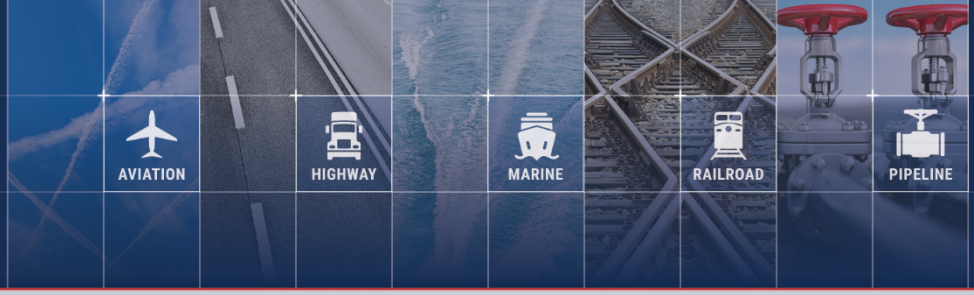

Aviation Investigation Final Report

Location:	Alamogordo, New Mexico	**Accident Number:**	DEN01FA105
Date & Time:	May 24, 2001, 12:16 Local	**Registration:**	N11ZQ
Aircraft:	Schempp-Hirth Nimbus-3DM	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The two pilots had arrived from Europe 3 days before the accident to take part in a 2 week long world record soaring attempt. They departed on runway 21 (elevation 4,200 feet) in a self-launch motorized glider and turned east towards the mesa (elevation 9,100 feet). A fellow pilot said that the motor is usually stowed at 1,000 meters, and the stowing process takes between 2 to 3 minutes. The aircraft is flown strictly as a glider after that. The glider disappeared from radar approximately 10 minutes later. Two other gliders departed within 30 minutes, and they reported good uplift and strong downdrafts. The mesa top was heavily forested and the temperature was approximately 25 degrees Fahrenheit cooler than the departure airport. The downed glider was found 3 days later, and the impact signatures suggest a flight track of 235 degrees. The accident aircraft was found approximately 300 to 400 yards from the western edge of the mesa. The toxicological report on the second pilot (the pilot flying) indicated that he had Phenobarbital in his liver and kidney. The FAA does not approve of this prescribed medication in pilots, while they are on flight status.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight crew's inadequate in-flight planning to fly over the mesa with insufficient altitude. A contributing factor was the downdraft weather condition

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: MANEUVERING

Findings
1. (F) WEATHER CONDITION - DOWNDRAFT
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - FLIGHTCREW
3. USE OF INAPPROPRIATE MEDICATION/DRUG - COPILOT/SECOND PILOT
4. OBJECT - TREE(S)

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

Findings
5. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On May 24, 2001, at 1216 mountain daylight time, a Schempp-Hirth Nimbus-3DM motorglider, N11ZQ, was destroyed when it impacted terrain while maneuvering near Alamogordo, New Mexico. The two private pilots were fatally injured. SAJ, LLC, of Powell, Wyoming, was operating the motorglider under Title 14 CFR Part 91. Visual meteorological conditions prevailed for the local long-duration flight that originated at approximately 1155. No flight plan had been filed.

The two pilots had arrived from Europe 3 days before the accident to take part in a 2 week long world record soaring attempt. They had traveled to Albuquerque, New Mexico, on May 22, 2001, to convert their European flight credentials to American private pilot certificates. They flew their first flight together from Alamogordo on May 23, 2001. They had flown north to the vicinity of Santa Fe Ski Basin (Lake Peak), New Mexico, a distance of 660 kilometers (365 nautical miles [nm]), and were airborne for approximately 6 hours.

On the morning of the accident, the two pilots had breakfast, and proceeded to the airport to preflight their motorglider. Edy Naef was sitting in the back seat and was the designated pilot-in-command (PIC) for the flight. His English was better and he had flown at Alamogordo the year before. Gilbert Gerbaud performed the takeoff on runway 21 (it is normal procedure for the front seat occupant to do the takeoff) and Edy Naef waved at the people on the ground as they lifted off. A friend of the two pilots and fellow motorglider pilot said that the motor is usually stowed at 1,000 meters, or 3,281 feet above ground level (agl). He said that the full stowing procedure takes between 2 to 3 minutes. He also said that the aircraft is at its maximum drag scenario during the stopping of the engine, centering the propeller, and stowing the engine. If for any reason the engine were to be extended during flight, it is recommended that the procedure be performed no lower than 1,500 feet agl. Normally, he said, the engine is used only for self-launching, and after that the aircraft is flown strictly as a glider.

