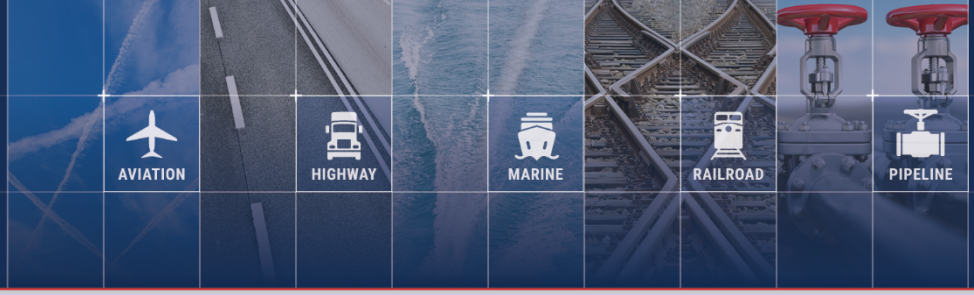

Aviation Investigation Final Report

Location:	CUMBERLAND GAP, Virginia	**Accident Number:**	IAD00LA021
Date & Time:	February 11, 2000, 14:35 Local	**Registration:**	N94WB
Aircraft:	Wood SEAWIND 3000	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot departed Florida destined for Michigan, and made an en route stop in Georgia. About 2 1/2-hours after departing Georgia, witnesses observed the airplane flying in the vicinity of Cumberland Gap National Park, located in the southwestern tip of Virginia. The airplane was observed flying into a cloud layer headed toward the highest peak in the park. Shortly after, the sound of timber breaking and silence was heard. The weather was described as foggy and windy. Prior to departing Florida, the pilot obtained a weather briefing from the AFSS. The AFSS briefer reported that he could only get the pilot as far as Tennessee in VFR conditions before the weather became MVFR to IFR. During the en route stop in Georgia, the pilot received another weather briefing from a different AFSS. The AFSS briefer did not provide synopsis, terminal conditions expected, the AIRMET series for IFR conditions and mountain obscuration along the route, but did provide AIRMET Zulu for icing conditions over Michigan. Examination of the wreckage revealed there were no mechanical deficiencies with the airplane, engine, or related systems.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's continued flight from visual flight rules into instrument meteorological conditions.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: CRUISE

Findings
1. TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
3. PREFLIGHT BRIEFING SERVICE - INADEQUATE - ATC PERSONNEL(FSS)

Factual Information

HISTORY OF FLIGHT

On February 11, 2000, about 1435 Eastern Standard Time, a homebuilt Seawind 3000 amphibian airplane, N94WB, was substantially damaged after colliding with trees and mountainous terrain while maneuvering over Cumberland Gap National Historic Park, Cumberland, Virginia. The certificated private pilot/owner/builder and passenger were fatally injured. The flight originated in Dunellon, Florida, at 0844 destined for Pontiac, Michigan, with an intermediary stop in Douglas, Georgia. No flight plan was filed for the personal flight conducted under 14 CFR Part 91. Instrument meteorological conditions prevailed.

A witness who lived near the park was in his house when he heard the airplane. He was interviewed via telephone by a Federal Aviation Administration (FAA) inspector. According to the record of conversation, the witness said:

"Approximately 3:00 pm - no sight - only heard airplane from indoors. The engine was sputtering, and was coming on and off. He ran outside to the back deck and looked up. There was a lot of fog but he did not see the airplane. He still heard sputtering for about five seconds, then heard the sound of the airplane hitting trees, then silence."

A second witness, an engineer, also lived near the park and heard the airplane. In a written statement, he said:

"I heard a small plane with the engine at full throttle, about 7 to 10 seconds with no missing sound, but full rev. Also, what sounded like a crash and the cracking of timber and then the engine went silent. I noticed the possible strong wind gusts at 1,300 feet and the accident site was approximately 2,400 feet."

