



National Transportation Safety Board Aviation Accident Final Report

Location:	Hayti, SD	Accident Number:	CEN11FA437
Date & Time:	07/02/2011, 2136 CDT	Registration:	N711AT
Aircraft:	AMERICAN CHAMPION AIRCRAFT 7GCBC	Aircraft Damage:	Substantial
Defining Event:	Low altitude operation/event	Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane collided with power lines while the pilot was intentionally flying at a low altitude. According to recovered GPS data, the majority of the accident flight was flown at less than 200 feet above ground level (agl). The final minute of recorded GPS data showed the airplane in a descending right turn to an easterly heading at a descent rate of 90 to 100 feet per minute and an average ground speed of 110 knots. The final data point was at an altitude of 50 feet agl as the airplane crossed over the road where the power lines were located. A postaccident examination of the airplane revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. One of the propeller blades had indentations along its leading edge that had the same diameter and profile as the power lines found entangled with the airframe.

The airplane was equipped with tandem seating intended for two individuals. The pilot was found in the front seat, and two 11-year-old children occupied the rear seat. Although the rear seat could accommodate two smaller individuals, it was only equipped with one restraint, and it could not be determined if both children were sharing the restraint at the time 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 decision to attempt low-altitude flight and his failure to maintain adequate clearance from power lines.

Findings

Aircraft	Altitude - Not attained/maintained (Cause)
Personnel issues	Decision making/judgment - Pilot (Cause)

Factual Information

HISTORY OF FLIGHT

On July 2, 2011, at 2136 central daylight time, an American Champion Aircraft model 7GCBC, N711AT, was substantially damaged when it struck power lines and terrain while maneuvering at a low altitude near Hayti, South Dakota. The pilot and his two passengers were fatally injured. The airplane was registered to and operated by the private pilot under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. Day visual meteorological conditions prevailed for the local area flight that departed from the pilot's private airstrip located near Bryant, South Dakota, at 2126.

There were no eyewitnesses to the accident. According to the local power company, a postaccident review of their load meters indicated that there was a power interruption along 448th Avenue at 2136. The airplane wreckage was subsequently located in a vacant field, immediately east of 448th Avenue, by local residents who reported the accident at 2158. There were two power lines found entangled with the wreckage.

A global positioning system (GPS) handheld device was found at the accident site. The downloaded GPS data indicated that the accident flight was 10 minutes 49 seconds in duration. After departure, the airplane maneuvered at various headings and altitudes. A majority of the accident flight was completed at less than 200 feet above the ground. The final 60 seconds of recorded data showed the airplane in a descending right turn to an easterly heading, at a descent rate of 90 to 100 feet per minute and an average ground speed of 110 knots (127 mph). The final data point was recorded at 2136:44, at an altitude of 50 feet above ground level, as the airplane crossed over 448th Avenue on an easterly heading.

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot, age 45, held a private pilot certificate with a single engine land airplane rating. His last aviation medical examination was completed on September 30, 2008, when he was issued a third-class medical certificate with no limitations or restrictions. A search of FAA records showed no previous accidents, incidents, or enforcement proceedings.

The most recent pilot logbook entry was dated August 22, 2009. At that time, the pilot had accumulated 184.2 hours total flight time. The logbook indicated that all of his flight experience had been completed in single-engine land airplanes. The first flight in the accident airplane was dated July 25, 2008. The pilot's handheld GPS contained a log of flights completed after his final pilot logbook entry.

The pilot's logbook and GPS log times were combined to estimate the pilot's total flight experience. As of the accident flight, the pilot had accumulated 206.9 hours total flight time, of which 168.1 hours were as pilot-in-command and 38.8 hours were as flight instruction received. Based on available information, the pilot had flown 21.4 hours during the past year, 15.3 hours during the prior 6 months, 13.5 hours during previous 90 days, 4.4 hours during the preceding 30 days, and 0.8 hours in the 24 hour period before the accident.

The pilot had not logged any flight instruction since receiving his private pilot license on April 3, 2006. The logbook did not include any flight training in tailwheel airplanes, or a flight instructor endorsement for the operation of tailwheel airplanes. The logbook included four

flights in the accident airplane that contained the caption "learning to land" in the remarks field. These four flights, dated between July 25, 2008, and August 12, 2008, were the pilot's first logged flights in the accident airplane. According to the logbook, all previous flight time had been completed in a Cessna model 172C airplane. Although required by federal regulation to be completed every 24 calendar months, there was no logbook record of the pilot completing a flight review since receiving his pilot license.

AIRCRAFT INFORMATION

The accident airplane was a 2006 American Champion Aircraft model 7GCBC airplane, serial number (s/n) 1414-2006. A 180-horsepower Superior Air Parts Inc. model O-360-A3A2 reciprocating engine, s/n 01E060026, powered the airplane. The airplane was equipped with a fixed-pitch, two blade, Sensenich model 76EM8S8-0-58 metal propeller. The airplane was equipped with tandem seating for two occupants. The tail wheel-equipped airplane had a maximum takeoff weight of 1,950 pounds and was certified for aerobatic flight.

The accident airplane was issued a standard airworthiness certificate on June 2, 2006. The airplane hour meter indicated 268.7 hours at the accident site. The airframe and engine had accumulated a total service time of 268.7 hours at the time of the accident. The last annual inspection was completed on October 22, 2010, at 150 total airframe hours.

