



Aviation Investigation Final Report

Location:	Lancaster, New York	Accident Number:	ERA14FA459
Date & Time:	September 27, 2014, 10:20 Local	Registration:	N9679H
Aircraft:	Cessna 172M	Aircraft Damage:	Destroyed
Defining Event:	Midair collision	Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident airplanes, a Cessna and an experimental amateur-built Searey, were two of several airplanes participating in a volunteer event designed to provide the opportunity for young people to fly in a general aviation airplane. A route of flight for the event was established and briefed, and the pilots were instructed to make position reports over the airport's common traffic advisory frequency at certain landmarks along the route of flight; however, no procedures were in place to account for the disparate operating characteristics and speeds of the aircraft participating in the event. Radar and GPS data showed that the Cessna overtook and descended to the altitude of the Searey as the Searey climbed slowly. During the last moments before impact, both airplanes were depicted at the same altitude and in close lateral proximity. The Searey pilot was unaware that his airplane had collided with the Cessna, but upon experiencing control difficulty, performed a forced landing to an area of thick vegetation. The Searey was substantially damaged during the landing. Immediately after the collision, the Cessna entered a descending spiral to ground contact.

A performance radar and cockpit visibility study determined that the Searey would have remained a relatively small and stationary object in the Cessna's windscreen, appearing below the horizon and just above the engine cowling, for several minutes before the impact. The study also determined that the Searey may have been difficult to distinguish against the background of terrain. Additionally, since the airplanes were on a converging course, the Searey would have presented little relative motion to the other pilot, making detection more difficult. The Cessna would not have been visible to the Searey pilot because it approached from an area that was obstructed by the airplane's structure.

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 an adequate visual lookout for known traffic in the fly-in event traffic pattern, which resulted in a midair collision.

Findings

Personnel issues	Monitoring other aircraft - Pilot of other aircraft
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Factual Information

HISTORY OF FLIGHT

On September 27, 2014, about 1020 eastern daylight time, a Cessna 172M, N9679H, and an experimental amateur-built Searey XLS, N89KD, collided in midair approximately 2 miles southeast of the Buffalo-Lancaster Regional Airport (BQR), Lancaster, New York. The commercial pilot and passenger on board the Cessna were fatally injured. The pilot of the Searey performed a forced landing to a thicket of low brush, and the airplane was substantially damaged. The private pilot and passenger in the Searey were not injured. Visual meteorological conditions prevailed and no flight plan was filed for either airplane, each on local personal flights which departed BQR at 1009 (Searey) and 1012 (Cessna). Both airplanes were participating in an Experimental Aircraft Association (EAA) Young Eagles event, and the flights were conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

Several witnesses provided statements, and their accounts were consistent throughout. They each said their attention was drawn to the sound of the airplanes and/or the sound of collision. The airplanes were both traveling westbound as one airplane overtook the other, or was on top of the other, before one airplane (Cessna) was seen to "tip" or "roll" inverted before it descended vertically in a spiral. The second airplane (Searey) descended in a 180-degree turn and the sound of the engine was increasing and decreasing, "revving" or "sputtering" throughout the descent.

Radar information provided by the Federal Aviation Administration (FAA) depicted both airplanes traveling westbound on roughly the same ground track; the Cessna at 1,774 feet and 90 knots groundspeed, and the Searey ahead of the Cessna, at 1,575 feet and 70 knots groundspeed. As the Cessna approached the Searey from the east, it descended slowly to 1,625 feet. At the same time, the Searey climbed slowly to 1,625 feet. During the last moments prior to impact, both airplanes were depicted at 1,625 feet, and in close lateral proximity. Radar contact with the Cessna was lost in the vicinity of its accident site, while the Searey was depicted in a descending right turn.

The pilot of the Searey, who was flying from the left seat, said he was in cruise flight and nearing the point when he was to begin the turn north toward the airport, when he felt a sudden "bang" and heard a "snapping" sound. He said he wasn't sure if the airplane had struck something, or if something in the airplane had broken. The pilot said the airplane was unresponsive to control inputs in the pitch axis, and that he used engine power to control pitch. Due to limited controllability and trees further along on his flight path, he elected to land the airplane in the thicket to avoid greater hazards and for crash attenuation.

