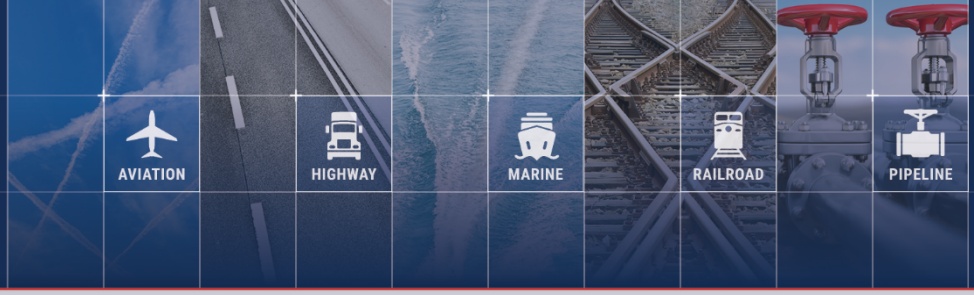

Aviation Investigation Final Report

Location:	Gaithersburg, Maryland	**Accident Number:**	ERA09LA200
Date & Time:	March 15, 2009, 13:43 Local	**Registration:**	N213CP
Aircraft:	CIRRUS DESIGN CORP SR22	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the initial climb after takeoff on an instrument-flight-rules flight, as the airplane entered clouds about 700 to 1,000 feet above mean sea level, the passenger door opened about 2 to 3 inches, which allowed rain, cold air, and increased noise to enter the cockpit. The pilot said that he became spatially disoriented and that the airplane subsequently "stalled and started to spin." The pilot activated the Cirrus Airplane Parachute System and the airplane descended toward the ground. The left wing struck a parked vehicle and the airplane came to rest on a road about 1/2 mile west of the airport. The airplane's left wing was fractured and the empennage was separated just forward of the horizontal stabilizer. Examination of the airplane, which included the passenger door locking mechanism, did not reveal any mechanical anomalies. The pilot reported 327 hours of total flight experience, which included 161 hours in the same make and model as the accident airplane, and about 7 and 63 hours of actual and simulated instrument flight experience, respectively. A weather observation taken at the departure airport about the time of the accident included a visibility of 2 miles and overcast clouds at 400 feet.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot’s spatial disorientation after the passenger door opened during flight in instrument meteorological conditions. Contributing to the accident was the pilot’s failure to properly secure the door latch.

Findings

Personnel issues	Lack of action - Pilot
Personnel issues	Spatial disorientation - Pilot

Factual Information

History of Flight

Initial climb	Miscellaneous/other
Maneuvering	Loss of control in flight (Defining event)

On March 15, 2009, about 1343 eastern daylight time, a Cirrus Design Corp. SR22, N213CP, owned and operated by a private pilot, was substantially damaged after it deployed its Cirrus Airplane Parachute System (CAPS), shortly after takeoff from the Montgomery County Airpark (GAI), Gaithersburg, Maryland. The certificated private pilot was not injured. Instrument meteorological conditions prevailed and an instrument flight rules flight plan had been filed for the flight destined for the Battle Creek International Airport (AZO), Kalamazoo, Michigan. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

The airplane departed from runway 32, a 4,202-foot-long, asphalt runway.

The pilot reported that during the initial climb, as the airplane first entered clouds, about 700 to 1,000 feet mean sea level, the passenger side door "popped open" about 2 to 3 inches, which allowed rain, cold air, and increased noise to enter the cockpit. The pilot said he became spatially disoriented and the airplane's attitude varied; however, he was able to stabilize the airplane and intended to return to GAI. While maneuvering, with the airplane "in and out of clouds," the airplane "stalled and started to spin." The pilot was not able to recall the airplane's airspeed or altitude. He recalled pressing the "level button" and then elected to deploy the CAPS.

The airplane subsequently descended toward the ground. The left wing struck a parked vehicle and the airplane came to rest on a road, about 1/2 mile west of the airport. The airplane's the left wing was fractured and the empennage separated just forward of the horizontal stabilizer.

Examination of the airplane, which included the passenger door locking mechanism, by a Federal Aviation Administration (FAA) inspector, did not reveal any mechanical malfunctions. The pilot stated he did not experience any mechanical malfunctions during the flight.

The airplane was equipped with a "Garmin Perspective" cockpit instrumentation system, and a remote data module (RDM). The RDM, which was intended to record engine and flight parameters, was removed and forwarded to the NTSB Vehicle Recorders Laboratory, Washington, DC, where it was subsequently downloaded.

