Aviation Investigation Final Report

Location:	Faribault, Minnesota	**Accident Number:**	CHI08FA039
Date & Time:	November 25, 2007, 14:55 Local	**Registration:**	N482SR
Aircraft:	Cirrus Design Corp. SR22	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	4 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane's recorded airspeed indicated that the airplane slowed on final approach and subsequently encountered a recorded stall/spin condition during go-around from runway 12. A post impact ground fire and explosion occurred. The recorded winds at the airport were 190 degrees at 15 knots, gusting to 22 knots. On-scene and follow-up examinations of the wreckage and recorded data from the airplane's recoverable data module revealed no airplane or engine pre-impact anomalies. The maximum demonstrated crosswind component for the aircraft was 20 knots. Subsequent to the accident a remark was entered to the airport's master record. The remark advised pilots landing on runway 12 to be alert for turbulence and possible windshear when winds are out of the south.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot not maintaining adequate airspeed for the gusty crosswind conditions and the stall/spin encountered during the go-around. Contributing to the accident were the crosswinds and wind gusts.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: GO-AROUND (VFR)

Findings

1. (F) WEATHER CONDITION - CROSSWIND
2. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - GUSTS
4. (C) STALL/SPIN - ENCOUNTERED - PILOT IN COMMAND

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

Findings
5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On November 25, 2007, about 1455 central standard time, a Cirrus Design Corp. SR22, N482SR, was destroyed on impact with terrain during landing on runway 12 (4,254 feet by 72 feet, dry asphalt) at the Faribault Municipal Airport (FBL), near Faribault, Minnesota. A post impact fire occurred. The personal flight was operating under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed in the area at the time of the accident. No flight plan was on file. The private pilot and three passengers sustained fatal injuries. The flight originated from the Aberdeen Regional Airport (ABR), near Aberdeen, South Dakota, about 1300, and was destined for FBL.

About 1300, a witness, who was a lineman at ABR, saw the pilot and three passengers board N482SR and saw the airplane depart from ABR.

About 1300, a witness, who was a certified flight instructor (CFI) and lineman at the fixed base operator at FBL, saw a Cirrus SR22, N633CD, attempt a landing and saw it go-around. About 1440, the CFI was monitoring the Unicom frequency at FBL when the pilot of N482SR advised him of his intentions to land and refuel. The CFI stated that he saw N482SR on short final and saw the airplane go-around. About eight minutes later he saw the airplane over runway 12 about 40 feet above the ground in level flight heading towards his location. He reported that about four seconds later the airplane rolled left, and impacted terrain in an inverted attitude. The CFI indicated that the airplane impacted terrain left wing down, it cartwheeled, and then the post impact fire and explosion occurred.

PERSONNEL INFORMATION

The pilot held a Federal Aviation Administration (FAA) private pilot certificate with an airplane single-engine land and instrument rating. He had been issued a FAA third-class medical certificate on July 25, 2007, through an Aviation Medical Examiner Assisted Special Issuance for obstructive sleep apnea with the limitation that it was not valid for any class after July 31, 2008. The pilot was treated for his sleep apnea with a continuous positive airway pressure (CPAP) device that recorded its operational data. Data from that device revealed that the pilot had used it for at least 4 hours on each of the three nights preceding the accident.

According to a representative from the University of North Dakota (UND), the pilot completed the initial transition-training course for new Cirrus owners conducted by UND in September 2006. He completed the turbo difference course in December 2006. He completed the recurrent training course in October 2007. The pilot reported to UND that he had accumulated 1,200 hours of total time and 175 hours of time in a SR22.

The pilot's logbook was found at the accident site. The logbook pages were charred and partially readable. The pilot's logbook showed an endorsement for a flight review dated November 6, 2007 and an endorsement for an instrument proficiency check dated November 8, 2007.

AIRCRAFT INFORMATION

N482SR, a Cirrus Design Corp. SR22, serial number 2760, was a four-place single engine low wing airplane powered by a six-cylinder, 310-horsepower, Teledyne Continental Motors (TCM) model IO-550-N (50) engine, with serial number 691380, that drove a three-bladed Hartzell constant speed propeller. The airplane's airworthiness certificate was issued on October 19, 2007.

A receipt showed that on November 10, 2007, a mechanic found that the airplane landing light's wiring was "unhooked." The wiring was reconnected and the landing light operation was "ops' checked good. According to the receipt the airplane's Hobbs meter read 41.5 hours and the airplane had accumulated 33.4 hours of total flight time at the time of that corrective action.

A fuel log from ABR showed that the airplane was last fueled there on November 8, 2007. The log showed that the airplane was serviced with 29 gallons of 100 low lead aviation gasoline.