The passenger in the right seat of the Searey was interviewed by police in the company of her parents the day following the accident. According to the passenger, she looked out the right window and "...saw a white airplane coming at us from above and I knew it was going to hit us. I tried to warn the pilot but there wasn't enough time and the microphone was too far away." The passenger went on to describe the collision, the descent, the landing in the thicket, and her egress from the airplane.

PERSONNEL INFORMATION

The Cessna pilot held a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane. His most recent FAA third-class medical certificate was issued September 16, 2014 at which time he reported 2,115 total hours of flight experience.

The Searey pilot held a private pilot certificate with ratings for airplane single-engine land, single-engine sea, and instrument airplane. His most recent FAA third-class medical certificate was issued July 10, 2014. The pilot reported 4,270 total hours of flight experience.

AIRCRAFT INFORMATION

According to FAA records, the Cessna was manufactured in 1975. The airplane's most recent annual inspection was completed April 25, 2014 at 8,069 total aircraft hours.

According to FAA records, the Searey was manufactured in 2014. Its most recent condition inspection was completed January 13, 2014, and the airplane had accrued 160 hours since that date.

METEOROLOGICAL INFORMATION

The 1054 weather observation at Buffalo International Airport (BUF), Buffalo, New York, located 5 miles west of the accident site included clear skies, calm winds, and 10 statute miles visibility.

AERODROME INFORMATION

BQR was situated beneath the outer ring of the Class C airspace that surrounded BUF, at a field elevation of 752 feet mean sea level (msl). The single runway, oriented 8/26, was 3,199 feet long at 75 feet wide. The traffic pattern altitude was 1,552 feet msl, and the airport was not tower-controlled.

WRECKAGE AND IMPACT INFORMATION

The Cessna came to rest on flat, wooded terrain and was examined at the accident site. All major components were accounted for at the scene. The airplane came to rest in a nose-down attitude, with the engine buried beneath the instrument panel in the initial impact crater, and was severely deformed by impact forces. The leading edges of both wings were uniformly crushed aft in compression. The airframe was cut by rescue personnel, and further sectioned for removal from the woods. Control continuity was established from the cockpit area to all flight control surfaces. The propeller blades displayed twisting, bending, leading edge gouging and chordwise scratching. Both blades displayed spiral striations about 5 inches inboard of the tips consistent with a wire strike.

The Searey came to rest upright in a dense thicket. The trailing edge of the right wing flap displayed a series of parallel slash marks, the structural tubing was severed, and the fracture surfaces were smeared. The structural cable between the wing strut and the empennage was still attached at each end, but missing an approximate 5-foot section of its middle. The two severed ends displayed features consistent with overload. The empennage displayed a vertical opening and parallel slash marks.

MEDICAL AND PATHOLOGICAL INFORMATION

The Office the Chief Medical Examiner for the County of Erie, Buffalo, New York, performed the autopsy on the Cessna pilot. The autopsy report listed the cause of death as multiple blunt force injuries.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of the Cessna pilot. The testing was negative for the presence of carbon monoxide, cyanide, and ethanol. Amlodipine was detected in the blood and urine. Amlodipine was in a group of drugs called calcium channel blockers and was used to treat high blood pressure or angina. Salicylate, a metabolite of aspirin, was detected in the urine.

The NTSB Chief Medical Officer performed a medical review of the pilot's records and the reports cited above. The review revealed no evidence of any medical condition or substance that may have contributed to the accident.

ADDITIONAL INFORMATION

Young Eagles Event

The purpose of the EAA Young Eagles Program was to provide the opportunity for young people to fly in a general aviation airplane. The district coordinator for the event was interviewed by an FAA inspector about the conduct of the event.

The coordinator had organized the event using the instructions provided by EAA, which included an informational webinar for organizers. The volunteer pilots were required to be EAA members, and were also required to attend a briefing prior to the event. The items briefed included the current and forecast weather, the runway in use, the route of flight, and the various landmarks that defined the route.

