL PNC	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	1008 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	4 Fatal	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	5 Fatal	<b>Latitude, Longitude:</b>	36.76361,-97.150276

The wreckage was located in a soy-bean field. The debris field was in a narrow V shape about 50 ft long from the initial impact point. All major components of the airplane were found at the accident site. The initial ground impact crater contained the engine and the forward portion of the cockpit, including portions of the cockpit flight controls. The angle of the engine resting in the soil was nearly vertical.

A post impact fire ensued and largely consumed the airplane's composite structure. Postaccident examination of the airplane's remaining airframe and cockpit controls was conducted. Flight control continuity was traced to all flight control surfaces. The flaps and landing gear both appeared to be in the retracted position. A majority of the cockpit instrumentation was destroyed; however, the airspeed indicator read 150 knots. A JPI engine data monitor unit was located; however, due to fire damage its data could not be extracted. No preimpact anomalies were detected with the airframe.

The engine was impact and fire damaged. The engine was removed and examined. The examination did not find any preimpact anomalies which would have precluded normal engine operation.

During the on-scene portion of the investigation, a damaged Appareo Stratus S2 device was located in the wreckage. Damage to the device required removal and reinstallation of the memory chips to a donor device. Information recovered did not coincide with the accident flight and was not pertinent to the investigation.

## Additional Information

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A current weight and balance sheet was not located during the investigation. An estimated weight and balance for the flight used the following sources for the weights:

Airplane Basic Weight – Manufacturer’s Information Manual

Pilot’s Weight – last Federal Aviation Administration (FAA) medical certificate

Pilot Rated Passenger’s Weight – last FAA medical certificate

Adult Passenger’s Weight – last FAA medical certificate

Children’s Weights – 50% percentile from Centers for Disease Control guidelines for weight based on age.

Because the weight and existence of baggage could not be determined, no additional weight was added. Estimates of the weight and balance revealed that, depending on the amount of fuel, baggage, and equipment on board and the location of the adult passenger, the center of gravity (CG) could have been within or aft of the recommended CG limits. Because the fuel load and location of the passengers and baggage could not be determined or may have shifted during flight, it is not known whether the airplane’s weight and balance at the time of the accident contributed to the accident.

## **Medical and Pathological Information**

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The Office of the Chief Medical Examiner, Oklahoma City, Oklahoma, performed autopsies on both the pilot and the pilot-rated passenger. The cause of death for both occupants was multiple blunt force injuries and the manner of death was ruled an accident.

The FAA Forensic Sciences Laboratory, Oklahoma City, Oklahoma, performed toxicology testing on samples from the occupants seated at the controls. Specimens of both occupants tested positive for ethanol, but the samples were marked putrefied.

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Aguilera, Jason		
<b>Additional Participating Persons:</b>	Rocky Patel; FAA FSDO; Oklahoma City, OK Chris Lang; Continental Motors; Mobile, AL		
<b>Original Publish Date:</b>	August 24, 2021	<b>Investigation Class:</b>	3
<b>Note:</b>	The NTSB traveled to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97988">https://data.nts.gov/Docket?ProjectID=97988</a>		

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](#).