Aviation Investigation Final Report

Location:	Peru, West Virginia	**Accident Number:**	ERA12FA012
Date & Time:	October 2, 2011, 20:45 Local	**Registration:**	N115CL
Aircraft:	Piper PA-32R-300	**Aircraft Damage:**	Substantial
Defining Event:	VFR encounter with IMC	**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The non-instrument-rated pilot, who was also the owner of the airplane, departed on a night visual flight rules (VFR) flight. Weather conditions at the departure airport were VFR, the weather conditions en route were a combination of marginal VFR and instrument flight rules (IFR), and the weather at the destination airport was IFR. The pilot had obtained a weather briefing earlier in the evening, during which he was informed that VFR flight was not recommended. About 30 minutes before the accident, the pilot's in-flight weather briefing indicated that instrument meteorological conditions, including low ceilings and mountain obscuration, were forecast for their intended route and at their destination. About 4 minutes before the accident, the pilot advised air traffic control personnel that "we are losing VFR, I need a deviation." Radio and radar contact were then lost.

A postaccident examination of the wreckage indicated that the airplane struck the top of a tree, rolled inverted, and impacted the ground. No preimpact mechanical malfunctions or failures with the airplane that would have precluded normal operation were noted. The only navigational charts found at the accident scene were folded VFR charts and airport facility directories. No IFR charts were found.

Analysis of the radar data and wreckage information revealed that the airplane made a series of erratic maneuvers, including a 360-degree heading change, before entering a descent and impacting the ground at high speed. These maneuvers took place in the last few minutes of the flight and were consistent with spatial disorientation. FAA guidance indicates that spatial disorientation can occur when there is no natural horizon or surface reference, such as a night flight in sparsely populated areas similar to that of the accident area and conditions. Although

about 34 percent of the moon's disk was potentially illuminated at the time of the accident, given the cloud coverage in the area it is unlikely that the moon provided any illumination over the accident site. FAA guidance also indicates that spatial disorientation is more likely to occur if a pilot lacks proficiency in instrument flying.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The non-instrument rated pilot's improper decision to continue visual flight into instrument meteorological conditions, which resulted in spatial disorientation and subsequent in-flight collision with mountainous terrain.

Findings

Personnel issues	Spatial disorientation - Pilot
Environmental issues	Below VFR minima - Decision related to condition
Personnel issues	Weather planning - Pilot
Environmental issues	Mountainous/hilly terrain - Not specified

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Enroute-cruise	VFR encounter with IMC (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On October 2, 2011, about 2045 eastern daylight time, a Piper PA-32-300R, N115CL, was substantially damaged when it impacted the trees and terrain in a mountainous, wooded area near Peru, West Virginia. The airplane departed from Danville Regional Airport (DAN), Danville, Virginia, about 1930 with an intended destination of John Murtha Johnstown-Cambria County Airport (JST), Johnstown, Pennsylvania. Night, instrument meteorological conditions (IMC) prevailed and no flight plan was filed. The private pilot and two passengers were fatally injured. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

The flight departed Grand Strand Airport (CRE), North Myrtle Beach, South Carolina about 1800 with the pilot and three passengers. After an intended intermediate stop at DAN, one passenger deplaned and the flight continued to its intended destination of JST.

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) and personal records, the pilot held a private pilot certificate with airplane single-engine land privileges. The pilot had received his private pilot certificate on August 31, 2011 and his most recent pilot logbook entry was dated September 24, 2011. At that time, he had recorded 110.5 total hours of flight experience, including 40.4 total hours in the accident airplane make and model. He had also recorded 5.4 hours of simulated instrument experience, of which all were in a different aircraft make and model than the accident airplane. He had also recorded 7.6 total flight hours of night experience, of which 3.0 of those hours were in the accident airplane with a certificated flight instructor. On September 4, 2011, the accident pilot received an endorsement for "PIC [pilot in command] – Complex airplane" and "PIC – High performance airplane." The pilot did not possess an instrument rating.

AIRCRAFT INFORMATION

According to aircraft and FAA records, the airplane was issued an airworthiness certificate on July 23, 1977 and was registered to the pilot on August 18, 2011. The airplane's most recent annual inspection was recorded on March 2, 2011 at a recorded total time of 4,541.15 flight

hours. It was equipped with a Lycoming IO-540-K1G5D engine, rated at 300 horsepower. The engine's most recent annual inspection was recorded on March 2, 2011 and indicated 734.15 flight hours since major overhaul (SMOH). The most recent entry in the engine maintenance records was on July 7, 2011 and at that time indicated 736.44 flight hours SMOH.