The flight route consisted of a straight-out departure to the east, climbing to an altitude of 1,800 feet. About 10 nautical miles from the airport, the airplanes were to turn right and return to the airport on a track parallel to and about 2 miles south of the outbound track. The course terminated abeam the midpoint of runway 08/26. At or about that point, the airplanes were to descend to traffic pattern altitude, turn north to cross the runway south to north, then enter a left downwind for landing on runway 08. Traffic pattern altitude at BQR was 1,552 feet.

Pilots were instructed to use the BQR common traffic advisory frequency (CTAF) for all communications, which included position reports when making turns and at several designated landmarks along the route of flight. Airspeeds were neither set nor restricted while established on the route.

According to the vice president of the local EAA Chapter, each airplane participating in the event was assigned a discrete transponder code in coordination with the control tower at BUF; however, none of the airplanes were in contact with, or receiving any services from, the control tower.

Radar Study

A radar study was performed by an NTSB Airplane Performance Specialist. The radar data used in the study were secondary returns from the short-range Airport Surveillance Radar (ASR-9) located at Buffalo Niagara International airport (BUF), Buffalo, NY (transponder codes 0433 and 0416 for the Searey and the Cessna, respectively).

In addition to the radar data, a Garmin 496 portable GPS receiver was recovered from the Searey and successfully downloaded. The radar and GPS track data was used to establish a timeline of the flights,

ground and flight tracks for each airplane and to create a simulation of the flight as viewed from the cockpit of the Cessna.

According to the simulations and graphs produced by the study, as seen from the Cessna, the Searey would have been located below the horizon and just above the Cessna's engine cowling for most of the westbound leg of the flight. While the Searey may have been within the Cessna's field of view, the Searey would have been difficult to see against the background of the terrain. Further, based on the distance between the Cessna and the Searey throughout the flight, the Searey would have been a small dot in the terrain background until the final seconds before impact.

Because of the high-wing structure of the Searey, and its relative position and altitude, the Cessna was blocked from the Searey pilot's view by the right wing, roof, and aft cabin structure, as the Cessna was above and behind the Searey during the latter portion of the flight prior to collision. Although the pilot of the Searey stated that he was reporting his position on the CTAF along the route of flight as prescribed in the pre-event briefing, this could not be confirmed, as radio communications made over the CTAF were not recorded.

FAA Advisory Circular 90-48D, "Pilots' Role in Collision Avoidance," stated, "Pilots should also be familiar with, and exercise caution in, those operational environments where they may expect to find a high volume of traffic or special types of aircraft operation. These areas include airport traffic patterns, particularly at airports without a control tower..."

FAA Pamphlet P-8740-51, "How to Avoid a Midair Collision," stated, "...an aircraft on a collision course with you will appear to be motionless. It will remain in a seemingly stationary position, without appearing to move or to grow in size for a relatively long time, and then suddenly bloom into a huge mass filling one of your windows. This is known as "blossom effect." Since we need motion or contrast to attract our eyes' attention, this effect becomes a frightening factor when you realize that a large bug smear or dirty spot on the windshield can hide a converging plane until it is too close to be avoided."

History of Flight

Maneuvering

Midair collision (Defining event)

Pilot Information

Certificate:	Commercial	Age:	78
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	September 16, 2014
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	2115 hours (Total, all aircraft), 1000 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N9679H
Model/Series:	172M	Aircraft Category:	Airplane
Year of Manufacture:	1975	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	17266308
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	April 25, 2014 Annual	Certified Max Gross Wt.:	2299 lbs
Time Since Last Inspection:	145 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	8069 Hrs at time of accident	Engine Manufacturer:	LYCOMING
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	O-320 SERIES
Registered Owner:		Rated Power:	160 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:	BUF,724 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	10:54 Local	Direction from Accident Site:	270°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	30.31 inches Hg	Temperature/Dew Point:	17°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LANCASTER, NY (BQR)	Type of Flight Plan Filed:	None
Destination:	LANCASTER, NY (BQR)	Type of Clearance:	None
Departure Time:	10:12 Local	Type of Airspace:	Class E

