



National Transportation Safety Board Aviation Accident Final Report

Location:	Elephant Butte, NM	Accident Number:	CEN11FA312
Date & Time:	05/01/2011, 1215 MDT	Registration:	N89MM
Aircraft:	COMBS EARL W KITFOX SPEEDSTER	Aircraft Damage:	Destroyed
Defining Event:	Loss of engine power (total)	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane was on a local flight from a nearby airport. Two witnesses, who were driving north on an interstate highway, said the airplane was flying south about 1,000 feet above the ground when it pitched upward, rolled to the right, and then spiraled toward the ground. The witnesses said that they did not see any fire or smoke before they lost sight of the airplane. However, they subsequently saw a plume of smoke rising from behind a hill. A postaccident examination of the airplane wreckage showed that the airplane impacted the terrain in a right bank, slightly nose low attitude, then spun around to the left. A postimpact fire consumed most of the airplane structure. An examination of the wreckage did not reveal any preimpact anomalies that would have precluded normal operation of the airplane. A rod end for a push-pull tube between the flap handle and the flaperon mixer unit was found failed in overload at the outer two threads. Although this finding indicates potential problems with the construction and/or maintenance of the airplane, there is no indication that it contributed to the accident. Forensic toxicology testing of the pilot's liver and kidney detected Diphenhydramine; however, the level of Diphenhydramine was not substantive enough to be determined and its presence most likely did not induce impairment.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of control of the airplane for reasons that could not be determined because postaccident examination of the airplane did not reveal any anomalies that would have precluded normal operation.

Findings

Personnel issues	Incorrect action performance - Pilot (Cause) Scheduled/routine inspection - Owner/builder Aircraft control - Pilot (Cause)
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Factual Information

HISTORY OF FLIGHT

On May 1, 2011, about 1215 Mountain Daylight Time, a Kitfox Speedster, experimental amateur-built single-engine airplane, N89MM, sustained substantial damage when it impacted hilly terrain near Elephant Butte, New Mexico. The commercial pilot on board the airplane was fatally injured. The airplane was registered to the pilot and was being operated under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed and a visual flight rules flight plan was not filed. The local flight originated from the Truth or Consequences Municipal Airport (TCS), Truth or Consequences, New Mexico, about 1145.

Two witnesses traveling together north on the nearby interstate highway reported seeing the airplane just before the accident. One witness said he saw the airplane “suddenly roll and dive towards the ground.” The other witness said she saw the airplane pitch up and fall over to the right, and then spiral toward the ground. Both witnesses stated that the airplane was traveling south at about 1,000 feet above the ground when the airplane suddenly pitched up. Both witnesses also said that they did not see any fire or smoke prior to them losing sight of the airplane in the terrain. They then saw a plume of smoke rising from behind a hill off the right side of the highway.

PERSONNEL INFORMATION

The pilot, age 78, held a commercial pilot certificate with airplane single engine land, airplane single-engine sea, airplane multi-engine land and instrument airplane ratings. The pilot also held a flight instructor certificate with airplane single engine and instrument airplane ratings. In addition, the pilot held an airframe and powerplant mechanic certificate.

A review of the pilot’s logbooks showed him as having about 10,700 total flying hours. It showed him having successfully completing a flight review in a Piper PA-28 airplane on May 5, 2010. The last entry found in the logbook was on August 12, 2010 where the pilot flew for one hour and logged 5 night takeoff and landings.

The pilot held a Second Class medical certificate dated January 24, 2011. The certificate had limitations that read “Must wear corrective lenses for near and distant vision.”

AIRCRAFT INFORMATION

The airplane was an Earl W. Combs Kitfox Speedster, serial number HBS055. The airplane was manufactured in 1993 and was powered by a Rotax Model 912 UL engine rated at 80 horsepower.

According to the airplane’s aircraft logbook, a stamp entry was made on January 11, 2009, that stated the airplane underwent an “annual inspection”. The recorded airframe time was 470.3 hours. Below the annual inspection entry was a stamp entry with no date stating that the “aircraft/engine” had undergone an “annual/100 hour inspection”, and had a pen entry of 502.1 hours. There were no other entries following that entry in the logbook. The airplane’s engine logbook confirmed an annual condition inspection was performed on April 20, 2010.

METEOROLOGICAL INFORMATION

At 1253, the aviation routine weather report (METAR) for TCS about 1.5 miles west of the accident site was wind 240 degrees at 9 knots, visibility 10 statute miles, few clouds at 9,000 feet, temperature 57 degrees Fahrenheit (F), dew point 12 degrees F, and altimeter 29.75 inches of Mercury.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage came to rest in a rugged area of mesas and ravines in Colvert Canyon 1.5 miles east of TCS. The wreckage path covered an area approximately 20-foot wide by 115-foot long. The initial impact point was characterized by a descending scrape mark which containing green glass consistent with a navigational lens. Ground scars and the distribution of wreckage debris were consistent with the airplane's right wing tip impacting the downward slopping side of a small mesa, followed by the impact, side load, and failure of the left main landing gear. Continued ground signatures suggested that the airplane then spun approximately 360 degrees to the left before coming to rest, twisted, with the aft fuselage in an upright position. The pilot was separated from the airplane and found beyond the wreckage in a ravine. The airplane was mostly consumed in an ensuing post-crash fire.