According to the Safety Board Specialist's Factual Report, significant events recorded during the accident flight included the takeoff at 1339:35, roll excursions which began at 1340:00,

pitch excursions which began at 1341:50, engagement of the autopilot in Level Mode for both lateral and vertical directions at 1342:06, stall warning at 1342:08, and CAPS deployment at 13:42:18. The autopilot and flight director disengaged, as designed when the stall warning system activated.

The pilot, age 64, held a private pilot certificate, with ratings for airplane single-engine land and instrument airplane. His most recent FAA third-class medical certificate was issued on September 12, 2008. The pilot reported 327 hours of total flight experience, which included 161 hours in the same make and model as the accident airplane, and about 7 and 63 hours of "actual" and "simulated" instrument flight experience, respectively.

The airplane, serial number 3142, was issued a standard airworthiness certificate on July 18, 2008, and was purchased new by the pilot through a corporation during August 2008. At the time of the accident, the airplane had been operated for about 120 hours. The pilot reported that he had previously owned another SR22, which was equipped with an Avidyne cockpit instrumentation system.

The Garmin Perspective Avionics suite included a feature designed to engage the autopilot to command an attitude for level flight. The Cirrus Perspective Pilot's Guide, stated, in part:

"Level Mode is coupled pitch and roll modes and is annunciated as both the vertical and lateral modes when active. Pressing the LVL Key engages the autopilot (if not engaged), rolls the wings level, and maintains an aircraft attitude that provides level flight. Level Mode does not track altitude or heading. Pressing the LVL Key always engages the autopilot. When the LVL Key is pressed all armed and active modes are cancelled and the autopilot and flight director revert to LVL Mode for pitch and roll."

According to a Cirrus representative, the LVL button will not engage, or will disengage, if the Stall Warning System is activated. At the time of the accident, the SR22 Pilot's Operating Handbook Supplement pertaining to Level Button on the Garmin Perspective System indicated:

"LVL – Level Button: The LVL button engages the autopilot (if not already engaged) and commands roll to zero bank angle and pitch to zero vertical speed."

On August 26, 2009, the section was revised to:

"LVL – Level Button: The LVL button engages the autopilot (within the Autopilot Engagement Limits if not already engaged) and commands roll to zero bank angle and pitch to zero vertical speed. The LVL button will not engage, or will disengage, if the Stall Warning System is activated."

A weather observation taken at GAI, at 1335, reported calm winds; visibility 2 miles, overcast clouds at 400 feet; temperature 4 degrees Celsius (C), dew point 3 degrees C; altimeter 30.21 inches of mercury. The pilot recalled that the cloud layer was "slightly higher" than about 800

feet.

Pilot Information

Certificate:	Private	**Age:**	64,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	September 12, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 3, 2008
Flight Time:	327 hours (Total, all aircraft), 161 hours (Total, this make and model), 261 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CIRRUS DESIGN CORP	**Registration:**	N213CP
Model/Series:	SR22	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	3142
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	January 23, 2009 100 hour	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:	17 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	117 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, activated	**Engine Model/Series:**	IO-550N
Registered Owner:	N2877B LLC	**Rated Power:**	310 Horsepower
Operator:	N2877B LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	GAI,539 ft msl	**Distance from Accident Site:**	
Observation Time:	13:35 Local	**Direction from Accident Site:**	200°
Lowest Cloud Condition:		**Visibility**	2 miles
Lowest Ceiling:	Overcast / 400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	4°C / 3°C
Precipitation and Obscuration:			
Departure Point:	Gaithersburg, MD (GAI)	**Type of Flight Plan Filed:**	IFR
Destination:	Kalamazoo, MI (AZO)	**Type of Clearance:**	IFR
Departure Time:	13:40 Local	**Type of Airspace:**	

Airport Information

Airport:	Montgomery County GAI	**Runway Surface Type:**	Asphalt
Airport Elevation:	539 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	32	**IFR Approach:**	None
Runway Length/Width:	4202 ft / 75 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	39.164722,-77.171943(est)

Administrative Information

Investigator In Charge (IIC):	Schiada, Luke
Additional Participating Persons:	Sandra McClure; FAA/FSDO; Baltimore, MD Brad T Miller; Cirrus Aircraft; Duluth, MN
Original Publish Date:	October 21, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=73493