Airport Information

Airport:	BUFFALO-LANCASTER RGNL BQR	Runway Surface Type:	
Airport Elevation:	751 ft msl	Runway Surface Condition:	Vegetation
Runway Used:	08	IFR Approach:	None
Runway Length/Width:	3199 ft / 75 ft	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:	42.898334,-78.580558

Preventing Similar Accidents

See and Be Seen

Adequate visual lookout while flying in visual meteorological conditions is critical to avoiding other aircraft. While accidents can occur in high-traffic areas (near airports), they can also occur in cruise flight.

All pilots can be vulnerable to distractions in the cockpit, and the presence of technology has introduced challenges to the see-and-avoid concept. Aviation applications on portable electronic devices (PEDs) such as cell phones, tablets, and handheld GPS units, while useful, can lead to more head-down time, limiting a pilot's ability to see other aircraft.

Pilots need to be vigilant and use proper techniques to methodically scan for traffic throughout your flight, not only in high-volume traffic areas. Dividing attention inside and outside the aircraft and minimizing distractions (including nonessential conversations, photography or sightseeing activities, and PED use) that may degrade the ability to maintain awareness of other aircraft are two strategies that can help improve traffic scans. Passengers can help look for traffic and, during instructional flights, one pilot should always be responsible for scanning for traffic.

Aircraft visible to other aircraft can be improved by turning on available lights, including anticollision lights, and using high-intensity discharge or LED lighting.

Pilots should clearly communicate intentions and use standard phraseology, known distances, and obvious ground references to alert other pilots of their location.

Some conditions make it harder to see other aircraft, such as operating in areas where aircraft could be masked by surrounding terrain or buildings and when sun glare is present. Effective use of on-board traffic advisory systems, when available, can help pilots visually acquire and avoid other aircraft but is not a substitute for an outside visual scan.

See http://www.nts.gov/safety/safety-alerts/documents/SA_045.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Tom McCormick; FAA/FSDO; Rochester, NY Paul Yoos; Textron Aviation; Wichita, KS
Original Publish Date:	July 25, 2016
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=90164

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).



Aviation Investigation Final Report

Location:	Lancaster, New York	Accident Number:	ERA14FA459
Date & Time:	September 27, 2014, 10:20 Local	Registration:	N89KD
Aircraft:	KEVIN D'ANGELO SEAREY	Aircraft Damage:	Substantial
Defining Event:	Midair collision	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident airplanes, a Cessna and an experimental amateur-built Searey, were two of several airplanes participating in a volunteer event designed to provide the opportunity for young people to fly in a general aviation airplane. A route of flight for the event was established and briefed, and the pilots were instructed to make position reports over the airport's common traffic advisory frequency at certain landmarks along the route of flight; however, no procedures were in place to account for the disparate operating characteristics and speeds of the aircraft participating in the event. Radar and GPS data showed that the Cessna overtook and descended to the altitude of the Searey as the Searey climbed slowly. During the last moments before impact, both airplanes were depicted at the same altitude and in close lateral proximity. The Searey pilot was unaware that his airplane had collided with the Cessna, but upon experiencing control difficulty, performed a forced landing to an area of thick vegetation. The Searey was substantially damaged during the landing. Immediately after the collision, the Cessna entered a descending spiral to ground contact.

A performance radar and cockpit visibility study determined that the Searey would have remained a relatively small and stationary object in the Cessna's windscreen, appearing below the horizon and just above the engine cowling, for several minutes before the impact. The study also determined that the Searey may have been difficult to distinguish against the background of terrain. Additionally, since the airplanes were on a converging course, the Searey would have presented little relative motion to the other pilot, making detection more difficult. The Cessna would not have been visible to the Searey pilot because it approached from an area that was obstructed by the airplane's structure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The other airplane pilot's failure to maintain an adequate visual lookout for known traffic in the fly-in event traffic pattern, which resulted in a midair collision.