A third witness, an auto mechanic, lived near the park and was in his yard working when he observed the airplane flying over his home. He was interviewed via the telephone by an FAA inspector. According to the record of conversation, the witness said:

"It was approximately 1430 when he first saw and heard the airplane heading towards the Middleboro airport, Middleboro, Kentucky. The airplane was white in color. The airplane went directly over his home and made a right turn toward the Pinnacle, which is the highest peak in the park. When the airplane turned right, he heard the airplane go full power towards the Pinnacle, which was fogged in. The airplane disappeared over the ridge into the cloud cover and then heard a cracking noise of trees then silence. He stated the weather was very cloudy and the Pinnacle area was socked in with heavy fog. He was confused as to why the airplane turned off his original heading toward the airport."

The airplane collided with terrain inside the Cumberland Gap National Historic Park, approximately 5 nautical miles southeast of Middleboro Airport (1A6), Middleboro, Kentucky.

Two FAA inspectors examined the airplane on-site. An inspector reported that the wreckage path was approximately 250 yards long, at an approximate elevation of 2,200 feet mean sea level (msl). Both wings were sheered from the airplane at the wing root. The fuselage came to rest on the right side, and the engine separated from the pylon.

PERSONNEL INFORMATION

The pilot held a private pilot certificate for airplane single engine land (ASEL). Examination of his logbooks revealed that he had received airplane single-engine sea (ASES) instruction and a certified flight instructor had endorsed his logbook for an ASES rating on December 16, 1999. However, there were no records that the pilot completed the ASES practical test.

Between March 16 and August 31, 1996, the pilot received instruction for an instrument rating. There were no records that the pilot completed the instrument rating practical test. He had logged about 3.6 hours of actual instrument, 27.7 hours of simulated instrument, and 3.5 hours in a flight simulator.

Examination of the pilot's logbooks also revealed that he had about 321 total flight hours. He had logged about 34.1 hours in single-engine sea airplanes, of which 18 hours were in the Seawind 3000.

AIRCRAFT INFORMATION

Examination of the airplane's logbooks revealed the FAA issued a special airworthiness certificate on May 11, 1999, with the next inspection due on May 11, 2000. The pilot had completed Phase I of the experimental operating limitations established by the FAA for amateur-built aircraft. The airplane had accumulated about 55 total flight hours at the time of the accident.

METEOROLOGICAL INFORMATION

The pilot called via telephone and received two separate weather briefings from an automated flight service station (AFSS). The first call was made to the Gainesville, Florida, AFSS between 0744 and 0755, on February 11, 2000. The pilot told the briefer he would be departing the Ocala, Florida, area headed for Pontiac, Michigan. The AFSS briefer provided a synopsis of the weather conditions and flight precautions that covered Tennessee and Ohio with instrument flight rules (IFR) conditions. The AFSS briefer stated he could probably only get the pilot to Tennessee in visual flight rules conditions before the weather would become marginal visual flight rules (MVFR) to IFR conditions. The main IFR weather was expected over Central Ohio throughout that period, which impacted the route further north. The pilot stated to the briefer,

"if we hit some bad stuff, we'll just put it on the ground."

The second call to AFSS was made between 1125 and 1129, to the Macon, Georgia AFSS at the en route stop. The pilot told the briefer that he would be visual flight rules from Douglas, Georgia, to Pontiac, Michigan, and asked for the "weather enroute." The briefer provided two flight precautions. The first flight precaution was along the Michigan portion of the route for occasional moderate rime and mixed ice in clouds and in precipitation nine thousand feet and below with the freezing level starting at the surface. The second flight precaution was for Georgia and Tennessee for occasional moderate turbulence eight thousand feet and below.

The pilot then queried the briefer and said, "okay, we're pretty much passed the storm aren't we-we're coming out of Florida?" The briefer responded, "uh huh." The pilot then asked the briefer if he had "got through most of what was the bad weather was going across?" and the briefer responded, "right now as far as on a direct route from Georgia straight up to Michigan, you wouldn't have anything as far as thunderstorms or anything like that. There's some light precip[itation] enroute, but there's nothing significant."

