



National Transportation Safety Board Aviation Accident Data Summary

Location:	Superior, WI	Accident Number:	CEN14LA036B
Date & Time:	11/02/2013, 1750 CDT	Registration:	N94059
Aircraft:	CESSNA 185F	Injuries:	6 None
Flight Conducted Under:	Part 91: General Aviation - Skydiving		

Analysis

A Cessna 182L (182), the lead airplane, and a Cessna 185F (185), the trail airplane, collided during a formation skydiving flight. Both pilots flew the airplanes in a rectangular pattern until they reached the jump altitude of 12,700 ft mean sea level. The 182 pilot established a jump heading and visually confirmed that the 185 was to the left side and aft of the 182. The 182 pilot then called out "door open" and jumpers "climbing out." Subsequently, the four skydivers on board the 182 climbed out onto the airplane's right wing strut and right wheel step. Almost immediately, the 182 was struck by the 185. The 182's windshield was shattered, and the airplane entered an uncontrollable descent. During the descent, the right wing separated from the airplane, and the right wing fuel tank exploded. The 182 pilot exited the airplane and parachuted safely to the ground. The 185 pilot reported that "when it was time for the skydivers to climb out, the two planes began to drift together and in seemingly no time at all, the two were colliding." After the collision, the skydivers on board the 185 jumped from the airplane as it inverted; the pilot was able to recover the airplane and land.

During postaccident interviews, the pilots of both airplanes and the operator's chief pilot reported that, before the flight, they briefed that the trail airplane would be positioned on the left side of the lead airplane. However, each of the three pilots differently described the expected lateral and vertical separation between the trail airplane and the lead airplane. The 182 pilot described the trail position as 20 to 30 ft aft of the lead airplane on a 45-degree bearing and lower than the lead airplane. The 185 pilot described the trail position as one to two airplane lengths (about 26 to 52 ft) aft and left of the lead airplane and at the same altitude as the lead airplane. The chief pilot described the trail position as three airplane lengths (about 78 ft) aft and left of the lead airplane and slightly lower than the lead airplane. Even though none of the pilots stated that the trail airplane should be flown higher than the lead airplane, a video taken of the flight showed that the trail airplane pilot flew the trail airplane higher than the lead airplane until impact.

The Federal Aviation Administration (FAA) does not provide any guidance to pilots on how to fly skydiving formation flights nor does it require skydiving operators to provide skydiving pilot training or skydiving formation pilot training. The skydiving operator did not provide its pilots skydiving formation flight training, and it did not keep records of pilot training nor was it required to do so by the FAA. The United States Parachute Association published an article titled, "Formation Flying 101: A Guide for Jump Pilots" that provided guidelines for skydiving formation flights, including, in part, that the trail airplane should be within 100 ft of the lead airplane; however, it did not specify that the trail airplane should be lower than the lead airplane. The article did state that altitude separation is the No. 1 way to avoid a collision and that the trail airplane pilot has only one thing to do—hold position relative to the lead aircraft and never lose sight of it. It is essential that pilots flying skydiving operation formation flights have adequate training to conduct the flights properly and ensure the safety of their passengers. If both pilots had received adequate skydiving formation flight training, they might have had a consensus about how the formation flight should have been flown. If the trail airplane pilot had received such training, he might have been more vigilant about maintaining adequate lateral and vertical separation from the lead airplane during the flight.

Flight Events

Enroute-cruise - Midair collision

Emergency descent - Midair collision

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The failure of the pilot who was flying the trail airplane to maintain separation from the lead airplane.
Contributing to the accident was the inadequate pilot training for formation skydiving operations.

Findings

Personnel issues-Action/decision-Action-Incorrect action performance-Pilot - C

Personnel issues-Experience/knowledge-Training-Type/qual of instruct/training-Pilot - F

Personnel issues-Experience/knowledge-Training-Type/qual of instruct/training-Pilot of other aircraft - F

Organizational issues-Support/oversight/monitoring-Training-Upgrade training-FAA/Regulator - F

Pilot Information

Certificate:	Commercial	Age:	26
Airplane Rating(s):	Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:	535 hours (Total, all aircraft), 72 hours (Total, this make and model), 430 hours (Pilot In Command, all aircraft), 130 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N94059
Model/Series:	185F	Engines:	1 Reciprocating
Operator:	Skydive Superior	Engine Manufacturer:	Continental Motors
Air Carrier Operating Certificate:	None	Engine Model/Series:	IO-520 Series
Flight Conducted Under:	Part 91: General Aviation - Skydiving		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	SUW, 674 ft msl	Weather Information Source:	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	None
Condition of Light:	Day	Wind Speed/Gusts, Direction:	Light and Variable, Variable
Temperature:	4°C / -3°C	Visibility:	10 Miles
Precipitation and Obscuration:	No Precipitation		
Departure Point:	Superior, WI (SUW)	Destination:	Superior, WI (SUW)

Airport Information

Airport:	Richard I Bong Airport (SUW)	Runway Surface Type:	Asphalt
Runway Used:	32	Runway Surface Condition:	
Runway Length/Width:	4001 ft / 75 ft		

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	5 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC):	James P Silliman	Adopted Date:	07/23/2015
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=88377		

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