Findings

Personnel issues

Monitoring other aircraft - Pilot

Factual Information

HISTORY OF FLIGHT

On September 27, 2014, about 1020 eastern daylight time, a Cessna 172M, N9679H, and an experimental amateur-built Searey XLS, N89KD, collided in midair approximately 2 miles southeast of the Buffalo-Lancaster Regional Airport (BQR), Lancaster, New York. The commercial pilot and passenger on board the Cessna were fatally injured. The pilot of the Searey performed a forced landing to a thicket of low brush, and the airplane was substantially damaged. The private pilot and passenger in the Searey were not injured. Visual meteorological conditions prevailed and no flight plan was filed for either airplane, each on local personal flights which departed BQR at 1009 (Searey) and 1012 (Cessna). Both airplanes were participating in an Experimental Aircraft Association (EAA) Young Eagles event, and the flights were conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

Several witnesses provided statements, and their accounts were consistent throughout. They each said their attention was drawn to the sound of the airplanes and/or the sound of collision. The airplanes were both traveling westbound as one airplane overtook the other, or was on top of the other, before one airplane (Cessna) was seen to "tip" or "roll" inverted before it descended vertically in a spiral. The second airplane (Searey) descended in a 180-degree turn and the sound of the engine was increasing and decreasing, "revving" or "sputtering" throughout the descent.

Radar information provided by the Federal Aviation Administration (FAA) depicted both airplanes traveling westbound on roughly the same ground track; the Cessna at 1,774 feet and 90 knots groundspeed, and the Searey ahead of the Cessna, at 1,575 feet and 70 knots groundspeed. As the Cessna approached the Searey from the east, it descended slowly to 1,625 feet. At the same time, the Searey climbed slowly to 1,625 feet. During the last moments prior to impact, both airplanes were depicted at 1,625 feet, and in close lateral proximity. Radar contact with the Cessna was lost in the vicinity of its accident site, while the Searey was depicted in a descending right turn.

The pilot of the Searey, who was flying from the left seat, said he was in cruise flight and nearing the point when he was to begin the turn north toward the airport, when he felt a sudden "bang" and heard a "snapping" sound. He said he wasn't sure if the airplane had struck something, or if something in the airplane had broken. The pilot said the airplane was unresponsive to control inputs in the pitch axis, and that he used engine power to control pitch. Due to limited controllability and trees further along on his flight path, he elected to land the airplane in the thicket to avoid greater hazards and for crash attenuation.

The passenger in the right seat of the Searey was interviewed by police in the company of her parents the day following the accident. According to the passenger, she looked out the right window and "...saw a white airplane coming at us from above and I knew it was going to hit us. I tried to warn the pilot but there wasn't enough time and the microphone was too far away." The passenger went on to describe the collision, the descent, the landing in the thicket, and her egress from the airplane.

PERSONNEL INFORMATION

The Cessna pilot held a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane. His most recent FAA third-class medical certificate was issued September 16, 2014 at which time he reported 2,115 total hours of flight experience.

The Searey pilot held a private pilot certificate with ratings for airplane single-engine land, single-engine sea, and instrument airplane. His most recent FAA third-class medical certificate was issued July 10, 2014. The pilot reported 4,270 total hours of flight experience.

AIRCRAFT INFORMATION

According to FAA records, the Cessna was manufactured in 1975. The airplane's most recent annual inspection was completed April 25, 2014 at 8,069 total aircraft hours.

According to FAA records, the Searey was manufactured in 2014. Its most recent condition inspection was completed January 13, 2014, and the airplane had accrued 160 hours since that date.

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The 1054 weather observation at Buffalo International Airport (BUF), Buffalo, New York, located 5 miles west of the accident site included clear skies, calm winds, and 10 statute miles visibility.

AERODROME INFORMATION

BQR was situated beneath the outer ring of the Class C airspace that surrounded BUF, at a field elevation of 752 feet mean sea level (msl). The single runway, oriented 8/26, was 3,199 feet long at 75 feet wide. The traffic pattern altitude was 1,552 feet msl, and the airport was not tower-controlled.

