Aviation Investigation Final Report

Location:	Benton, California	**Accident Number:**	SEA07FA231
Date & Time:	August 10, 2007, 14:15 Local	**Registration:**	N41BM
Aircraft:	Schempp-Hirth Ventus-CM	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

"THIS CASE WAS MODIFIED MARCH 25, 2009."

The pilot departed in a 58-foot-wingspan single-seat motor glider for a round-robin cross-country flight. The intended flight path passed over steep, rugged, mountainous terrain, which had a maximum elevation of 14,100 feet. Four other gliders departed with the accident glider, and the four returned to their departure base about an hour later due to unfavorable winds out of the south and weak lift. The pilot was very experienced with the terrain and proceeded on. His last communication with the four returning gliders was that he was at 16,700 feet and he was headed for a major peak (13,700 feet) on his route of flight. Search and rescue activities were initiated when the pilot failed to return. Friends of the pilot located the missing glider two days later. The wreckage impact signatures, ground scars, and the debris field were consistent with the glider impacting the mountain in a nose-down vertical descent consistent with a spin. The recorded wind at a nearby weather station was from 180 degrees at 16 knots, gusting to 24 knots. The mountain peak and gorge type topographic features within 1.5 miles directly upwind from the accident site could easily have generated mountain wave and turbulent conditions in the area of the accident.

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 aircraft control while maneuvering and the inadvertent entry into a stall/spin. Contributing to the accident were the mountainous terrain conditions, unfavorable wind conditions, and the terrain-induced turbulent wind conditions.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (F) WEATHER CONDITION - UNFAVORABLE WIND
2. (F) WEATHER CONDITION - TURBULENCE,TERRAIN INDUCED
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
4. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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

Findings
5. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

"THIS CASE WAS MODIFIED MARCH 25, 2009."

HISTORY OF FLIGHT

On August 10, 2007, at approximately 1415 Pacific daylight time, a Schempp-Hirth Ventus-CM glider, N41BM, was destroyed upon impact with mountainous terrain in the Inyo National Forest, near Benton, California. The private pilot, the sole occupant in the glider, was fatally injured. The pilot/owner was operating the glider under 14 Code of Federal Regulation Part 91. Visual meteorological conditions prevailed for the round-robin cross-country flight that had originated at Minden, Nevada, at approximately 1300. No flight plan had been filed.

Friends of the pilot said that five gliders departed Minden, Nevada, with the intention of flying to Keeler, California, located at the south end of the Inyo Mountains (maximum height of 11,033 feet) and returning to Minden, Nevada. In the accident pilot's last transmission to the other glider pilots, approximately 1400, he stated that he was at 16,700 feet and heading for Boundary Peak (13,070 feet), which is at the north end of the White Mountains. The accident site, which was due west of Boundary Peak by approximately 2 nautical miles, was located from the air by friends of the pilot, on August 12, 2007.

PERSONNEL INFORMATION

The 56-year-old pilot held a private pilot certificate. No personal flight logbook was located for him. Friends of the pilot said that he had been a hang glider pilot, as well as a glider pilot, for many years in California and Nevada. He bought the accident glider in April 2006. His friends stated that he was a very experienced glider pilot, and he knew the area very well.

AIRCRAFT INFORMATION

The motor glider had a 58-foot (17.6 meters) wingspan with a single seat, and was manufactured by Schempp-Hirth (Germany) in 1990. It was an experimental certificated aircraft, which had a maximum gross takeoff weight of 1,207 pounds. A single retractable Solo 2350c 2-stroke, two cylinder carbureted engine provided a maximum takeoff rating of 30 horsepower at sea level. The motor glider had three fuel tanks with a maximum total capacity of approximately 10 gallons. The air-cooled engine powered a two bladed folding propeller by means of a multi-V belt drive system. The engine was used for takeoff and initial climb, then shut down, and stowed into the fuselage. At the time of the last condition inspection, on May 14, 2007, maintenance records indicated that the airframe had accumulated approximately 1,147 hours of flight time.