The pilot requested information on cloud tops and the briefer advised, "I don't have any tops reports." The pilot also requested winds aloft and pilot report information.

The briefing terminated without the synopsis, expected terminal conditions, visual flight rules restrictions, and AIRMET Sierra series for IFR conditions and mountain obscuration being provided.

Weather conditions reported at Middleboro Airport (elevation 1,554 feet MSL), Middleboro, Kentucky, at 1501, were wind from 330 degrees at 7 knots, ceiling 1,300 feet overcast, visibility 10 statute miles, temperature 49 degrees F, and dewpoint 46 degrees F.

Weather conditions reported at London-Corbin Airport Magee Field (elevation 1,212 feet msl), London, Kentucky, about 34 miles northwest of the accident site, at 1453, were wind from 020 degrees at 9 knots, visibility 2 miles in mist, ceiling overcast 900 feet, temperature 41 degrees F, dewpoint 38 degrees F, altimeter setting 30.03 inHG, with remarks of ceilings 600 feet overcast variable to 1,200 feet.

A weather study was conducted by a Safety Board meteorologist. According to the meteorology factual report, a review of the area forecasts issued at 0545, on February 11, 2000, was conducted. The area forecasts were available at the time of the pilot's weather briefings and were valid until 2300. Northern Georgia was forecasted to maintain VFR conditions, Kentucky was forecasted for marginal VFR conditions and widely scattered thunderstorms, and Indiana and lower Michigan were forecasted for marginal VFR conditions. Satellite imagery revealed that the top of the overcast at the accident site was approximately 6,000 feet.

According to the Airman's Information Manual (AIM), Meteorology section 7-1-3, titled Preflight

Briefing, stated, "Flight Service Stations are the primary source for obtaining preflight briefings and in-flight weather information."

There are three types of weather briefings: standard, abbreviated, and outlook. The pilot should specify which briefing they want when they contact a FSS.

When a pilot requests a standard briefing, the briefer will automatically provide the following information in sequence: adverse weather conditions, VFR not recommended, synopsis, current conditions, en route forecast, destination forecast, winds aloft, notices to airmen, and any known ATC delays.

AIR TRAFFIC CONTROL

A survey of the air traffic facilities along the intended route of flight revealed there were no recorded communications between air traffic control and the accident airplane. No radar data was available either.

TESTS AND RESEARCH

The airplane was recovered from the side of the mountain and taken to a salvage facility in Griffin, Georgia. Several components were retained for examination.

The engine was examined on May 23 and 24, 2000, at the Textron Lycoming engine facility in Williamsport, Pennsylvania, under the supervision of the Safety Board. Engine and valve train continuity was established by manual rotation of the propeller flange. Compression was produced for all but the #2 and #4 cylinder, due to bent push rods. The spark plugs were removed and appeared dark gray and oily.

During the engine examination, evidence of oil blow by was noted on all the cylinders with the heaviest concentration being exhibited on cylinders #4, #5, and #6. All of the piston rings were worn and the piston skirts were scratched and discolored.

Examination of the ignition system revealed an electronic ignition system was installed on the front right side of the engine and one individual magneto was installed on the left side of the accessory section. A cover plate sealed the opening to the right magneto-mounting bracket. According to the pilot's son, the electronic ignition system was the primary source of ignition, and the magneto was a secondary source of ignition. The electronic ignition harness was not examined.

During the engine exam, timing of the engine and magneto revealed that the timing mark would not line up in the magneto view window and the timing light would not go out. The magneto top mounting nut and clamp were loose and the gasket was folded at the top clamp. Examination of the magneto found that one of the drive cushions was missing, and the points appeared to be corroded. The magneto was bench tested and spark could not be produced

due to the points not opening.