WRECKAGE AND IMPACT INFORMATION

The Cessna came to rest on flat, wooded terrain and was examined at the accident site. All major components were accounted for at the scene. The airplane came to rest in a nose-down attitude, with the engine buried beneath the instrument panel in the initial impact crater, and was severely deformed by impact forces. The leading edges of both wings were uniformly crushed aft in compression. The airframe was cut by rescue personnel, and further sectioned for removal from the woods. Control continuity was established from the cockpit area to all flight control surfaces. The propeller blades displayed twisting, bending, leading edge gouging and chordwise scratching. Both blades displayed spiral striations about 5 inches inboard of the tips consistent with a wire strike.

The Searey came to rest upright in a dense thicket. The trailing edge of the right wing flap displayed a series of parallel slash marks, the structural tubing was severed, and the fracture surfaces were smeared. The structural cable between the wing strut and the empennage was still attached at each end, but missing an approximate 5-foot section of its middle. The two severed ends displayed features consistent with overload. The empennage displayed a vertical opening and parallel slash marks.

MEDICAL AND PATHOLOGICAL INFORMATION

The Office the Chief Medical Examiner for the County of Erie, Buffalo, New York, performed the autopsy on the Cessna pilot. The autopsy report listed the cause of death as multiple blunt force injuries.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of the Cessna pilot. The testing was negative for the presence of carbon monoxide, cyanide, and ethanol. Amlodipine was detected in the blood and urine. Amlodipine was in a group of drugs called calcium channel blockers and was used to treat high blood pressure or angina. Salicylate, a metabolite of aspirin, was detected in the urine.

The NTSB Chief Medical Officer performed a medical review of the pilot's records and the reports cited above. The review revealed no evidence of any medical condition or substance that may have contributed to the accident.

ADDITIONAL INFORMATION

Young Eagles Event

The purpose of the EAA Young Eagles Program was to provide the opportunity for young people to fly in a general aviation airplane. The district coordinator for the event was interviewed by an FAA inspector about the conduct of the event.

The coordinator had organized the event using the instructions provided by EAA, which included an informational webinar for organizers. The volunteer pilots were required to be EAA members, and were also required to attend a briefing prior to the event. The items briefed included the current and forecast weather, the runway in use, the route of flight, and the various landmarks that defined the route.

The flight route consisted of a straight-out departure to the east, climbing to an altitude of 1,800 feet. About 10 nautical miles from the airport, the airplanes were to turn right and return to the airport on a track parallel to and about 2 miles south of the outbound track. The course terminated abeam the midpoint of runway 08/26. At or about that point, the airplanes were to descend to traffic pattern altitude, turn north to cross the runway south to north, then enter a left downwind for landing on runway 08. Traffic pattern altitude at BQR was 1,552 feet.

Pilots were instructed to use the BQR common traffic advisory frequency (CTAF) for all communications, which included position reports when making turns and at several designated landmarks along the route of flight. Airspeeds were neither set nor restricted while established on the route.

According to the vice president of the local EAA Chapter, each airplane participating in the event was assigned a discrete transponder code in coordination with the control tower at BUF; however, none of the airplanes were in contact with, or receiving any services from, the control tower.

Radar Study

A radar study was performed by an NTSB Airplane Performance Specialist. The radar data used in the study were secondary returns from the short-range Airport Surveillance Radar (ASR-9) located at Buffalo Niagara International airport (BUF), Buffalo, NY (transponder codes 0433 and 0416 for the Searey and the Cessna, respectively).

In addition to the radar data, a Garmin 496 portable GPS receiver was recovered from the Searey and successfully downloaded. The radar and GPS track data was used to establish a timeline of the flights,

ground and flight tracks for each airplane and to create a simulation of the flight as viewed from the cockpit of the Cessna.

According to the simulations and graphs produced by the study, as seen from the Cessna, the Searey would have been located below the horizon and just above the Cessna's engine cowling for most of the westbound leg of the flight. While the Searey may have been within the Cessna's field of view, the Searey would have been difficult to see against the background of the terrain. Further, based on the distance between the Cessna and the Searey throughout the flight, the Searey would have been a small dot in the terrain background until the final seconds before impact.