The airplane wreckage was examined at the accident scene on May 2, 2011. All major components of the airplane were accounted for and control continuity was established to each major flight control with the exception of several sections of the pushrods, which were consumed in the post-crash fire, and a flap handle-to-flaperon mixer unit pushrod rod end, which was found separated. The rod end and pushrod were retained and examined by personnel in the NTSB Materials Laboratory in Washington, D.C.

The engine was separated from the airframe and examined the following day by the investigator-in-charge (IIC). Due to thermal damage from the postimpact fire, the engine could not be rotated. The engine was disassembled and control continuity was established to all internal components. The cylinders were examined and all cylinder domes and piston heads exhibited "normal" combustive deposits with no abnormal scoring of the cylinder walls noted. All cylinder valves were found complete and in their respective positions. The ignition system was thermally damaged and could not be tested. Both carburetors were thermally damaged and showed no traces of fuel.

The engine was equipped with a three bladed carbon fiber propeller. The propeller hub was found attached to the engine crankshaft. One blade remained attached to the hub and the other two were found separated, but nearby. The attached blade was found in the 12:00 o'clock position and did not exhibit notable impact signatures; however, it was thermally damaged. The second blade was separated near the hub and exhibited little damage. The fracture signatures were consistent with the propeller being pushed in a rearward direction until the blade broke. The third blade was separated near the hub. The outer eight inches of the third blade were broken aft and was not found. The blade fracture was consistent with it having occurred when the airplane struck the ground. No other anomalies were found in any of the other airplane systems.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the Office of the State Medical Examiner for New Mexico at the University of New Mexico Hospital, Albuquerque, New Mexico, on May 2, 2011.

Results of toxicology testing of samples taken from the pilot detected Diphenhydramine in liver and kidney. Diphenhydramine is a generation one sedating antihistamine usually sold under

the commercial name Benadryl.

TESTS AND RESEARCH

The flaperon pushrod and rod end fitting were examined at the NTSB Materials Laboratory, Washington, D.C., on July 12, 2012. The components showed discoloration and oxidation consistent with exposure to fire. The pushrod was separated from the forward rod end fitting. The lock nut was present on the threaded end of the pushrod and rotated freely by hand on the threads. The threads at the forward end of the pushrod were intact. Threads in the rod end fitting were damaged. Closer examination of the damaged threads on the rod end fitting showed the final two threads adjacent to the wrench flats at the aft end of the rod were fractured in overload. No thread damage was observed in the remaining threads in the rod end fitting. An inspection hole for checking thread engagement was present in the rod end fitting and located approximately seven threads from the aft end of the rod end fitting. The inspection hole was clear across the flats, indicating that the threads for the push rod were not engaged to the point of the inspection hole in the aft rod end fitting. See NTSB Materials Laboratory Factual Report.

According to the kit manufacturer, the Kitfox uses flaperons, a combination of the ailerons and flaps, to induce roll and perpetuate turns in the airplane. The different flap-function settings allow the airplane to fly at slower speeds without losing any controllability as in the cases for landing and in some takeoff situations as from a short or soft field.

History of Flight

Enroute	Loss of engine power (total) (Defining event)
Emergency descent	Loss of engine power (total) Controlled flight into terr/obj (CFIT)

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	79, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Unknown
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 With Waivers/Limitations	Last Medical Exam:	01/24/2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	COMBS EARL W	Registration:	N89MM
Model/Series:	KITFOX SPEEDSTER	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	HBS055
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	04/20/2010, Conditional	Certified Max Gross Wt.:	1200 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	502.1 Hours	Engine Manufacturer:	ROTAX
ELT:	Installed, not activated	Engine Model/Series:	912UL
Registered Owner:	WOODSUM RICHARD P	Rated Power:	80 hp
Operator:	WOODSUM RICHARD P	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	TCS, 4853 ft msl	Observation Time:	1153 MDT
Distance from Accident Site:	1 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	270°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	14°C / -12°C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 250°	Visibility (RVR):	
Altimeter Setting:	29.92 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Truth or Conseq, NM (TCS)	Type of Flight Plan Filed:	None
Destination:	Truth or Conseq, NM (TCS)	Type of Clearance:	None
Departure Time:	1145 MDT	Type of Airspace:	

Airport Information

Airport:	Truth or Consequences Muni (TCS)	Runway Surface Type:	
Airport Elevation:	4853 ft	Runway Surface Condition:	
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Timothy LeBaron	Adopted Date:	01/22/2013
Additional Participating Persons:	Ken Hand; Federal Aviation Administration; ALBUQUERQUE, NM		
Publish Date:	01/22/2013		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=78999		

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