METEOROLOGICAL INFORMATION

The closest weather observing station was located at Watertown Regional Airport (ATY), about 17 miles north-northeast of the accident site. At 2153, the ATY automated surface observing system reported: wind 130 degrees at 5 knots, visibility 10 miles, clear sky, temperature 23 degrees Celsius, dew point 16 degrees Celsius, and an altimeter setting of 30.08 inches of mercury.

The United States Naval Observatory reported that the local sunset and end of civil twilight was at 2118 and 2154, respectively. The local moonrise and moonset was at 0716 and 2210, respectively. The moon phase was a waxing crescent with less than 2 percent visible at the time of the accident.

WRECKAGE AND IMPACT INFORMATION

A postaccident investigation confirmed that all airframe structural and flight control components were located at the accident site. The main wreckage was located in a vacant field, about 240 feet east of power lines that paralleled the eastern edge of 448th Avenue. There were two power lines found entangled with the wreckage; one around the airplane's right main landing gear and the other around right wingtip and aileron. The wreckage was inverted and facing northwest toward 448th Avenue.

The main wreckage consisted of the entire airframe, flight controls, engine, and propeller. All observed structural component failures were consistent with overstress separation. Flight control continuity was established between the individual flight control surfaces and their respective cockpit controls. The flap position could not be determined due to impact damage. The forward part of the cabin, including the instrument panel, was fragmented. The throttle, mixture, and carburetor control positions could not be determined because of impact damage.

The engine remained attached to the firewall by the control cables. Internal engine and valve train continuity was confirmed as the engine crankshaft was rotated. Compression and suction were noted on all cylinders in conjunction with crankshaft rotation. The upper spark plugs

were removed and exhibited features consistent with normal engine operation. Both magnetos provided spark on all leads when rotated. There were no obstructions between the air filter housing and the carburetor inlet. The fuel supply line to the carburetor and the carburetor bowl both contained fuel consistent in appearance and odor with 100-low lead aviation fuel. A fuel sample was free of any water or particulate contamination. The carburetor inlet screen was free of any particulate contamination. Mechanical continuity was confirmed from the engine components to their respective cockpit engine controls.

The propeller remained attached to the engine crankshaft. The propeller blade had several indentations along its leading edges. Two of these indentations had the same diameter and profile as the power lines that were found entangled with the airframe.

The postaccident examination of the airframe, engine, and propeller revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

On July 5, 2011, an autopsy was performed on the pilot at LCM Pathologists, located in Sioux Falls, South Dakota. The cause of death for the pilot was attributed to multiple blunt-force injuries sustained during the accident.

The FAA's Civil Aerospace Medical Institute (CAMI) in Oklahoma City, Oklahoma, performed toxicology tests on samples obtained during the pilot's autopsy. No carbon monoxide, cyanide, or ethanol was detected. Bupropion and its metabolite were detected in urine and blood samples. Ranitidine was detected in urine and blood samples.

Bupropion, trade name Welbutrin or Zyban, is prescription antidepressant used to treat depression; however, it also is prescribed as an aid during smoking and chewing tobacco cessation. According to the pilot's wife, about 3 months before the accident, the pilot was prescribed bupropion when he quit chewing tobacco. Ranitidine, trade name Zantac, is an over the counter medication used to decrease gastric acid production and treat ulcers. The pilot was reported to have taken ranitidine on the day of the accident to decrease the potential of stomach acid build-up.

SURVIVAL ASPECTS

The airplane was equipped with tandem seating that was intended for two individuals. The pilot was found in the forward position, wearing his seat restraints. The rear seat of the accident airplane was occupied by two children: the pilot's son and nephew, both 11 years old. Although the rear seat could accommodate two smaller individuals, it was only equipped with one restraint. According to first responders, one of the children remained restrained in the rear seat after the accident. The investigation was unable to determine if both children were sharing the same restraint at the time of the accident.

History of Flight

Maneuvering-low-alt flying	Low altitude operation/event (Defining event) Collision with terr/obj (non-CFIT)
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Pilot Information

Certificate:	Private	Age:	45
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Without Waivers/Limitations	Last Medical Exam:	09/30/2008
Occupational Pilot:	No	Last Flight Review or Equivalent:	04/03/2006
Flight Time:	(Estimated) 207 hours (Total, all aircraft), 51 hours (Total, this make and model), 170 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	AMERICAN CHAMPION AIRCRAFT	Registration:	N711AT
Model/Series:	7GCBC	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Aerobatic; Normal	Serial Number:	1414-2006
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	10/22/2010, Annual	Certified Max Gross Wt.:	1950 lbs
Time Since Last Inspection:	18 Hours	Engines:	1 Reciprocating
Airframe Total Time:	219 Hours	Engine Manufacturer:	Superior
ELT:	Installed, not activated	Engine Model/Series:	O-360-A3A2
Registered Owner:	On file	Rated Power:	180 hp
Operator:	On file	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	ATY, 1749 ft msl	Observation Time:	2153 CDT
Distance from Accident Site:	15 Nautical Miles	Condition of Light:	Dusk
Direction from Accident Site:	12°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	23° C / 16° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 130°	Visibility (RVR):	
Altimeter Setting:	30.08 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bryant, SD (PVT)	Type of Flight Plan Filed:	None
Destination:	Bryant, SD (PVT)	Type of Clearance:	None
Departure Time:	2126 CDT	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	2 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal		

Administrative Information

Investigator In Charge (IIC):	Andrew T Fox	Adopted Date:	05/14/2014
Additional Participating Persons:	Dan McKinney; Federal Aviation Administration - Rapid City FSDO; Rapid City, SD		
Publish Date:	05/14/2014		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=80959		

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