Because of the high-wing structure of the Searey, and its relative position and altitude, the Cessna was blocked from the Searey pilot's view by the right wing, roof, and aft cabin structure, as the Cessna was above and behind the Searey during the latter portion of the flight prior to collision. Although the pilot of the Searey stated that he was reporting his position on the CTAF along the route of flight as prescribed in the pre-event briefing, this could not be confirmed, as radio communications made over the CTAF were not recorded.

FAA Advisory Circular 90-48D, "Pilots' Role in Collision Avoidance," stated, "Pilots should also be familiar with, and exercise caution in, those operational environments where they may expect to find a high volume of traffic or special types of aircraft operation. These areas include airport traffic patterns, particularly at airports without a control tower..."

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History of Flight

Maneuvering	Midair collision
Emergency descent	Off-field or emergency landing

Pilot Information

Certificate:	Private	Age:	59
Airplane Rating(s):	Single-engine land; Single-engine sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
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:	July 10, 2014
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	4272 hours (Total, all aircraft), 860 hours (Total, this make and model), 4210 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	KEVIN D'ANGELO	Registration:	N89KD
Model/Series:	SEAREY	Aircraft Category:	Airplane
Year of Manufacture:	2014	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	1LK588C
Landing Gear Type:	Amphibian	Seats:	2
Date/Type of Last Inspection:	January 13, 2014 Condition	Certified Max Gross Wt.:	
Time Since Last Inspection:	160 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	160 Hrs at time of accident	Engine Manufacturer:	ROTAX
ELT:	Installed, not activated	Engine Model/Series:	914 (SERIES)
Registered Owner:		Rated Power:	100 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:	BUF,724 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	10:54 Local	Direction from Accident Site:	270°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	30.31 inches Hg	Temperature/Dew Point:	17°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LANCASTER, NY (BQR)	Type of Flight Plan Filed:	None
Destination:	LANCASTER, NY (BQR)	Type of Clearance:	None
Departure Time:	10:09 Local	Type of Airspace:	Class E

Airport Information

Airport:	BUFFALO-LANCASTER RGNL BQR	Runway Surface Type:	
Airport Elevation:	751 ft msl	Runway Surface Condition:	Vegetation
Runway Used:	08	IFR Approach:	None
Runway Length/Width:	3199 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	42.898334,-78.580558

Preventing Similar Accidents

See and Be Seen

Adequate visual lookout while flying in visual meteorological conditions is critical to avoiding other aircraft. While accidents can occur in high-traffic areas (near airports), they can also occur in cruise flight.

All pilots can be vulnerable to distractions in the cockpit, and the presence of technology has introduced challenges to the see-and-avoid concept. Aviation applications on portable electronic devices (PEDs) such as cell phones, tablets, and handheld GPS units, while useful, can lead to more head-down time, limiting a pilot's ability to see other aircraft.

Pilots need to be vigilant and use proper techniques to methodically scan for traffic throughout your flight, not only in high-volume traffic areas. Dividing attention inside and outside the aircraft and minimizing distractions (including nonessential conversations, photography or sightseeing activities, and PED use) that may degrade the ability to maintain awareness of other aircraft are two strategies that can help improve traffic scans. Passengers can help look for traffic and, during instructional flights, one pilot should always be responsible for scanning for traffic.

Aircraft visible to other aircraft can be improved by turning on available lights, including anticollision lights, and using high-intensity discharge or LED lighting.

Pilots should clearly communicate intentions and use standard phraseology, known distances, and obvious ground references to alert other pilots of their location.

Some conditions make it harder to see other aircraft, such as operating in areas where aircraft could be masked by surrounding terrain or buildings and when sun glare is present. Effective use of on-board traffic advisory systems, when available, can help pilots visually acquire and avoid other aircraft but is not a substitute for an outside visual scan.

See http://www.nts.gov/safety/safety-alerts/documents/SA_045.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Tom McCormick; FAA/FSDO; Rochester, NY Paul Yoos; Textron Aviation; Wichita, KS
Original Publish Date:	July 25, 2016
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=90164

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).