Aviation Investigation Final Report

Location:	Hempstead, Texas	**Accident Number:**	CEN15LA376
Date & Time:	August 23, 2015, 13:37 Local	**Registration:**	N878S
Aircraft:	Schleicher ASW 20	**Aircraft Damage:**	Substantial
Defining Event:	Collision during takeoff/land	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot was conducting a personal local flight in the glider. The tow pilot reported that the glider was uneventfully towed to and released at the prearranged altitude of 2,000 ft above ground level (agl). GPS data from the glider showed that it flew patterns consistent with maneuvers to gain altitude in areas of lift. The remainder of the glider's flight was downward and it did not reach an altitude greater than about 300 ft agl during the remaining flight segment, indicating that the pilot was likely attempting an off-airport landing. The data then showed that the glider flew into an area bounded by power lines and then the recording stopped. After a power interruption on the ground was detected, the glider was found near damaged power lines. An examination of the wreckage revealed no preimpact anomalies. A family member indicated that the pilot made a cell phone call during the accident flight; however, the cell phone did not have any record of a call being made during the flight.

Although the pilot's autopsy revealed that he had significant coronary artery disease and left ventricular hypertrophy, which is most often a result of longstanding hypertension, no evidence was found indicating that a recent coronary ischemia had occurred. Thus, it is unlikely that the pilot's cardiac disease caused any symptoms that contributed to the accident. Based on the evidence, it is likely that the glider pilot attempted an off-airport landing and failed to maintain clearance from the power lines.

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 clearance from power lines during an attempted off-airport landing.

Findings

Personnel issues	Monitoring environment - Pilot
Aircraft	Altitude - Not attained/maintained
Environmental issues	Wire - Effect on operation

Factual Information

History of Flight

Landing	Collision during takeoff/land (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On August 23, 2015, about 1337 central daylight time, a Schleicher ASW-20 glider, N878S, impacted powerlines and terrain near Hempstead, Texas. The pilot, who was the sole occupant, sustained fatal injuries. The glider sustained substantial fuselage damage. The glider was registered to and operated by the pilot as a 14 Code of Federal Regulations Part 91 personal flight. Day visual meteorological conditions prevailed in the area of the flight about the time of the accident, and the flight was not operating on a flight plan. The local flight originated from the Soaring Club of Houston Gliderport, near Waller, Texas about 1254.

According to the tow pilot, he was not aware of any issues with the accident glider before departing on the tow. The aero-tow phase of the flight was uneventful and the glider released as expected at 2,000 feet above ground level.

The glider was found resting on the ground upright about 15 degrees and 1/4 mile from the intersection of Farm to Market Road 1488 and Laneview Road following a detected power interruption nearby. A powerline there was found damaged. The pilot was flown to a local hospital and subsequently died from the injuries he sustained.

Pilot Information

Certificate:	Commercial	**Age:**	67,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	Glider	**Restraint Used:**	Unknown
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:**	March 10, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 9, 2015
Flight Time:	(Estimated) 505 hours (Total, all aircraft)		

The 67-year-old pilot held a commercial pilot certificate with a glider rating that was issued on June 9, 2015. He also held a commercial pilot certificate with single-engine and multiengine airplane land and instrument airplane ratings.

The pilot was issued a Third Class Medical Certificate on March 10, 2011, with limitations to wear

corrective lenses for near and distant vision. The pilot reported on the application for this medical certificate that he had accumulated 505 hours of total flight time and 5 hours of flight time in the six months before the application.

Aircraft and Owner/Operator Information

Aircraft Make:	Schleicher	**Registration:**	N878S
Model/Series:	ASW 20 NO SERIES	**Aircraft Category:**	Glider
Year of Manufacture:	1979	**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	20268
Landing Gear Type:		**Seats:**	1
Date/Type of Last Inspection:	March 14, 2015 Annual	**Certified Max Gross Wt.:**	1000 lbs
Time Since Last Inspection:		**Engines:**	0
Airframe Total Time:	1764.96 Hrs as of last inspection	**Engine Manufacturer:**	
ELT:		**Engine Model/Series:**	
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

N878S was a 1979 model ASW-20 single-seat glider with serial number 20268. The glider was constructed from glass-reinforced plastic. The ASW-20 features trailing edge flaps, which interconnect with the ailerons and allow the entire trailing edge to operate as a flap between -9 and +5 degrees. The flaps also act as ailerons, but deflect only half of the aileron amount. Schempp-Hirth type airbrakes are installed on the upper wing surface. The glider's wingspan was 15 meters or about 49 feet, 3 inches in length. The published empty weight for an ASW-20 was 573 lbs and its maximum gross weight was 1,000 lbs. The glider's maximum speed was 170 mph and it had a maximum glide ratio of 43 feet to 1 foot. According to Federal Aviation Administration (FAA) records, the glider was previously registered as N44TM while it was issued an experimental racing airworthiness certificate.

A review of copies of maintenance records revealed that the glider's most recent annual inspection was competed on March 14, 2015. The endorsement for the inspection indicated that the glider had accumulated 1,764.96 hours of total time.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KDWH,152 ft msl	**Distance from Accident Site:**	26 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	95°
Lowest Cloud Condition:	Few / 4200 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	33°C / 23°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	WALLER, TX (89TA)	**Type of Flight Plan Filed:**	None
Destination:	WALLER, TX (89TA)	**Type of Clearance:**	None
Departure Time:	12:54 Local	**Type of Airspace:**	

At 1253, the recorded weather at the David Wayne Hooks Memorial Airport, near Houston, Texas, was: Wind variable at 4 knots; visibility 10 statute miles; sky condition few clouds at 4,200 feet, few clouds at 5,500 feet; temperature 33 degrees C; dew point 23 degrees C; altimeter 30.05 inches of mercury.