METEOROLOGICAL INFORMATION

At 1356, the weather conditions at Eastern Sierra Regional (BIH; elevation 4,124 feet), Bishop, California, located 165 degrees for 28 nautical miles from the accident site, were as follows: wind 180 degrees at 16 knots, gusting to 24 knots; visibility 10 miles; clear of clouds; temperature 93 degrees Fahrenheit; dew point 14 degrees Fahrenheit; altimeter setting 29.98 inches of Mercury.

The other four gliders that departed with the accident glider turned back to their departure base, approximately 1400, due to unfavorable winds from the south and not enough lift. The last pilot to speak to the accident pilot said it was a "Blue Sky Day," and the wind at her altitude was between 200 and 220 degrees at 20 knots.

A friend of the pilot, who is a glider pilot with extensive experience in the accident area, submitted a "wind analysis." Approximately 1,000 to 1,500 feet upwind from the accident site was the beginning of a 2,500-foot-deep gorge, which was oriented nearly perpendicular to the wind. On the windward side of the gorge was a secondary peak, which was approximately 11,500 feet high, or 1,000 feet higher than the accident site. He stated that these topographic features were directly upwind from the accident site by about 1.5 miles, and they would have generated violent turbulence. This turbulence could have extended downwind for up to 10 times the obstacle's height.

WRECKAGE AND IMPACT INFORMATION

The wreckage of the motor glider was found on steep, rugged, mountainous terrain at an elevation of 10,600 feet. The vegetation covered slope consisted of 5- to 10-foot-high bushes and trees no higher than 35 feet. The magnetic track from the fuselage's first impact point to where it came to rest was 275 degrees. Separated tree and brush branches in conjunction with a small Plexiglas debris field indicated that the glider impacted terrain in a pitch attitude of approximately 15 degrees greater than vertical.

All of the motor glider's major components were accounted for at the accident site. Both wings were found inverted. The right wing was broken into three pieces and the left wing was shattered from the mid span outboard. The fuselage's structure was shattered halfway back to the empennage. The empennage was separated from the fuselage and exhibited minimal damage. No preimpact airframe anomalies, which might have affected the glider's performance, were identified.

MEDICAL AND PATHOLOGICAL INFORMATION

The Mono County Coroner's Office, from Mammoth Lakes, California, ordered an autopsy on the pilot. A medical doctor associated with the Brune and Buck Mortuary, Bishop, performed the autopsy on August 13, 2007. He determined that the cause of death was multiple blunt traumas.

The FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, performed toxicology tests on the pilot. According to CAMI's report (#200700188001), no samples were tested for carbon monoxide or cyanide; however, muscle tissue and a liver sample were tested, and had negative results for volatiles and drugs.

Pilot Information

Certificate:	Private	**Age:**	56,Male
Airplane Rating(s):	None	**Seat Occupied:**	Single
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	None	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	4000 hours (Total, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schempp-Hirth	**Registration:**	N41BM
Model/Series:	Ventus-CM	**Aircraft Category:**	Glider
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	25
Landing Gear Type:	Tandem	**Seats:**	1
Date/Type of Last Inspection:	May 14, 2007 Condition	**Certified Max Gross Wt.:**	1207 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1147 Hrs as of last inspection	**Engine Manufacturer:**	SOLO
ELT:	Not installed	**Engine Model/Series:**	2350C
Registered Owner:	Geofrey R. Loyns	**Rated Power:**	30 Horsepower
Operator:	Geofrey R. Loyns	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BIH,4124 ft msl	**Distance from Accident Site:**	28 Nautical Miles
Observation Time:	13:56 Local	**Direction from Accident Site:**	165°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 24 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.97 inches Hg	**Temperature/Dew Point:**	34°C / -10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Minden, NV (MEV)	**Type of Flight Plan Filed:**	None
Destination:	(MEV)	**Type of Clearance:**	None
Departure Time:	13:00 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	37.846942,-118.393333(est)

Administrative Information

Investigator In Charge (IIC):	Struhsaker, James
Additional Participating Persons:	Bill Kunder; Federal Aviation Administration; Reno, NV
Original Publish Date:	January 14, 2009
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=66423