



National Transportation Safety Board Aviation Accident Final Report

Location:	Canadian, TX	Accident Number:	DFW07LA102
Date & Time:	05/02/2007, 1300 CDT	Registration:	N10028
Aircraft:	Walker Zenith Zodiac 601 XL	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The single engine experimental light sport airplane was observed departing from the airport in deteriorating weather conditions that consisted of low ceilings, reduced visibility, heavy rain, and lightning southwest of the airport. The pilot, who held an FAA Sport Pilot certificate, did not file a flight plan and there was no record that he obtained a weather briefing from an automated flight service station prior to departure. The purpose of the flight could not be determined; however, witnesses heard and/or observed the airplane depart and then fly in the vicinity of the airport for approximately 15 minutes before it was reported to police that the airplane had crashed approximately 2.3 miles northwest of the airport about 16 minutes later. There were no known voice communications from the pilot prior to the accident. A review of the wreckage revealed that the airplane came apart in flight before it impacted terrain. The debris was scattered along a heading of 030 degrees for approximately 1.3 miles. Examination of the fractured wing spars and elevator rear attachment points revealed signatures consistent with overload stresses. In addition, examination of the two seatbelt assemblies revealed that they remained securely attached to their respective airframe attachment points, but were not buckled. The seatbelt material was clean, not stretched, and the metal buckles (male and female) did not exhibit any damage. The canopy's locking mechanism was found in the unlocked position. A toxicological exam revealed positive results for the following drugs; bupropion, an antidepressant medication, was detected in the kidney, bupropion metabolite was detected in the kidney and present in the liver; chloroquine, a medication used for the treatment or prevention of malaria, was detected in the liver; and, diphenhydramine, an antihistamine with sedative effects, was detected in the kidney and liver. No blood, urine, or vitreous was available for analysis.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper pre-flight planning and decision to depart into deteriorating weather conditions, which resulted in a loss of control and subsequent in-flight break up.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings

1. (F) WEATHER CONDITION - LOW CEILING
2. (C) PREFLIGHT PLANNING/PREPARATION - POOR - PILOT IN COMMAND
3. (F) WEATHER CONDITION - RAIN

Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: MANEUVERING

Findings

4. (C) WING - SEPARATION
5. (C) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - PILOT IN COMMAND

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: DESCENT - UNCONTROLLED

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On May 2, 2007, approximately 1245 central daylight time, an experimental Walker Zodiac 601 XL single-engine light sport airplane, N10028, sustained substantial damage following an in-flight break up and collision with terrain west of the Hemphill County Airport (HHF), near Canadian, Texas. The certificated sport pilot, sole occupant of the airplane, was fatally injured. The airplane was operated by and registered to the pilot. No flight plan was filed for the flight that departed Hemphill County Airport approximately 1230. The purpose or destination of the flight could not be determined. Instrument meteorological conditions prevailed for the flight conducted under 14 Code of Federal Regulations Part 91.

A witness was dropping people off at a facility located near the airport around 1230, when he observed a "dingy tan color" airplane parked at the south end of the main runway with its engine running. He said, "The plane just looked odd to me. The plane took off the ground right in front of the Exhibition Center [where he was standing]. When the plane got up he immediately went to banking the plane back toward the Red Deer Bridge area. The plane was climbing and banking to the south at the same time. I thought to myself at the time that it was silly to take off in the rain the way the rain was coming in." The witness then drove his truck to the local nursing home. When he got out of the truck he could hear the airplane. He said it sounded "o.k" and thought that maybe the pilot was practicing take offs and landings. The witness turned his attention away from the airplane and heard about the accident later on that afternoon.

In a telephone interview, the airport manager, who was also a pilot, stated that he was walking into his home located about 1 mile from the airport around 1230, when he heard the sound of an airplane equipped with a 4-cylinder engine departing. Based on his location, he was unable to see the airplane. Approximately 15 minutes later, as the airport manager was walking from his home to his driveway, he again heard the sound of the airplane and thought that maybe it was making an approach to the airport. He described the weather as "heavy rain," but did not recall seeing any lightning or hearing thunder. The airport manager then got into his car and started driving. He noted that while driving in the heavy rain, his forward visibility was approximately 500 feet and the rain was bouncing back up off the road.

