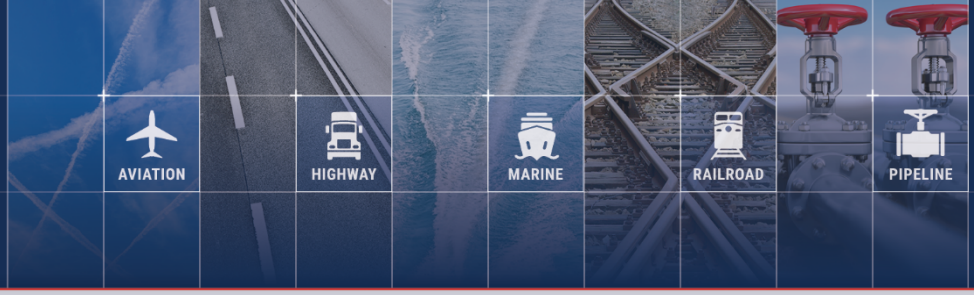

Aviation Investigation Final Report

Location:	Milford, Iowa	**Accident Number:**	CEN11LA066
Date & Time:	November 10, 2010, 13:53 Local	**Registration:**	N3ZX
Aircraft:	GEARN GEARY D SWEARINGEN SX300	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident occurred during the instrument rated pilot's return flight home after an avionics upgrade, including the installation of flat panel flight displays. The pilot conducted a test flight the day prior to the accident flight with only minor discrepancies noted. There was no record of a preflight weather briefing associated with the accident flight. Radar track data showed the accident airplane on a southwest course at 8,600 feet mean sea level (msl). About 15 minutes prior to the accident, the airplane made a course adjustment to the west, before returning to a southwest course. During this time, the aircraft began a descent to 7,000 feet msl. The final radar data point was located about 1 mile southeast of the accident site. Witnesses reported hearing an airplane flying in a southwest direction. About 2 minutes later, they heard the sound of the engine increase, followed by a "big boom" and then nothing. The accident site was located in an open agricultural field. A postaccident examination of the wreckage did not reveal any anomalies consistent with a preimpact failure or malfunction. Weather data indicated the presence of an overcast cloud layer at 2,300 feet above ground level (agl), with additional cloud layer(s) between 4,000 feet msl and 8,500 feet msl, in the vicinity of the accident site.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of control for undetermined reasons.

Findings

Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Enroute-cruise	VFR encounter with IMC
Enroute-cruise	Loss of control in flight (Defining event)
Enroute-cruise	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On November 10, 2010, about 1353 central standard time, an experimental amateur-built Gearn Swearingen SX300 airplane, N3ZX, was substantially damaged during an in-flight collision with terrain near Milford, Iowa. The pilot was fatally injured. The airplane was registered to and operated by the pilot. The personal cross-country flight was being conducted under 14 Code of Federal Regulations Part 91 without a flight plan. Visual meteorological conditions prevailed in the vicinity of the accident site. The flight departed Airlake Airport (LVN), Minneapolis, Minnesota, about 1240. The intended destination was Hereford Municipal Airport (HRX), Hereford, Texas.

Radar track data depicted an aircraft on a visual flight rules (VFR) transponder code proceeding on a southwest course at 8,600 feet mean sea level (msl). About 1338, the aircraft turned and became established on a west course for a short time, before turning left to a southwest course. During this time, altitude data indicated that the aircraft began a descent. The final radar data point was recorded at 1340:14 (hhmm:ss), about 1 mile southeast of the accident site. The altitude data associated final radar data point was 7,000 feet msl.

Witnesses reported hearing an airplane flying in a southwest direction. They noted that about 2 minutes later they heard the sound of the engine increase, followed by a "big boom," and then nothing. They subsequently located the accident site following a short search of the area in their vehicle.

The initial call to the 911 center was received at 1353. The accident site was located in an open agricultural field about 8 miles west of the city of Milford, and approximately 10 miles northwest of Spencer Municipal Airport (SPW), Spencer, Iowa.

PERSONNEL INFORMATION

The pilot, age 67, held a private pilot certificate with single-engine land airplane and instrument airplane ratings. He was issued a third-class airman medical certificate on February 5, 2009. On the application for that medical certificate, the pilot noted a total flight time of 3,160 hours, with no flight time within the previous 6 months. The pilot's flight time logbook was not available to the NTSB.

AIRCRAFT INFORMATION

The accident airplane was a Gearn Swearingen SX300, serial number 25. The airplane was issued an experimental amateur-built airworthiness certificate in August 1989. It was powered by a 300-horsepower Lycoming IO-540-L1C5 engine, serial number L-23211-48A.

A maintenance logbook entry, dated April 20, 2009, noted the installation of the engine after overhaul and completion of a 100-hour inspection. The logbook also referenced the corresponding partial engine overhaul due to an overspeed event. The recording tachometer time was 155 hours. There were no subsequent entries in the maintenance logbook.