Radar data from Holloman Air Force Base (White Sands Missile Range; elevation 4,093 feet; 290 degrees and 18 nm from the accident site) indicated the glider headed east-southeast after takeoff. The last radar return was recorded at 1215 (N32 degrees, 51.36'; W105 degrees, 49.47'), and the downed glider was located approximately 1 mile east of that location. No altitude data could be obtained from the raw radar data; the glider was not equipped with a mode C transponder.

Witnesses said that no radio transmissions were ever received from the glider. Search and rescue teams located the downed aircraft on May 27, 2001.

PERSONNEL INFORMATION

The pilot-in-command, Edwin Naef, had an estimated 3,249 hours of glider flight experience. It was his second visit to Alamogordo to fly motorgliders, and his second flight this visit. He was sitting in the rear seat.

The second pilot, Gilbert Gerbaud, was from France, and he had been the world glider champion. He had an estimated 6,370 hours of flight experience, with 5,430 hours in gliders. A fellow pilot said that Gilbert Gerbaud had flown all over the world in a wide variety of environments.

AIRCRAFT INFORMATION

The motorglider was a single engine, propeller-driven, two seat aircraft, which was manufactured by Schempp-Hirth (Germany), in 1992. It was an experimental certificated aircraft which had a maximum gross takeoff weight of 1,808 pounds. The glider was powered by a retractable Bombardier Rotax 535c, two cylinder, two cycle, reciprocating, belt drive, carbureted, engine which had a maximum takeoff rating of 59 horsepower (7,200 RPM) at sea level. The motorglider had an 81 foot wing span, and the engine was used for takeoff and initial climb to approximately 3,000 feet agl. The engine was then shut down, the propeller was centered, and the engine was stowed into the fuselage (which took from 2 to 3 minutes). At the time of the accident, maintenance records indicated that the airframe had accumulated approximately 211 hours of flight time.

The glider was equipped with a permanent internal oxygen system for the crew members, which had the capacity to support two individuals for approximately 40 flight hours. The aircraft had three fuel tanks, an 18.3 liter bladder in each wing and an aluminum 14.3 liter tank in the fuselage; the total usable fuel available was 13.21 gallons. Five rechargeable batteries met all the electrical needs of the aircraft. A GPS (Global Positioning System) provided navigation information and flight data logging (for post flight review) for the pilots, The recorded data, from the accident flight, was lost during the impact sequence.

The POH (Pilot's Operating Handbook) for the motorglider stated that the aircraft had a maximum glide ratio of 57:1 L/D (lift over drag). The owner of the aircraft said that it took 12 to 14 seconds to extend the engine, but the L/D was reduced to approximately 18:1 with it extended. The motorglider's POH states: "normally the loss of height from extending the engine to the moment when it runs is about 30 to 40 meters (98 to 131 feet)."

METEOROLOGICAL INFORMATION

At 1211, the weather conditions at the Alamogordo-White Sands Regional Airport (elevation 4,197 feet), 290 degrees 9 nautical miles (nm) from the accident site, were as follows: wind 010 degrees at 6 knots; visibility 10 statute miles (sm); clear of clouds; temperature 88 degrees Fahrenheit; dew point 52 degrees Fahrenheit; altimeter setting 30.03 inches. At

1216:38, the Apache Point Observatory, owned and operated by a private Astrophysical Research Consortium (elevation 9,155 feet), 320 degrees 1.4 nm from the accident site, recorded the wind at 310 degrees at 7 knots gusting to 17 knots; the temperature was 65 degrees Fahrenheit. The airplane's impact location had a calculated density altitude, at the time of the accident, of 11,731 feet.