The airplane was equipped with an Avidyne Entegra Primary Flight Display (PFD) that was designed to provided the functions of the attitude indicator, heading indicator, airspeed indicator, altimeter, vertical speed indicator, directional gyro, course deviation indicator, and altitude pre-select controller onto a single electronic display. The airplane was also equipped with an Avidyne FlightMax EX5000C Multi-Function Flight Display (MFD). The MFD was a 10.4-inch landscape-oriented display mounted in the instrument panel that was designed to provide supplemental display of situational and navigation information to the pilot. The MFD could display normal and emergency checklists as well as performance data and could display navigation data, such as groundspeed and track. The PFD and MFD communicated data through a serial bus. The airplane was equipped with a recoverable data module that recorded parameters of the data transmitted on the serial bus.

The airplane's flight manual indicated that the airplane's maximum demonstrated crosswind component was 20 knots.

METEOROLOGICAL INFORMATION

At 1456, the recorded weather at FBL was: Wind 190 degrees at 15 knots, gusting to 22 knots; visibility 10 statute miles; sky condition clear; temperature 8 degree C; dew point -4 C; altimeter 29.77 inches of mercury.

AIRPORT INFORMATION

The airport elevation at FBL was 1060 feet above mean sea level. The airport was located about three miles north west of Faribault. FBL was a non-towered airport with two runways, 12/30 and 2/20. Runway 12/30 was a 4,254 feet long and 72 feet wide asphalt runway. Runway 2/20 was a 2,025 feet long and 140 feet wide grass runway.

FLIGHT RECORDERS

The airplane was equipped with a recoverable data module manufactured by Aerosance Inc. The module was installed in the airplane's empennage. The unit was designed to record airplane performance, configuration data, and navigation data to include the flight's groundspeed and global positioning system track. The flight's data was stored on a compact flash card within the module.

WRECKAGE AND IMPACT INFORMATION

The airplane was found inverted on about a 180-degree magnetic heading in a bean field northeast of the runway 12 taxiway about 330 feet northeast of the runway's centerline and about 2,000 feet from the approach end of the runway. The composite portions of airplane's empennage and wings were consumed by fire. The metal portions of the airplane's empennage and wings exhibited deformation, discoloring, and melting. The fuselage, up to the firewall, exhibited damage and charring consistent with a fire. A ground scar was observed starting about 48 feet west of the wreckage and led to the center of the wreckage on about an 80-degree magnetic heading. The shape of the scar's depression was consistent with the inverted shape of the left wing tip. A red navigation light lens was found near the ground scar. A propeller blade had separated from its hub and was found imbedded in a depression in the ground north of the ground scar about 27 feet from the center of the wreckage. The depression's shape was consistent with the shape of the spinner and engine cowling. A propeller blade was found resting within the depression. The third propeller blade that exhibited chordwise abrasions on its back was found about 180 feet from the center of the wreckage on about a 350-degree magnetic heading from the center of the wreckage. The airplane's recoverable data module was deformed, discolored, and was found about 84 feet north of the center of the wreckage. The top of the oxygen bottle was found about 309 feet from the center of the wreckage on about a 70-degree magnetic heading from the center of the wreckage. The airplane's parachute was found extended on the ground starting with its risers near the center of the wreckage and its topmost portion resting about 120-degrees magnetic and 105 feet from the center of the wreckage.

An on-scene examination of the wreckage was conducted. The flight control cables were traced from the cockpit to the linkage for each flight control surface and flight control continuity was established. The ballistic parachute's primer charges were found dimpled. The engine controls cables were traced from the cockpit to their respective engine controls and engine control continuity was established. The engine driven fuel pump shear shaft was

intact. The right magneto sustained fire damage and did not produce any spark when it was rotated by hand. The left magneto produced spark at all leads when it was rotated by hand. The gascolator, engine driven and electric fuel pumps, and the fuel line to the manifold valve contained liquid consistent with the smell and color of aviation gasoline. The top sparkplugs were removed and no anomalies were detected. The engine's propeller flange was rotated with a lever. Each cylinder produced a thumb compression. Both turbochargers' compressors rotated when spun by hand. No airframe pre-impact anomalies were detected.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the Ramsey County Coroner's Office. The autopsy indicated the cause of death as traumatic head and chest injuries.

The FAA Civil Aerospace Medical Institute prepared a final Forensic Toxicology Accident Report. The report was negative for the tests performed.

