Aviation Investigation Final Report

Location:	Santa Rosa Bch, Florida	**Accident Number:**	MIA02LA139
Date & Time:	July 24, 2002, 11:37 Local	**Registration:**	N1535G
Aircraft:	Interavia E-3	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The flight departed at 1034, and approximately 5 minutes after takeoff, the pilot advised a controller at Eglin Approach Control that his flight was 2 miles southeast of the east training area. There was no contact with the pilot and that facility until 1134, when the pilot advised the controller that the flight was returning to his departure airport. A witness who was located within 1 mile of the accident site reported watching the airplane for about 15-20 minutes, and near the end of the flight, observed the airplane loop followed by several rolls. When the airplane was positioned nose down at a 45-degree angle, he and his brother observed a piece either 3 feet by 3 feet, or 2 feet by 3 feet separate from the airplane. The witness did not believe the airplane was out of control at that point in time. Review of recorded radar data consisting of primary radar returns revealed the last radar returns indicate the airplane was turning to the left; altitude information was not available. The airplane crashed into a heavily wooded area; no evidence of in-flight breakup or postcrash fire was noted. The canopy was missing from the accident site and was not located. Examination of the airplane by FAA airworthiness inspectors revealed no evidence of preimpact failure or malfunction of the flight controls. Examination of the canopy mechanism and engine by the NTSB revealed no evidence of preimpact failure or malfunction.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The separation of the canopy for undetermined reasons.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT

Findings
1. (C) WINDOW,CANOPY - SEPARATION

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT

Findings
2. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On July 24, 2002, about 1137 central daylight time, an experimental Interavia E-3, N1535G, registered to a private individual, crashed near Santa Rosa Beach, Florida. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 CFR Part 91 personal flight. The airplane was substantially damaged and the commercial-rated pilot, the sole occupant, was fatally injured. The flight originated at approximately 1034, from the Destin-Fort Walton Beach Airport, Destin, Florida.

According to a transcription of communications with Eglin Air Force Base Radar Approach Control, the pilot first contacted clearance delivery at 1033:18, and advised that the flight was at the Destin-Fort Walton Beach Airport, and was departing runway 14. He also advised the controller that the flight would proceed to the east practice area and then would return to the departure airport, with negative transponder. The controller advised the pilot to contact departure and specified the frequency which was acknowledged by the pilot. At 1038:55, the pilot advised the South Approach Control (SA) controller that the flight was 2 miles southeast of the east training area, that transmission was acknowledged by the controller. At 1134:34, the pilot advised the SA controller that the flight was planning on returning to the departure airport which was acknowledged by the controller. The SA controller then provided the pilot with an altimeter setting which he acknowledged. There were no further recorded transmissions from the pilot; the airplane was lost from radar at 1137.

According to a witness who was located within 1 mile northeast of the accident site, he observed the airplane flying for approximately 15 or 20 minutes. The airplane was performing, "rolls and flips." Sometimes the airplane went behind trees. At one point near the end of the flight, the airplane climbed straight up to an estimated altitude of 2,000 feet, did a loop, then rolled left. The airplane then rolled again, followed by a third roll even quicker. While descending at a 45-degree nose down attitude, something separated from the airplane. At that time, the airplane did not appear to him to be out of control. He then lost sight of the airplane and waited 10 minutes; the airplane did not reappear. He thought the piece that separated was approximately 3 feet by 3 feet, and was an engine cowling.

Review of recorded radar data revealed no correlated beacon returns associated with the accident airplane. Review of primary radar returns revealed an uncorrelated target was observed maneuvering in several areas, the last of which was in close proximity to the accident site. The primary radar returns do not provide altitude information; therefore, no determination can be made as to what maneuvers were being performed. A review of plots of the last uncorrelated primary radar returns revealed that between 1135:50 and 1136:15, the airplane banked left flying from a northeasterly heading to a north-northwesterly heading. The

last un-correlated primary radar return occurred at 1136:29, and was located west-southwest of the second to last un-correlated primary radar return.

PERSONNEL INFORMATION

The pilot was the holder of an airline transport pilot certificate with airplane multi-engine land rating. He was also the holder of a commercial pilot certificate with airplane single engine land rating, and a private pilot certificate with glider rating. His was issued a first class medical certificate on April 23, 2002, with the limitation holder must wear corrective lenses. The pilot indicated on the application for that medical certificate he had a total time of 13,000 hours.

AIRCRAFT INFORMATION

The airplane was designed to be a multi-purpose aerobatic or training airplane, with either one or two seats; as a two-seater the seating was tandem. It was equipped with a one-piece wing which had a symmetrical profile airfoil. With respect to the flight controls, the ailerons could be drooped for takeoff or landing. It was equipped with a radial engine capable of producing 360 horsepower.

METEOROLOGICAL INFORMATION

A METAR weather observation taken at 1153 (approximately 16 minutes after the accident) from the Destin-Fort Walton Beach Airport indicated the wind was from 220 degrees at 6 knots, the visibility was 10 statute miles, clear skies existed, the temperature and dew point were 30 and 25 degrees Celsius, respectively, and the altimeter setting was 30.09 inHg. The remarks section indicates that lightning was distant northeast and west of the airport, and rain began 7 minutes after the hour and ended 35 minutes after the hour.