WRECKAGE AND IMPACT INFORMATION

The motorglider was found on a heavily forested irregular mesa (N32 degrees, 45.58 minutes; W105 degrees, 48.47 minutes; elevation 9,100 feet). The trees were up to 18 inches in diameter and 60 to 80 feet in height. Numerous separated branches and tree tops were found at the main wreckage site. One of the aircraft's batteries was found approximately 120 feet from the main wreckage on a 235 degree orientation. The temperature on the mesa was approximately 25 degrees cooler than the departure runway.

All of the motorglider's major components were accounted for at the accident site. Two of six right wing sections were found approximately 35 to 55 feet from the main wreckage, and separated from each other. The leading edge between outboard sections two and three exhibited significant impact damage. The inboard end of the remaining right wing was elevated above the ground and wedged between two trees. The left wing's outer 2/3 exhibited minimal impact damage. The left wing's inboard 1/3 was laying near the crushed and deformed fuselage. The T-tail empennage was separated from the fuselage, and remained attached by rudder control cables. No flight control continuity could be established due to impact damage. The single main landing gear was found retracted. The main motor switch was found in the off position, and the engine's retractable mount electrical spindle drive indicated that it was in the stowed position. The propeller was found centered in the proper stowing position. There was no leading edge impact damage or cordwise scratches on either propeller blade.

No preimpact engine or airframe anomalies, which might have affected the motorglider's performance, were identified. There was no evidence of fire.

MEDICAL AND PATHOLOGICAL INFORMATION

The University of New Mexico's School of Medicine's Office of the Medical Investigator, Albuquerque, New Mexico, performed an autopsy on both pilots on May 28, 2001. The medical investigator said that Gilbert Gerbaud had fractures of the wrists, hands, and feet, which were consistent with a pilot who was at the aircraft controls at the time of impact. Edy Naef, the PIC, did not have fractures of either hand or feet bones.

The FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, performed toxicology tests on both pilots. According to CAMI's report (#200100139001), the PIC's liver sample was tested for drugs with negative results; carbon monoxide and cyanide tests were not performed. The following volatiles were found in muscle, heart, kidney, and brain samples:

ethanol, acetaldehyde, and N-propanol. CAMI personnel reported that because the body was not recovered for 3 days, the presence of alcohol and its metabolites were most likely attributed to decomposition processes.

CAMI's report on the second pilot (#200100139002), tests for carbon monoxide and cyanide were not performed. The following volatiles were found in samples of heart, kidney, brain, and lung: ethanol, acetaldehyde, and N-propanol. CAMI personnel reported that these positive results were most likely attributed to decomposition processes. The liver and kidney did prove positive for the drug Phenobarbital, which is a prescription barbiturate, typically used for sedation, but also used to treat various medical conditions. The FAA does not approve this medication for pilots, while they are on flight status.

ADDITIONAL DATA

The glider, including all components and logbooks, was released to the owner's insurance company on June 21, 2001.

Pilot Information

Certificate:	Private	**Age:**	58,Male
Airplane Rating(s):	None	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	None None	**Last FAA Medical Exam:**	
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	3249 hours (Total, all aircraft), 811 hours (Total, this make and model), 3249 hours (Pilot In Command, all aircraft), 7 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	48,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	None None	**Last FAA Medical Exam:**	
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	6370 hours (Total, all aircraft), 80 hours (Total, this make and model), 6370 hours (Pilot In Command, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schempp-Hirth	**Registration:**	N11ZQ
Model/Series:	Nimbus-3DM	**Aircraft Category:**	Glider
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	23
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	March 29, 2001 Annual	**Certified Max Gross Wt.:**	1808 lbs
Time Since Last Inspection:	7 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	211 Hrs as of last inspection	**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	535
Registered Owner:	SAJ, LLC	**Rated Power:**	60 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:	ALM,4200 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	12:11 Local	**Direction from Accident Site:**	110°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	10°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	31°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Alamogordo, NM (ALM)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:55 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	32.759723,-105.807777

Administrative Information

Investigator In Charge (IIC):	Struhsaker, James
Additional Participating Persons:	Bill Reisen; Federal Aviation Administration; Albuquerque, NM
Original Publish Date:	April 15, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=52369