Another witness, who was also a pilot and former federal agent, was in his office at the local Courthouse, about 4 miles from the accident site around 1240, when he received a call that his daughter was in the emergency room at a hospital in Dallas, Texas. This prompted him to check the weather and determine if it was suitable for him to fly his own airplane to go see her. When he looked out the window he observed heavy rain, low clouds and reduced visibility. Even though his Cessna 210 was equipped for instrument flight, he told himself, "no way!" The witness later heard the police dispatch call that announced that an airplane had crashed northwest of the airport. He said the time was around 1300.

A gentleman, who was driving along a road that intersected the wreckage path, called 911 when he observed airplane debris in the road. According to the Hemphill County Sheriff's report, this call was made at 1250.

A review of Automated Flight Service Station (AFSS) records revealed that the pilot did not receive a weather briefing prior to the flight. Hemphill County Airport is an uncontrolled

airport and does not have an air traffic control tower. There was no recorded voice communications or radar information for this flight.

PILOT INFORMATION

The FAA issued the 63-year old pilot a Sport Pilot certificate on July 12, 2006. According to the pilot's son, the pilot had accrued a total of 176 hours; 43 hours in make and model, of which 29 hours were in the accident airplane. In addition, the pilot had logged a total of 30 hours in the 90 days preceding the accident. The pilot was not required to have an FAA medical and he used the airplane to commute back and forth from his home in Oklahoma for business purposes.

METEOROLOGICAL INFORMATION

Weather reported at Hemphill County Airport at 1230 was wind from 020 degrees at 4 knots, visibility 10 statute miles, scattered clouds 1,200 feet, broken clouds 2,000 feet, overcast clouds 2,600 feet, temperature 63 degrees, dew point 61 degrees, and a barometric pressure setting of 29.94 inches of Mercury.

Weather reported at 1245 was wind from 100 degrees at 7 knots, visibility 3 statute miles, heavy rain, scattered clouds 500 feet, broken clouds 2,000 feet, overcast clouds 2,900 feet, temperature 61 degrees, dew point 61 degrees, a barometric pressure setting of 29.94 inches of Mercury, and lightning southwest of the airport.

Weather reported at 1305, was wind from 360 degrees at 5 knots, visibility 2 statute miles, heavy rain, scattered clouds 200 feet, broken clouds 800 feet, overcast clouds 2,000 feet, temperature 59 degrees, dew point 59 degrees, and a barometric pressure setting of 29.93 inches of Mercury.

WRECKAGE INFORMATION

A Federal Aviation Administration (FAA) safety inspector performed an on-scene examination of the wreckage and was assisted by the Hemphill County Sheriff's Department. According to the inspector, airplane debris was found dispersed over an area that was 1.3-miles-long on an approximate heading of 030 degrees about 2.3 miles northwest of the airport. The beginning of the wreckage path was identified by pieces of paper and a section of the airplane's checklist followed by two sections of the left wing, then the right wing, the main wreckage, and the engine, which was found at the furthest end of the debris field. The main wreckage, which consisted of part of the fuselage, empennage and tail control surfaces, came to rest several hundred feet beyond where the wings came to rest. The pilot's body came to rest on the ground several feet away from the main wreckage. Also found scattered along the 1.3-mile-long debris path were pieces of Plexiglas, fiberglass, aeronautical charts, and the pilot's personal belongings.

The airplane wreckage was examined on May 31, 2007, under the supervision of the Safety Board. Examination of the left wing revealed that it was torn into two sections and exhibited impact damage. The rear attachment bolt had ripped through the rear spar fuselage attachment. The forward and rear spars also exhibited angular fracture features indicative of overload. The right wing was in one section and exhibited some impact damage. The forward and rear spars were bent aft and exhibited angular fracture features indicative of overload.

