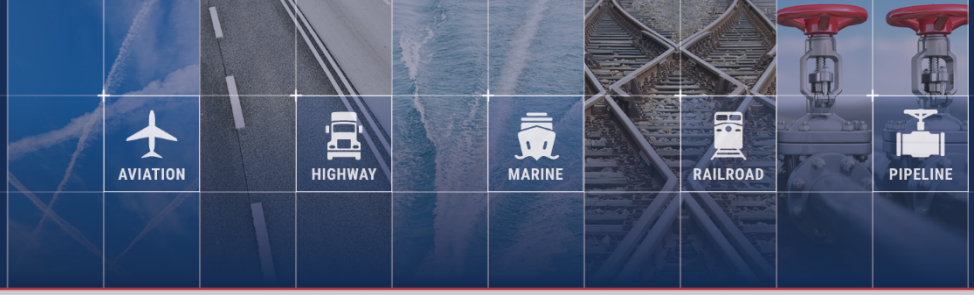

Aviation Investigation Final Report

Location:	Aledo, Texas	**Accident Number:**	CEN21LA091
Date & Time:	December 17, 2020, 16:29 Local	**Registration:**	N102JK
Aircraft:	EXTRA FLUGZEUGPRODUKTIONS-UND EA 300/L	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The experienced aerobatic pilot completed a formation flight with another airplane and then climbed to about 4,200 ft above ground level (agl) to practice aerobatic maneuvers. Flight track data showed the airplane performing maneuvers for about 3 minutes and ended as the airplane descended through 3,200 ft agl. The airplane continued to descend and impacted flat terrain in a nose-down, upright attitude with minimal forward momentum. A postaccident examination revealed no anomalies that would have precluded normal operation of the airplane. Based on the circumstances, the airplane's condition at impact, and the statements of airshow pilots familiar with the pilot's flight training, he likely flew an aerobatic maneuver that transitioned to an upright spin that he was unable to recover from before ground impact.

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 during an intentional aerobatic maneuver, which resulted in an upright spin into terrain.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

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

On December 17, 2020, about 1629 central standard time, an Extra EA300 airplane, N102JK, was substantially damaged when it was involved in an accident near Aledo, Texas. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to recovered flight data from an onboard Garmin device, the airplane departed from Bourland Field (50F) near Cresson, Texas, at 1609. About 5 minutes later, an RV4 airplane departed 50F, and the two airplanes rejoined to fly in a loose formation between 2,400 and 3,200 ft mean sea level (msl). About 1625, the two pilots coordinated to separate the formation.

The RV4 pilot descended to land at 50F, and the accident pilot climbed to about 5,300 ft msl, which was about 4,200 ft above ground level (agl), to practice aerobatic maneuvers. Flight track data from the onboard device showed the airplane performing maneuvers consistent with aerobatics between about 1625 and 1628. At 1628:16, the last onboard data showed the airplane over the accident site at 4,641 ft msl. At 1628:20, the last Mode S transponder data received showed the airplane had descended through 4,300 ft msl, which was about 3,200 ft agl. The airplane impacted terrain near this location, about 3.5 miles northwest of 50F at an elevation 1,086 ft msl (see figure 1).