The magneto was examined at Teledyne Continental Motors (TCM), Mobile, Alabama, on December 12, 2000, under the supervision of the FAA. Examination of the magneto revealed that the points and distributor gear skid washer were corroded. There was no continuity through the breaker points, and the cam follower would not open the points as the magneto was rotated. The cam follower did not exhibit any wear that would cause it from not opening the points. The point hold down screws were secure and extremely tight.

According to TCM records, the magneto was rebuilt and returned to service on November 11, 1999. Review of invoices from Amphibians Plus in Barstow, Florida, revealed the magneto was shipped from Aerospace Parts International (API) to them in Florida on February 7, 2000. Amphibians Plus installed the magneto on February 8, 2000.

The fuel pump was not removed from the engine prior to the crankshaft being rotated. A popping noise was heard when the engine was rotated. When the fuel pump was removed from the engine, the coupling was found sheared and the pump was jammed. The fuel pump was examined by a Safety Board metallurgist at the Materials Analysis Laboratory in Washington, DC, on July 5, 2000. According to the Safety Board metallurgist, examination of the pump and coupling revealed the drive shaft of the fuel pump separated in ductile overload. Rust colored debris was found inside and around the area of the drive shaft and vanes.

The fuel servo, flow divider, and injection nozzles were examined at Precision Airmotive Corporation in Marysville, Washington, on June 20, 2000, under the supervision of the Safety Board. Examination of the components revealed there were no mechanical deficiencies with any of the components.

The transponder, Nav/Comm transceiver, and VOR/LOC indicator were examined at Honeywell in Olathe, Kansas, on April 13, 2000, under the supervision of the FAA. The examination revealed the transponder on/off selector switch was broken in the "off" position. When power was placed on the transponder, the ident code was set at 1200. The transponder unit was found to be completely functional. The Nav/Comm transceiver was damaged and power could not be applied. The micro-controller/memory chip was removed and installed in an exemplar radio to recover stored frequencies. When the exemplar radio was powered, the following frequencies were displayed: Comm in use 122.8, Comm stand-by 126.9, Nav in use 109.8, and Nav stand-by 116.50.

The VOR/LOC indicator could not be tested due to impact damage.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on the pilot and passenger on February 12, 2000, by the Office of the Chief Medical Examiner in Roanoke, Virginia. Toxicological testing was performed by the FAA Toxicology Accident Research Laboratory, in Oklahoma City, Oklahoma.

ADDITIONAL INFORMTION

According to the Federal Aviation Regulation 91.155, Basic VFR Weather Minimums, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace. The limitations for Class E airspace below 10,000 feet MSL is visibility 3 statute miles, distance from clouds is 500 feet below, 1,000 feet above, and 2,000 feet horizontal.

The airplane wreckage and all retained components were released to the pilot's family as of December 31, 2000.

Pilot Information

Certificate:	Private	**Age:**	62,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:**	June 2, 1998
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	321 hours (Total, all aircraft), 18 hours (Total, this make and model), 286 hours (Pilot In Command, all aircraft), 34 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Wood	**Registration:**	N94WB
Model/Series:	SEAWIND 3000 SEAWIND 30	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	45
Landing Gear Type:	Amphibian	**Seats:**	4
Date/Type of Last Inspection:	May 11, 1999 Continuous airworthiness	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:	55 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	55 Hrs	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	IO-540
Registered Owner:	AMERICAN INSPECTION INC	**Rated Power:**	260 Horsepower
Operator:	DANIEL J. WOOD	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	IA6 ,1154 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	15:01 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 1300 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	50°C / 46°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	DOUGLAS , GA (DQH)	**Type of Flight Plan Filed:**	None
Destination:	PONTIAC , MI (PTK)	**Type of Clearance:**	None
Departure Time:	11:45 Local	**Type of Airspace:**	Class E

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	36.609317,-83.719863(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	LARRY LAGANA; CHARLESTON , WV DAVID MOORE; ARDSLEY , PA
Original Publish Date:	November 14, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=48667