METEOROLOGICAL INFORMATION

The 2055 recorded weather observation at Grant County Regional Airport (W99), Petersburg, West Virginia, located approximately 11 miles northwest of the accident location, included calm winds, visibility 10 miles with light drizzle, broken clouds at 3,600 feet and 4,300 feet above ground level (agl) and overcast at 5,000 feet agl, temperature 8 degrees C, dew point 6 degrees C, and barometric altimeter 29.97 inches of mercury.

The National Weather Service (NWS) surface analysis chart for 2000 EDT (0000Z) on October 2, 2011, depicted a low pressure system over southern New York with several troughs of low pressure extending westward and southward from the low. The station models over West Virginia indicated general winds from the west with overcast clouds and scattered rain showers. The NWS radar composite chart for 2045 depicted a large area of echoes extending from New York and Pennsylvania, into West Virginia, Eastern Kentucky, and Virginia.

The closest upper air sounding from Sterling, Virginia, located about 74 miles east of the accident site, indicated a moist low-level environment with a relative humidity of 75 percent and greater from the surface to 12,800 feet. The freezing level was identified at 4,132 feet msl and supported icing in clouds and in precipitation to above 20,000 feet.

The NWS area forecast, issued at 1341, expected broken clouds at 5,000 feet msl with tops to 9,000 feet, with overcast clouds at 4,000 feet after 2000. Occasional visibilities of 3 to 5 miles in light rain and mist were expected. The forecast included Airmen's Meteorological Information (AIRMET) Sierra for IFR conditions and mountain obscuration along the intended route of flight.

According to Lockheed Martin Flight Service (LMFS) recorded data, the pilot contacted them earlier in the day. A representative from LMFS provided details of a preflight weather briefing. The briefing lasted about 9 minutes, during which time the pilot was notified of the existence of icing and IFR conditions due to precipitation and ceilings and visual flight rules (VFR) flight was not recommended for the planned flight from DNV to JST.

According to the U.S. Naval Observatory, on the day of the accident, sunset occurred at 1858 and moonset was at 2258. The moon was a waxing crescent with 34 percent of the moon's visible disk illuminated.

The 1935 recorded weather observation at DNV included wind from 340 degrees at 4 knots, visibility 10 miles, clear skies, temperature 14 degrees C, dew point 0 degrees C, and barometric altimeter 30.14 inches of mercury. The weather remained similar for several hours

after the accident.

The 2054 recorded weather observation at JST, the intended destination, included wind from 310 degrees at 9 knots, visibility 9 miles with light rain, overcast clouds at 400 feet agl, temperature 2 degrees C, dew point 2 degrees C; barometric altimeter 29.89 inches of mercury. From about 1400 until several hours after the accident, the clouds were overcast between 200 and 900 feet agl.

COMMUNICATION

The accident airplane was receiving flight following services from the FAA Air Route Traffic Control Center facility located in Leesburg, Virginia. Recordings of voice and radar tracking data were obtained from that facility.

At 2038:08, the pilot, who had been flying direct JST on a northerly course at 5,500 feet, notified the controller, "we are losing VFR I need a deviation." At 2038:22, he stated "we're gonna try reversing course." The controller asked if the flight was IFR capable and if pilot wanted to file an IFR flight plan. The pilot reported “we are IFR capable”; but when asked if he wanted to file an IFR flight plan, the pilot declined, stating, in part, "I'm not even sure I've got the plates here…" and clarified his intention to return to DAN. At 2039:20, the pilot said that he was going to change frequencies to check the weather.

At 2042:03, the pilot announced that he was back on the controller’s frequency. The controller stated "okay looks like you're going back opposite direction" to which the pilot stated "yeah we're headed back." Asked to clarify his intended destination, the pilot said “I think we’re gonna head back toward Danville…”. The controller identified an alternate airport 10 miles north of the airplane’s position but, at 2042:30, the pilot responded, "yeah I just as soon not do that I can't seem to find my plates I'm getting bounced around pretty good."

Radar data indicated that during the time when the pilot reported to the controller that he was going to be off frequency checking weather, the airplane began a series of erratic maneuvers. About 2040:49, the airplane entered a gradual left turn. Between 2041:13 and 2041:25, the turn tightened and the airplane entered a steep left spiral dive, losing 700 feet in 12 seconds. The airplane briefly disappeared from radar on a westerly heading, but it reappeared at 2141:43, at a higher altitude and flying a southeasterly heading. At 2141:55, the airplane began to make a tight left turn. Shortly after the pilot informed the controller that he was back on the controller’s frequency, the airplane briefly stabilized on a northerly heading at 4,900 feet msl but, at 2142:30, as the pilot made his final transmission, the airplane disappeared from radar for the last time.