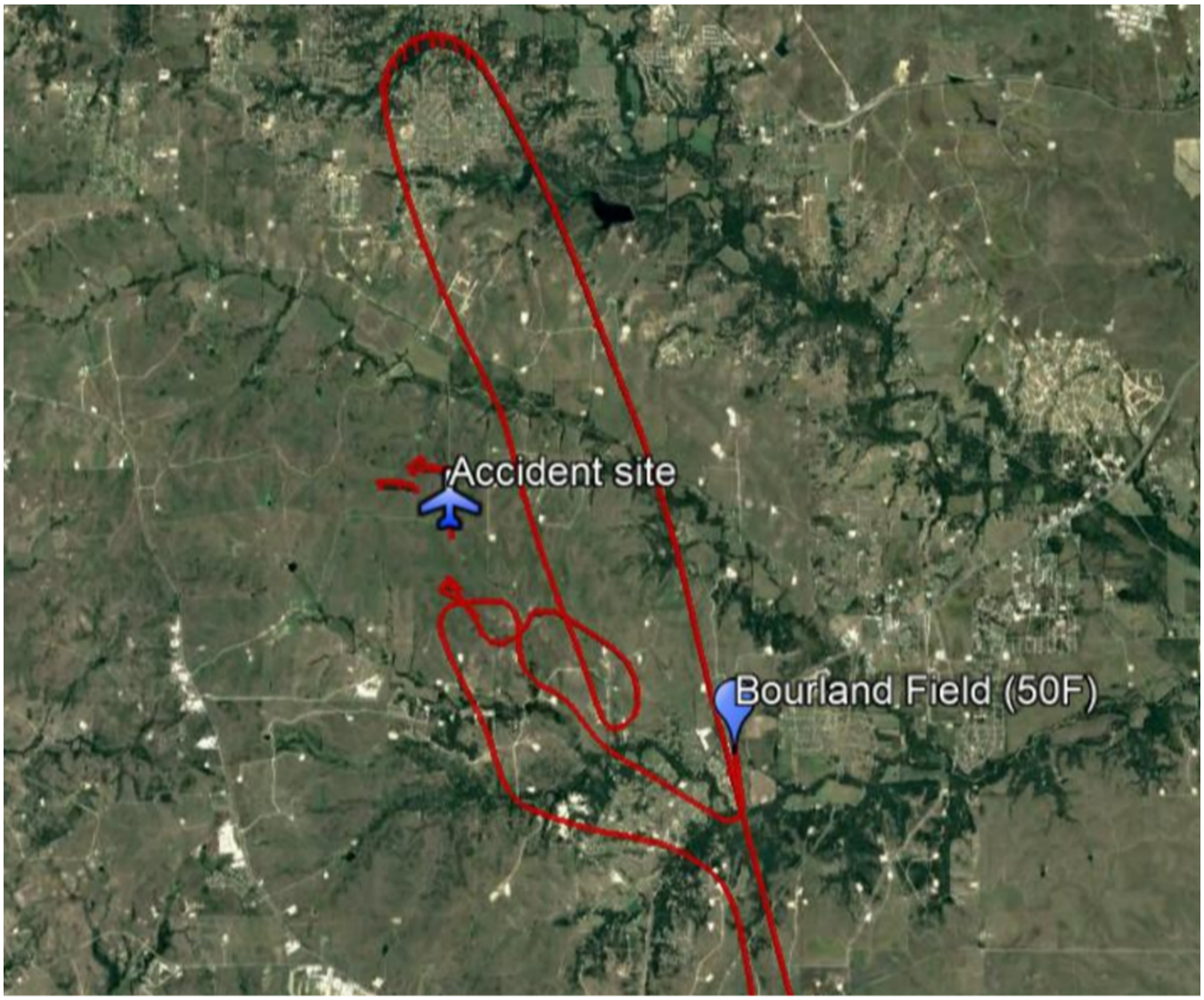

Figure 1 – Accident Airplane's Flightpath Information (Courtesy of FAA)

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	46,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	5-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	June 1, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 6500 hours (Total, all aircraft), 170 hours (Total, this make and model)		

The pilot was a highly experienced Air Force A-10 pilot, as well as an airline pilot. About 3 years before the accident, the pilot flew about 30 hours of aerobatics with a civilian airshow/Air Force A-10 pilot. According to this pilot, all types of spinning maneuvers were practiced, including spin maneuvers flown with intentional mistakes to reinforce the importance of the proper sequence of flight control inputs. The two pilots had not discussed aerobatics for several months before the accident.

Another civilian airshow/Air Force A-10 pilot who practiced aerobatic maneuvers with the accident pilot estimated the accident pilot had flown 150 to 200 hours in the Extra 300. The two pilots did not fly negative G maneuvers, and the airshow pilot was not sure when the accident pilot last practiced spin maneuvers. Reflecting on the accident information available, the airshow pilot considered it likely that the accident pilot may have been practicing an inverted spin or other aerobatic maneuver and inadvertently transitioned to an upright spin during the recovery.

Aircraft and Owner/Operator Information

Aircraft Make:	EXTRA FLUGZEUGPRODUKTIONS-UND	**Registration:**	N102JK
Model/Series:	EA 300/L	**Aircraft Category:**	Airplane
Year of Manufacture:	2007	**Amateur Built:**	
Airworthiness Certificate:	Aerobatic	**Serial Number:**	1250
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	July 25, 2020 100 hour	**Certified Max Gross Wt.:**	2094 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2216 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	AEIO-540-L1B5
Registered Owner:	ROCKSTAR AVIATION LLC	**Rated Power:**	300 Horsepower
Operator:	ROCKSTAR AVIATION LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KGDJ,778 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	16:35 Local	**Direction from Accident Site:**	221°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	17°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cresson, TX (50F)	**Type of Flight Plan Filed:**	None
Destination:	Cresson, TX (50F)	**Type of Clearance:**	None
Departure Time:	16:09 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	32.6164,-97.6403(est)

The airplane impacted a rural, grassy field, and the wreckage distribution and damage to the airplane were consistent with a nose-down attitude and minimal forward momentum at impact. Both wings and the fuselage were crushed downward, and the tail section was twisted to the left of the fuselage (see figure 2).

Figure 2 – Airplane at Accident Site (Courtesy of FAA)

A first responder found the pilot in the rear seat with his hands positioned on the flight control stick and throttle.

A postaccident examination revealed that all flight control surfaces were present, and there was no indication of flight control interference between the front and rear flight controls. The elevator push-pull tube was fractured underneath the rear cockpit, and the aileron push-pull tube was fractured under the front cockpit; both fractures displayed features consistent with overstress. The mixture and propeller control levers were in the full-forward position, and the fuel selector valve was positioned to the center tank position. The engine crankshaft was rotated by hand with normal mechanical continuity observed. Gas path and combustion

signatures observed at the spark plugs, combustion chambers, and exhaust system components were consistent with normal operation. No preimpact anomalies were noted that would have precluded normal operation of the airplane.

Administrative Information

Investigator In Charge (IIC):	Folkerts, Michael
Additional Participating Persons:	Baker Nase; Federal Aviation Administration; Irving, TX Mark Platt; Lycoming Engines; Williamsport, PA Paul Kirchner; German Federal Bureau of Aircraft Accident Investigation; Brunswick
Original Publish Date:	August 16, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102430