The tail section, including the elevator, vertical stabilizer and rudder, remained attached to the airframe by the forward attachment bolts, but the elevator was no longer attached to the rear

attachment points. The tail section was removed and sent to the Safety Board's Materials Laboratory in Washington DC, where it was examined on April 16, 2008. According to the Materials laboratory Factual Report, "... the airplane's engineering drawings indicated that the horizontal stabilizer was attached to the fuselage at the right rear and left rear locations through a sheet metal bracket (rear attachment plate) with two lobes that extend down and are bolted to fuselage structure. Examination of the horizontal stabilizer's rear attachment locations on the fuselage revealed that lower lobe portions of the rear attachment plate were fractured from the remainder of the plate and remained bolted to the stabilizer attachment bracket on the fuselage. Examination of the fracture faces revealed a clean, slightly grainy surface that was inclined on a slant plane of approximately 45 degrees, consistent with an overload event."

Examination of the two-seatbelt assemblies revealed that they remained securely attached to their respective airframe attachment points but they were not buckled. The belt material was clean of debris, the threads were not stretched, and the metal buckles (male and female) were not damaged. The canopy's locking mechanism was found in the unlocked position.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was conducted on the pilot on May 3, 2008, by the Texas Tech University Health Sciences Center, Division of Forensic Pathology, in Lubbock, Texas. According to their autopsy report, the cause of death was determined to be "multiple blunt force injuries."

The FAA Toxicology Accident Research Laboratory, in Oklahoma City, Oklahoma, conducted toxicological testing. The specimens were positive for the following drugs; bupropion, a chemical found in antidepressant and smoking cessation medication, was detected in the kidney, bupropion metabolite was detected in the kidney and present in the liver; chloroquine, a medication used for the treatment or prevention of malaria, was detected in the liver; and, diphenhydramine, an antihistamine with sedative effects, was detected in the kidney and liver. No blood, urine, or vitreous was available for analysis.

Pilot Information

Certificate:	Sport Pilot	Age:	63, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	None None	Last Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	07/01/2006
Flight Time:	176 hours (Total, all aircraft), 43 hours (Total, this make and model), 30 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Walker	Registration:	N10028
Model/Series:	Zenith Zodiac 601 XL	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Special Light-Sport; Experimental	Serial Number:	6-5123
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	03/01/2007, Continuous Airworthiness	Certified Max Gross Wt.:	1320 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3542.11 Hours	Engine Manufacturer:	Teledyne Continental
ELT:	Not installed	Engine Model/Series:	O-200-A`
Registered Owner:	McMurphy Consulting	Rated Power:	100 hp
Operator:	McMurphy Consulting	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	HHF, 2394 ft msl	Observation Time:	1305 CST
Distance from Accident Site:	2 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	310°	Conditions at Accident Site:	Instrument Conditions
Lowest Cloud Condition:	Scattered / 200 ft agl	Temperature/Dew Point:	15°C / 15°C
Lowest Ceiling:	Broken / 800 ft agl	Visibility	2 Miles
Wind Speed/Gusts, Direction:	5 knots, 360°	Visibility (RVR):	
Altimeter Setting:	29.93 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Heavy - Thunderstorms - Mist		
Departure Point:	Canadian, TN (HHF)	Type of Flight Plan Filed:	None
Destination:	Canadian, TN (HHF)	Type of Clearance:	None
Departure Time:	1230 CDT	Type of Airspace:	

Airport Information

Airport:	Hemphill County Airport (HHF)	Runway Surface Type:	
Airport Elevation:	2394 ft	Runway Surface Condition:	
Runway Used:	NA	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC): Leah D Yeager **Adopted Date:** 05/28/2008

Additional Participating Persons: Mona E Roberts; FAA/FSDO; Lubbock, TX
Mathieu Heintz; Zenair

Publish Date:

Investigation Docket: NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

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