Recordings of voice data obtained from the Lockheed Martin Washington Contracted Flight Service Station indicated that the pilot contacted Flight Watch at 2016. During the recorded conversation the weather specialist informed the pilot that an AIRMET for IFR conditions and mountain obscuration still existed along their intended route of flight. The specialist further

informed the pilot that the forecast was showing ceilings below 1,000 feet and visibility below 3 miles. The pilot informed the specialist, "do believe we're gonna look at lynchburg uh I'll get back to ya here in just a little bit uh I have to get back on uh flight following here right now." The recorded communication lasted about 6 minutes and no further communication with Flight Watch was located.

WRECKAGE AND IMPACT INFORMATION

The airplane was found inverted in mountainous, wooded terrain. The debris path was about 650 feet in length. The wreckage debris path was oriented on 045 degree magnetic heading and the main wreckage was located about 2,900 feet msl. The engine was found separated from the airplane and was within the vicinity of the main wreckage. A review of Washington Center radar data indicated that the last radar return was at 4,900 feet msl and was 255 degrees and 0.62 miles from the accident location.

Examination of the wreckage indicated that the stabilator was impact separated and the center section of the stabilator was located in a tree approximately 80 feet agl and in the vicinity of the initial tree strike. Sections of the left wing were located along the debris field prior to the main wreckage. The impact crater was 11 feet in length, 53 inches wide, and 22 inches in depth. Inside the impact crater were the inboard section of the left flap, a section of the cockpit instrument panel, and numerous fragments of the left wing. The engine and cockpit area came to rest between a group of three trees. A section of the right wing, including the retracted main landing gear, was located up the hill, approximately 79 feet forward, and to the right of the main wreckage. A fragmented portion of the right wing flap was located up an incline and in front of the main wreckage approximately 107 feet. The flap handle was found in the down position, which correlated with flaps "UP" position. The stabilator trim indicator was not viewable and the landing gear handle was not located.

Fuselage

The fuselage was segmented and the cabin walls were breeched. All windows were separated from their normal positions; were cracked, splintered and segmented. The forward cabin and aft cabin doors were separated and impact damaged. The aft cargo door was separated and impact damaged. All six seats were recovered and noted to be separated from their fuselage floor mountings; all exhibited impact damage and some torsion twisting. Seat restraints were located and all showed impact damage but were found to be connected to their mountings; however, the mountings were separated from the fuselage fragments. The co-pilot's seat restraint was found in the latched position. The seat belts associated with the pilot, co-pilot, and the middle row seat located behind the co-pilot seat exhibited web stretching.

Cockpit

The instrument panel was separated from the forward fuselage area. It was void of instrumentation and the instrumentation was located throughout the debris field and did not

yield any useable information. The rudder pedals and flight control "T"-bar were impact-damaged and control cable continuity was traced to all the cable breaks from the associated attach points. The breaks had the appearance of broomstrawing at the fracture points. The aileron chain was found impact separated from the "T" bar.

Loose papers, around the accident location, were collected and examined. The only navigational publications found in the vicinity of the wreckage were three unopened/folded Sectional Aeronautical Charts, along with several Airport/Facility Directories. No IFR charts were found.

Empennage

The vertical fin was found separated from the fuselage and exhibited impact damage along the leading edge. The side skins were concave due to impact damage. The rudder was attached to the vertical fin at its hinge points and control cable continuity was traced to the tensile overload breaks. The stops were in place and exhibited some impact damage. The rudder balance weight was not located in or around the debris field. The rudder position at impact could not be determined.

The stabilator was separated from its mounting. Both tip sections were separated and both tip weights were attached. The main stabilator assembly was located in an approximate 100-foot-tall tree near the initial impact location. The primary balance weight was located in the ground impact debris field approximately 60 feet forward of the main impact area. Control cable sections were attached and exhibited tensile overload separations. The left and right tip sections were located on the ground forward of the tree impact area. The trim drum was not located.

Left Wing

The left wing was separated and fragmented. The fuel tank was impact-damaged, breeched and void of fuel. The fuel cap remained secure and in place. The flap was partially attached and fragmented. The aileron was fragmented and partially attached. The aileron balance weight was not located. An aftermarket gap seal kit was installed on the flap and aileron. The primary balance cable was segmented and exhibited evidence of tensile overload. Control continuity was partially established. The fiberglass wing tip was separated and fragmented. The left main landing gear was separated and the strut tube was separated from its housing and located within the debris field.