TESTS AND RESEARCH

The recoverable data module was sent to the National Transportation Safety Board (NTSB) vehicle recorder laboratory. The module sustained impact and fire damage. The compact flash card sustained heat damage and deformation. The flash card's memory chips were transferred to and mounted on an exemplar flash card by an NTSB specialist. The specialist subsequently downloaded and reviewed the data from the flight.

Review of the recorded data from the airplane's recoverable data module revealed that the airplane entered about a six-mile final approach to runway 12 at FBL about 1447. The airplane's data was consistent with a missed approach and the airplane's track southeast approximated the curve of Highway 21. The airplane turned to the right, crossed Highway 21 about the intersection of Highway 21 and the Cannon River southwest of Faribault Lake, and reversed course to the northwest about 1450. The airplane's track northwest bound approximated the northeastern shore of Roberds Lake about 1451. The track showed that the airplane flew northwest, turned left, and reversed course around Dudley Lake and Kelly Lake to the southeast about 1452. Following the course reversal turn, the airplane's track was consistent with about a six-mile final. The data showed that the airplane slowed on final approach and the stall warning activated about 1454. The data showed that there was an increase in propeller RPM, fuel flow, and manifold pressure until the end of the recording. The data showed that the stall warning continued until the end of the recording. No airplane or engine pre-impact anomalies were detected during the review of the recorded data.

The engine was examined at TCM under the supervision of the NTSB Investigator in Charge. The examination revealed no pre-impact anomalies.

ADDITIONAL INFORMATION

The pilot of N633CD, in part, reported:

> I am a Private Pilot with an Instrument Rating, with about 750 hours total time and over 550 hours in a Cirrus SR22. ... There were strong southwesterly winds, with moderate chop below 3200 feet AGL [above ground level] at the time of my flight from KSGS [South St Paul Municipal Airport-Richard E Fleming Field] to KFBL. Being familiar with KFBL and the effect of southerly winds over the tree line at the arrival end of [runway] R12, I knew in advance that I might abort the landing attempt at KFBL. ... As I approached KFBL, I was not able to pick up AWOS [automated weather observing system] on 111.2, giving me further concern about the landing. On left downwind to R12, the windsock was fully visible, and indicating strong winds from about 200, but I could not easily determine gust factor. ... On short final, I picked up a bit of turbulence as I shifted from a crab to a slip. Shortly after crossing the numbers, about 10 feet above the ground, a strong gust pushed me from the right side of the runway all the way over to the left side despite my aileron and rudder inputs to correct. I decided to abort the approach and head back up to KSGS. While the grass strip was open and available, I choose not to use grass runways in my Cirrus. ... In my opinion, a pilot not familiar with the swirling conditions at R12 with the winds as they were could be caught by surprise. Also, Cirrus Design recently changed the POH [pilot operating handbook] to say that all landing should be performed only with full flaps. ... In my experience full flaps and gusty conditions make for a more difficult landing.

Subsequent to the accident, the airport manager and a representative of the Minnesota Department of Transportation reported that a remark was entered to FBL's airport master record. The remark advised pilots landing on runway 12 to be alert for turbulence and possible windshear when winds are out of the south.

Pilot Information

Certificate:	Private	**Age:**	51,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:**	Yes
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	July 1, 2007
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1200 hours (Total, all aircraft), 175 hours (Total, this make and model), 1200 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cirrus Design Corp.	**Registration:**	N482SR
Model/Series:	SR22	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2760
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	50 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed	**Engine Model/Series:**	IO-550-N (50)
Registered Owner:	Mayo Aviation LLC	**Rated Power:**	310 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:	FBL,1060 ft msl	**Distance from Accident Site:**	
Observation Time:	14:56 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 22 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.77 inches Hg	**Temperature/Dew Point:**	8°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ABERDEEN, SD (ABR)	**Type of Flight Plan Filed:**	None
Destination:	Faribault, MN (FBL)	**Type of Clearance:**	None
Departure Time:	13:00 Local	**Type of Airspace:**	

Airport Information

Airport:	FARIBAULT MUNI FBL	**Runway Surface Type:**	Asphalt
Airport Elevation:	1060 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	12	**IFR Approach:**	None
Runway Length/Width:	4254 ft / 72 ft	**VFR Approach/Landing:**	Go around

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	3 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	4 Fatal	**Latitude, Longitude:**	44.318611,-93.30194(est)

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	John Tutora; Federal Aviation Administration; Minneapolis, MN Chris Lang; Teledyne Continental Motors; Mobile, AL Mark Manning; Cirrus Design; Duluth, MN Gregg Ellsworth; BRS; Minneapolis, MN Robert Clarke; Aerosance Inc.; Farmington, CT
Original Publish Date:	December 28, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=67151