An avionics upgrade was completed the day prior to the accident flight. The upgrade involved the installation of flat panel flight displays. The accident airplane had been down for approximately 3 months for the upgrade, due in part to availability of the equipment. A pitot static system inspection was completed prior to returning the airplane to service. The pilot performed a test flight the day before the accident flight, with only minor discrepancies noted.

METEOROLOGICAL INFORMATION

Weather conditions recorded at the Spencer Municipal Airport (SPW), located about 10 miles south-southeast of the accident site, at 1353, were: wind from 220 degrees at 6 knots, 6 miles visibility in light rain, overcast clouds at 2,300 feet above ground level (agl), temperature 13 degrees Celsius, dew point 10 degrees Celsius, altimeter 29.78 inches of mercury.

A wind shift occurred at SPW between 1353 and 1427 consistent with the passage of a cold front, which was initially located west of SPW. The recorded wind changed from 220 degrees at 6 knots to 260 degrees at 13 knots during that timeframe. The temperature also dropped 4 degrees Celsius.

A model upper-air sounding was prepared depicting the vicinity of the accident site at 1500. The model identified saturated and cloudy conditions between 4,000 and 8,500 feet msl. The freezing level was approximately 8,800 feet msl, and no significant turbulence was identified those flight altitudes.

Satellite imagery depicted extensive cloud cover over western Iowa and southwestern Minnesota. Cloud tops in the vicinity of the accident site were approximately 13,000 feet msl, with higher tops immediately north and east of the accident location. According to National Oceanic and Atmospheric Administration (NOAA) data, there was no threat of icing at 7,000 feet msl over Iowa. However, at 9,000 feet msl, the data indicated a high probability of light intensity icing near the accident site.

Weather radar data indicated that areas of light precipitation were located along the flight path and in the vicinity of the accident site.

An Airman's Meteorological Information (AIRMET) advisory for moderate icing between the freezing level and 15,000 feet msl was active at the time of the accident flight. The area of the AIRMET included the accident site. An AIRMET for instrument flight conditions was active for an area of western Minnesota. That advisory area bordered the flight path to the northwest, but it did not include the accident site. In addition, a Convective Significant Meteorological Information (SIGMET) warning was in effect for an area of southwestern Minnesota. This warning area bordered the flight path to the northwest and did not include the accident site.

There was no record of a preflight weather briefing associated with the accident flight.

WRECKAGE AND IMPACT INFORMATION

The airplane was fragmented during the accident sequence. The debris field was approximately 400 yards long by 250 yards wide. The main wreckage included the fuselage, engine, and empennage. The ground impact crater was about 12 feet in diameter by 4 feet deep. The engine remained attached to the airframe; however, the propeller assembly separated from the engine at the crankshaft. The propeller was recovered from the impact crater. One propeller blade had separated completely from the hub. The remaining 2 blades were partially retained by the hub. All 3 blades exhibited bending.

The right wing, with aileron attached, had separated from the airframe and came to rest approximately 300 yards south-southwest of the main wreckage. The right flap came to rest about 200 yards east of the main wreckage. The right horizontal stabilizer, with the elevator and trim tab attached, was separated and located about 30 yards south-southeast of the main wreckage. Fragments of the windshield and the auxiliary fuel tank were located within the debris field.

The flight control surfaces were recovered from the wreckage debris field. Discontinuities in the flight control system appeared consistent with overload failures. No anomalies consistent with a preimpact failure or malfunction were observed.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed at the Iowa State Medical Examiner's Office in Ankeny, Iowa, on November 12, 2010. The pilot's death was attributed to multiple blunt force injuries as a result of the accident.

According to the FAA Civil Aerospace Medical Institute toxicology report, kidney, lung and muscle tissue samples were received by the laboratory on November 19, 2010. The report denoted the samples as "Putrefaction: Yes." The report stated that no drugs in the screening profile were detected in muscle tissue. The specimens were unsuitable for analysis of ethanol.

Pilot Information

Certificate:	Private	**Age:**	67,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 With waivers/limitations	**Last FAA Medical Exam:**	February 5, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	3160 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GEARN GEARY D	**Registration:**	N3ZX
Model/Series:	SWEARINGEN SX300	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	25
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	April 20, 2009 Condition	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	IO-540 SER
Registered Owner:	On file	**Rated Power:**	300 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SPW,1339 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	143°
Lowest Cloud Condition:		**Visibility**	6 miles
Lowest Ceiling:	Overcast / 2300 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.78 inches Hg	**Temperature/Dew Point:**	13°C / 10°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Minneapolis, MN (LVN)	**Type of Flight Plan Filed:**	None
Destination:	Hereford, TX (HRX)	**Type of Clearance:**	None
Departure Time:	12:40 Local	**Type of Airspace:**	

Airport Information

Airport:	Spencer Municipal SPW	**Runway Surface Type:**	
Airport Elevation:	1339 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	43.298889,-95.328613(est)

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Terence T Carr; FAA-Des Moines Flight Standards; Ankeny, IA
Original Publish Date:	December 1, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=77774