Right Wing

The right wing was impact separated and fragmented. The wing root section was located forward of the main impact area in the debris field. It contained the right main landing gear and appeared to be in the "UP" position. The outboard wing section was fragmented from impact and the fuel tank was fragmented and void of fuel. The fuel cap was impact separated and

was located approximately 40 feet from the fuel tank. The wing tip was separated and fragmented. The aileron was separated and the aileron control sector was located within the debris field. It contained segments of the primary and balance cables attached and they exhibited tensile overload signatures. The right flap was impact damaged, partially attached and fragmented. The control rod was broken and the flap and aileron had aftermarket gap seals installed. The fiberglass wing tip was separated, impact damaged, and fragmented.

The doors were all impacted separated and indicated the doors were in the close and locked positions.

Engine

The engine was impacted separated from the engine mounts. The No.s 2, 4, and 6 cylinders exhibited impact damage, with the No.2 cylinder most extensively damaged. The top spark plugs were removed by investigators, with the exception of the No. 2 cylinder plug, which was missing. The No.s 4 and 6 cylinder spark plugs remained attached in the cylinder plug hole but were fractured slightly above their threads. Cylinder No.s 1, 3, and 5 remained attached and all spark plugs appeared gray in color with no unusual wear indicated. The engine sump pump exhibited impact damage and oil was present.

The engine power controls were visible; however, they were severely bent and were difficult to move due to impact damage and their pre-impact positions could not be accurately determined. Engine control continuity was not established on the mixture, propeller, and throttle due to impact damage. The alternator and starter were separated and found forward of the debris field.

The fuel injector and engine-driven fuel pump contained a blue fluid and had a smell similar to 100 LL aviation fuel. The engine-driven fuel pump was disassembled by investigators and the diaphragm was intact and no damage was noted. The fuel pump armature operated smoothly. The fuel servo was impacted separated, the throttle valve was jammed with dirt, and the fuel servo diaphragm was impact damaged. The electric-driven fuel pump was located within the debris field; impact damaged, and was devoid of fuel. The fuel selector valve was found in the right fuel tank position.

Oil was present on the engine oil dipstick and the oil filter was removed from the rear of the engine by investigators. It contained oil and was free of debris or contaminants.

The right oil cooler was impact damaged but remained attached to the engine. The left oil cooler was impact separated and damaged.

The magneto was impacted separated, located 68 feet forward of the main wreckage. When rotated by hand, spark was observed. The magneto switch was located in the impact crater and was found in the "BOTH" position; however, the key was sheared and part of it remained inside the key hole.

The vacuum pump remained attached to the engine. Disassembly revealed that the vanes were cracked with rotational scoring noted inside the case.

The turn coordinator, HSI [horizontal situational indicator], and directional gyro were all examined and exhibited extensive impact damage. The gyro was removed and exhibited rotational scoring on the inside of the gyro case.

Propeller

The Hartzell 3-bladed propeller was impacted separated and located up the incline and 40 feet in front of the main wreckage. The blades were partially imbedded in the ground and all three blades remained attached to the hub. Two of the propeller blades exhibited extensive tip curling on the outboard approximate one-third of their length, and S-bending. One propeller blade remained relatively straight, embedded in the ground and exhibited chordwise scratches. The propeller governor was impacted separated, fractured, and remained within the vicinity of the engine.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on October 8, 2011, by State of West Virginia Office of the Chief Medical Examiner, Charleston, West Virginia. The autopsy findings included "catastrophic injuries" and the report listed those injuries. The report also stated that alcohol was detected in muscle tissue and was ascribed to postmortem formation.

Forensic toxicology was performed on specimens from the pilot by the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma. The toxicology reported stated 15 (mg/dL, mg/hg) ethanol detected in muscle, and no drugs were detected in the muscle.

ADDITIONAL INFORMATION

Federal Aviation Regulation 91.155, Basic VFR Weather Minimums, states, "no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, that that prescribed for the corresponding altitude and class of airspace." Class C, D, E, and G distance from cloud minimums were listed as: 500 feet below, 1,000 feet above, and 2,000 feet horizontal.