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:**	30.111944,-96.038055(est)

An FAA inspector examined the wreckage and documented the accident site. According to images taken, the forward section of the glider fuselage exhibited aftward crushing. The left wing exhibited a linear tear, starting at its leading edge, about midspan of the wing. The forward inboard section of the left wing exhibited a crushed appearance. The fuselage in proximity to this crushed section was deformed inward. The inspector's examination of the wreckage did not reveal any preimapact anomalies that would have precluded normal operations.

Flight recorders

A cell phone and a GPS device were found in the wreckage and were shipped to the National Transportation Safety Board (NTSB) Vehicle Recorder Laboratory. A recorder specialist examined the units, downloaded their data, and produced the Non-Volatile Memory Factual Report on the data.

According to the report, the cell phone was a Samsung Galaxy S4, which was a touch-screen smart-phone capable of voice calling, text messaging, email, photo/video recording, audio (music) playback, and numerous other specialized functions depending on configuration. Specialized functions are supported by additional user-installed program applications supported by the Android operating system. Application data is stored in non-volatile memory and a removable micro-SD card, and may include call logs, text messaging logs, image, video, and position location information. In addition, the specialized application data may be stored in a proprietary file structure using numerous file formats. The amount and type of data stored varies based on the software version and configuration of the specific device.

The GPS unit was not identified. However, it contained an internal micro SD card that contained an open source GPS source code and recorded flight log files in .igc format. The .igc format is a GPS data format used by the international gliding community to record gliding flights.

Medical and Pathological Information

The Harris County Institute of Forensic Sciences performed an autopsy on the pilot and took toxicological samples. The autopsy indicated the cause of death was multiple blunt force injuries.

Toxicology testing performed by the Harris County Institute of Forensic Sciences identified ketamine at 0.89 mg/ml +0.22mg/ml. Toxicology testing performed by the FAA's Bioaeronautical Sciences Research Laboratory identified 0.795 ug/ml of ketamine and 0.23 ug/mL of its metabolite norketamine in blood; both were also identified in urine.

The FAA Forensic Toxicology's WebDrugs website description of Ketamine, in part, indicated it was a general anesthetic.

The NTSB Chief Medical Officer reviewed the FAA's medical case review, the autopsy, the toxicology findings, the EMS patient care report, and the hospital records for the pilot in this accident.

According to the FAA medical records, the pilot reported seasonal allergies and the use of intranasal steroids for symptom relief to the FAA. No other medical conditions or medications were reported.

In addition to listing the cause of death as multiple blunt force injuries and the manner of death as accident, the autopsy also identified the presence of hypertensive and atherosclerotic heart disease. The pathologist observed concentric left ventricular hypertrophy. The proximal left anterior descending

artery was 70 percent stenosed and the right coronary contained a focal area of 20 percent stenosis. However, there were no scars or areas of acute ischemic injury indicating any recent coronary artery ischemia. Microscopically, the heart demonstrated some myocyte hypertrophy and areas of perivascular fibrosis.

According to the medical records from the emergency treatment provided by emergency medical services and the hospital, the pilot was intubated in the field using ketamine for anesthesia. The pilot arrived in profound hemorrhagic shock and subsequently was unable to be successfully resuscitated.

Tests and Research

According to the NTSB recorder specialist's factual report, the data showed the accident flight was approximately 43 minutes long, spanning from about 1254 to 1337. About 1313, the glider reached its maximum recorded GPS altitude of 3,819 feet. The data showed the glider flew in circular patterns consistent with maneuvering to gain lift while in a thermal. The remainder of the glider's flight was downward and it did not further gain an altitude greater than about 300 feet during any subsequent segment of the descending flight segment. The recorder specialist's factual report is appended to the docket material associated with this investigation.

When arrangements were being made for the cell phone return, a family member indicated that the pilot made a cell phone call during the accident flight. The cell phone was rechecked before it was returned to the family member and the cell phone did not have any record of a phone call during the accident flight. There was a record of a call made the night before the accident flight.

Additional Information

The tow pilot stated that there were several other gliders flying both before and after N878S's tow. He was not aware of any other off airport landings on that day. The tow pilot flew his personal glider for several hours after the accident tow and the lift was good at that time. He was not aware of the accident pilot's actions before to the flight and did not see him before towing him. Additionally, he was not aware of the accident pilot's flight intentions after the tow. The tow pilot reported that the accident pilot was familiar with the area near FM 1488 and 290. He believed that, about three years before the accident, the accident pilot landed at the closed airstrip call "Simarron" which he thought was within a mile of two of where the pilot ended up. He thought that the accident pilot making a landing shortly after releasing from the tow would not be typical for a good soaring day. According to the tow pilot, normally glider pilots would not start on a cross country flight until they reached a starting altitude of 3,500 to 5,000 feet.

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Wilfredo Perez; Federal Aviation Administration; Houston, TX Stefan Maser; German Federal Bureau of Aircraft Accident Inv.; Braunschweig
Original Publish Date:	February 13, 2017
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=91848