Aviation Investigation Final Report

Location:	ELKTON, Maryland	**Accident Number:**	IAD96FA136
Date & Time:	August 15, 1996, 12:33 Local	**Registration:**	N2535Z
Aircraft:	Bellanca 8KCAB	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Several witnesses reported seeing the airplane overfly the building at a low altitude. One witness reported that he was in front of the building when he saw the pilot complete several aerobatic maneuvers before the accident occurred. He stated that the last maneuver he saw was a near complete inverted turn. The witness stated that the airplane was about 50 feet above the ground during the last maneuver before it crashed into the trees. Examination of the wreckage revealed no pre-impact failure of the airplane or engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate altitude and control of the airplane while performing aerobatic maneuvers.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. AEROBATICS - PERFORMED - PILOT IN COMMAND
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. OBJECT - TREE(S)
4. (C) ALTITUDE - INADEQUATE - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On August 15, 1996, at 1233 eastern daylight time (EDT), a Bellanca 8KCAB, N2535Z, crashed in a wooded area in Elkton, Maryland. Visual meteorological conditions prevailed and a flight plan was not filed. The certificated private pilot and passenger were fatally injured. The airplane was destroyed. The local, personal flight was operated under 14 CFR Part 91, and originated at the Cecil County Airpark, in Elkton, Maryland, about 1200 EDT.

The pilot was overflying the passenger's place of business. According to several witnesses, the pilot took passengers for lunchtime airplane rides. Witnesses reported that they observed the accident airplane performing aerobatic maneuvers near the accident site. One witness reported that he was in front of the building when he saw the airplane overfly at a low altitude. He stated, "The plane was flying east and west when it went into a dive at about 200 feet. At 75 feet it pulled up and did a half barrel roll to the right reaching a height of 300 feet then it banked right and went into a 80 degree dive pulling up at about 50 feet. As it pulled up it did a near complete inverted turn...and crashed into the trees... ." Other witnesses about 100 yards from the accident site reported that the airplane was just above tree level and the engine was running. The airplane impacted trees in a wooded area before impacting the ground.

The accident occurred during the hours of daylight at 39 degrees 42 minutes and thirty nine seconds north latitude and 75 degrees 52 minutes and 35 seconds west longitude.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single engine land rating. According to Federal Aviation Administration (FAA) records, the pilot reported over 1240 hours of flight time when he applied for a third class medical certificate that was completed on November 13, 1995.

AIRCRAFT INFORMATION

The 1977 year model Bellanca 8KCAB airplane, serial number 341-77 was equipped with a Lycoming AEIO-360-H1A engine, serial number L-17788-51A. According to the engine log book, the airplane had accumulated over 957 hours of total flight time. The engine had accumulated over 15 hours of flight time since the last annual inspection that was completed on February 20, 1996.

METEOROLOGICAL INFORMATION

The 1251 hour surface weather observation for New Castle County Airport, Wilmington,

Delaware, about 17 miles east of the accident site was as follows:

Sky condition, clear; visibility, 8 miles; temperature, 80 degrees Fahrenheit (F); dew point, 68 degrees F; wind out of 170 degrees at 8 knots; and altimeter, 30.13 inches Hg.

WRECKAGE AND IMPACT INFORMATION

The airplane struck trees about 80 feet tall separating both wings and came to rest inverted about 88 feet from the initial impact point (IIP). The right wing tip was the first piece of wreckage located at the IIP. The wreckage was oriented on a magnetic heading of 340 degrees, and the inclinometer measured 35 degrees descent angle. All of the airframe structure, accessories, and flight controls were located at the crash site. All cables remained connected to their respective bellcranks. There was no evidence of preimpact airframe structural anomaly.

Both fuel tanks were ruptured. There was evidence of aviation fuel in the fuel lines. The propeller blades exhibited chordwise scratches, and the leading edges were nicked and dented. The propeller blades were twisted torsionally. At the point where the fuselage impacted the ground, there was a 8 feet long by 6 feet wide, 3 feet deep crater.

Postaccident examination was conducted at Dawn Aeronautics, New Castle, Delaware, on August 17, 1996, under the supervision of the NTSB. The examination revealed that the engine was intact, and all the accessories were attached. The cylinders were attached and secured to the crankcase. There was no evidence of uncontained internal engine components.

The propeller was manually rotated which resulted in the operation of the cylinder valves, confirmation of compression in each cylinder, and magnetos sparking. Also all the accessory gear box driven components operated. There was no mechanical resistance noted when the propeller was rotated. The engine was lubricated.

The fuel boost pump and engine driven fuel pump tested satisfactorily. The main fuel screen was clean, and the fuel injector servo separated from the engine. The flow divider of the injector and all four nozzles were removed and inspected. There was no obstruction noted. The engine oil system was intact. The oil suction screen and filter were clean. The engine air induction and exhaust systems did not disclose any anomalies. There was no evidence of preimpact engine malfunction.

MEDICAL AND PATHOLOGICAL INFORMATION

A Medical Examination was performed by Dr J Laron Locke, Assistant State Medical Examiner of the State Medical Examiner's Office in Baltimore, Maryland, on August 16, 1996. Toxicological examination of the pilot was conducted by the State Medical Examiner's Office in Baltimore, Maryland, on August 16, 1996. Toxicological tests were negative for all screened drugs and substances.

ADDITIONAL INFORMATION

The wreckage was released to Andy Paul, President of Crittenden Adjustment Company Inc., on August 17, 1996.

Pilot Information

Certificate:	Private	**Age:**	77,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	November 13, 1995
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1240 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bellanca	**Registration:**	N2535Z
Model/Series:	8KCAB 8KCAB	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Aerobatic; Normal	**Serial Number:**	341-77
Landing Gear Type:	Tailwheel	**Seats:**	3
Date/Type of Last Inspection:	February 20, 1996 Annual	**Certified Max Gross Wt.:**	1800 lbs
Time Since Last Inspection:	15 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	957 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	AEIO-360-H1A
Registered Owner:	FRANK C. SHERRARD	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ILG ,80 ft msl	**Distance from Accident Site:**	17 Nautical Miles
Observation Time:	12:54 Local	**Direction from Accident Site:**	91°
Lowest Cloud Condition:	Clear	**Visibility**	8 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	27°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, MD (2N0)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	12:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

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:**	39.599903,-75.820396(est)

Administrative Information

Investigator In Charge (IIC):	Drake-nurse, Beverley
Additional Participating Persons:	KIM BARNETT; BALTIMORE , MD EDWARD G ROGALSKI; BELLEVIEW , FL
Original Publish Date:	March 31, 1998
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=28016