According to the FAA website, Sectional Aeronautical Charts are "the primary navigational reference medium used by the VFR pilot community…is designed for visual navigation of slow to medium speed aircraft…"

Airplane Flying Handbook (FAA-H-8083-3A)

The Airplane Flying Handbook (AFH), Chapter 16 "Emergency Procedures" contained a section

entitled "Inadvertent VFR Flight into IMC" which stated in part " A VFR pilot is in IMC conditions anytime he or she is unable to maintain airplane attitude control by reference to the natural horizon, regardless of the circumstances or the prevailing weather conditions…Accident statistics show that the pilot who has not been trained in attitude instrument flying, or one whose instrument skills have eroded, will lose control of the airplane in about 10 minutes once forced to rely solely on instrument reference." The stated purpose of the AFH was "to provide guidance on practical emergency measures to maintain airplane control for a limited period of time in the event a VFR pilot encounters IMC conditions…to help the VFR pilot keep the airplane under adequate control until suitable visual reference s are regained." The AFH further stated that the first steps necessary for a VFR pilot to survive an encounter with IMC included "recognition and acceptance of the seriousness of the situation and the need for immediate remedial action, maintaining control of the airplane, and obtaining the appropriate assistance." It stated that "Attempts to control the airplane partially by reference to flight instruments while searching outside the cockpit for visual confirmation of the information provided by those instruments will result in inadequate airplane control," which "may be followed by spatial disorientation and complete control loss."

The handbook additionally stated, "The pilot must believe what the flight instruments show about the airplane's attitude regardless of what the natural senses tell. The vestibular sense (motion sensing by the inner ear) can and will confuse the pilot. Because of inertia, the sensory areas of the inner ear cannot detect slight changes in airplane attitude, nor can they accurately send the attitude changes which occur at a uniform rate over a period of time. On the other hand, false sensations are often generated, leading the pilot to believe the attitude of the airplane has changed when, in fact, it has not. These false sensations result in the pilot experiencing spatial disorientations."

FAA Advisory Circular 60-4A

"The attitude of an aircraft is generally determined by reference to the natural horizon or other visual reference with the surface. If neither horizon nor surface references exist, the attitude of an aircraft must be determined by artificial means from the flight instruments. Sight, supported by other senses, allows the pilot to maintain orientation. However, during periods of low visibility, the supporting senses sometimes conflict with what is seen. When this happens, a pilot is particularly vulnerable to disorientation. The degree of orientation may vary considerably with particularly vulnerable to disorientation. The degree of orientation may vary considerably with individual pilots. Spatial disorientation to a pilot means simply the inability to tell which is 'up'…Surface references and the natural horizon may at times become obscured, although visibility may be above flight rule minimums. Lack of natural horizon or such reference is common on overwater flights, at night, and especially at night in extremely sparsely populated areas, or in low visibility conditions… The disoriented pilot may place the aircraft in a dangerous attitude…therefore, the use of flight instruments is essential to maintain proper attitude when encountering any of the elements which may result in spatial disorientation."

FAA Advisory Circular 61-134

"According to National Transportation Safety Board (NTSB) and FAA data, one of the leading causes of GA [general aviation] accidents is continue VFR flight into IMC… the importance of complete weather information, understanding, the significance of the weather information, and being able to correlate the pilot's skills and training, aircraft capabilities and operating environment with an accurate forecast cannot be emphasized enough… VFR pilots in reduced visual conditions may develop spatial disorientation and lose control, possibly going into a graveyard spiral…"

Private Pilot Certification

According to the FAA, the minimum requirement for private pilot certification was in part "… 3 hours of flight training in a single-engine airplane on the control and maneuvering of an airplane solely by reference to instruments, including straight and level flight, constant airspeed climbs and descents, turns to a heading, recovery from unusual attitudes, radio communications, and the use of navigation systems/facilities and radar services appropriate to instrument flight…"

Pilot Information

Certificate:	Private	**Age:**	52,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 With waivers/limitations	**Last FAA Medical Exam:**	January 20, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	August 31, 2011
Flight Time:	111 hours (Total, all aircraft), 40 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N115CL
Model/Series:	PA-32R-300	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32R-7780439
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	March 2, 2011 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4541.15 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed	**Engine Model/Series:**	IO-540-K1G5D
Registered Owner:	WINGS R US	**Rated Power:**	300 Horsepower
Operator:	WINGS R US	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	W99,963 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	20:55 Local	**Direction from Accident Site:**	335°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 3600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	8°C / 6°C
Precipitation and Obscuration:	Light - None - Drizzle		
Departure Point:	Danville, VA (DAN)	**Type of Flight Plan Filed:**	None
Destination:	Johnstown, PA (JST)	**Type of Clearance:**	VFR flight following
Departure Time:	19:30 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	38.848609,-79.015556

Administrative Information

Investigator In Charge (IIC):	Etcher, Shawn
Additional Participating Persons:	Antonio C Santos; FAA/FSDO; Glen Burnie, MD Ron Maynard; Piper Aircraft Corporation; Vero Beach, FL
Original Publish Date:	July 18, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=82007