According to a NTSB review of recorded radar data, there were no significant weather echoes in the vicinity of the accident site. Cumulus clouds were in the area to the north, and developing cumulonimbus clouds north of the accident site and west of the departure airport were noted. Rain showers were noted to move across Destin during the time period.

COMMUNICATIONS

The pilot was in contact with the Eglin Radar Approach Control facility; a transcription of communications was provided to the NTSB.

WRECKAGE AND IMPACT INFORMATION

The NTSB did not examine the wreckage at the accident site which was located in a heavily wooded area at 30 degrees 21.84 minutes North latitude and 086 degrees 12.27 minutes West longitude. The airplane was examined at the accident site by airworthiness inspectors from

the Federal Aviation Administration (FAA). According to the FAA inspector-in-charge, the canopy was missing from the crash site and has not been located. The airplane descended nearly vertical, and came to rest inverted. There was no evidence of inflight break-up, and there was no postcrash fire. Flight control continuity was confirmed for roll, pitch, and yaw.

The wreckage and engine were examined by the NTSB following recovery of the airplane. Examination of the airplane revealed the leading edge skin of both wings was crushed aft to the main spar. The one-piece wing was fractured at the right wing root, and also 48 inches inboard of the outboard end of both wings; no evidence of preimpact failure or malfunction was noted. The canopy latch mechanism rod was fractured in two places. Gouges on the canopy sill adjacent to the aft and middle hinges were noted; the direction of the gouge was from the rear, forward. The canopy eject bellcrank was near the fully closed position; evidence of contact with the bellcrank and the pulley support was noted. No evidence of preimpact failure or malfunction was noted to the front and rear canopy eject cables; the canopy latch pins were not damaged. The aft seat canopy latch handle was functional and fully closed. The front seat canopy latch handle was in-place; the control rod was fractured near the attach point. No evidence of preimpact failure or malfunction of the fractured control rod was noted. Examination of the vertical stabilizer revealed minor damage to the leading edge. An instrument in the cockpit was found indicating 93 percent, and the left and right fuel gauges were indicating approximately 24 and 45 liters, respectively.

Examination of the engine by NTSB revealed the propeller hub was secured to the engine but the propeller hub was fractured. All cylinders with the exception of Nos. 3 and 4 were completely or partially separated from the engine. Examination of the crowns of all pistons revealed no evidence of valve to piston contact. The propeller gearbox was inplace but was out of the normally installed position. The leading edges of the supercharger impeller vanes were damaged, and the supercharger shroud exhibited slight scoring with marks and gouges made by the impeller. Both magnetos were destroyed, and the carburetor was impact damaged. The inlet screen at the carburetor was clean. No evidence of preimpact failure or malfunction of the engine was noted.

MEDICAL AND PATHOLOGICAL INFORMATION

According to the medical examiner's office, the doctor who performed the autopsy (Dr. Berkland) is no longer employed with them, and an autopsy report will not be prepared. The doctor verbally reported to the NTSB that the preliminary cause of death was extensive whole body trauma.

Toxicological testing of specimens of the pilot was performed by the FAA Toxicology Accident and Research Laboratory. Testing for carbon monoxide and cyanide was not performed. Ethanol was detected in liver and muscle (24 and 46 mg/dL, respectively), Acetaldehyde was detected in liver (6 mg/dL), N-Propanol and N-Butanol were detected in the muscle (7 and 1 mg/dL, respectively). Additionally, diphenhydramine was detected in muscle and lung. The toxicology report indicates, "The ethanol found in this case may potentially be from

postmortem ethanol formation and not from the ingestion of ethanol."

TESTS AND RESEARCH

According to a pilot who has flown the same make and model airplane, shortly after takeoff on one of the flights while climbing through 200 feet above ground level, the canopy unexpectedly opened then separated. The airplane was controllable and he returned and landed uneventfully. The opening and separation were described as extremely sudden and violent. During the opening of the canopy he observed the canopy handle on the left side of the airplane sprung open. After landing he inspected the latching mechanism and found excessive free play on the inside and outside handles. The freeplay allowed the handle in the cockpit to be moved to the closed position without the latch mechanism fully engaging.

ADDITIONAL INFORMATION

The NTSB did not retain any parts or components.

Pilot Information

Certificate:	Airline transport; Commercial; Private	**Age:**	47,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 23, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	13000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Interavia	**Registration:**	N1535G
Model/Series:	E-3	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	0210
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Voronezh Machine
ELT:	Installed	**Engine Model/Series:**	M-14P
Registered Owner:	David G. Naber	**Rated Power:**	360 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KDTS,23 ft msl	**Distance from Accident Site:**	
Observation Time:	11:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	30°C / 25°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Destin, FL (KDTS)	**Type of Flight Plan Filed:**	None
Destination:	Destin, FL (KDTS)	**Type of Clearance:**	None
Departure Time:	10:34 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	30.363889,-86.204444

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Charles R Varano; FAA Flight Standards District Office; Vestavia Hills, AL
Original Publish Date:	April 28, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=55333