National Transportation Safety Board
Aviation Accident Final Report

Location:	St Charles, MO	**Accident Number:**	DFW08LA157
Date & Time:	06/01/2008, 1100 CDT	**Registration:**	N114KT
Aircraft:	LUCAS D E/ LUCAS K A AcroSport II	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot told several people that he intended to do a flyby over the model airplane flying field. Later that morning, when the accident airplane was about a mile away from the model airplane flying field, several witnesses observed it flying straight and level at less than 100 feet above the ground. The airplane pitched up, rolled right and impacted the ground vertically, heading in the opposite direction. One witness observed the airplane flying inverted when the nose pitched up, suddenly performing what the eyewitness described as an aileron roll, then sharply rolled nose down toward the ground. The pilot did not have a previous history of aerobatic flight at low altitude. The pilot had a previous history of frequent episodes of abnormal heart rhythm resulting in markedly elevated heart rate (220 beats per minute), palpitations, and neck discomfort. He had severe coronary artery disease discovered on autopsy, which would have reduced his tolerance to such a high heart rate. Additionally, the pilot was on a prescription antidepressant that could increase his risk for seizure, and had been regularly using a prescription narcotic with the potential for impairment. He had not revealed his history of abnormal heart rhythm or his use of an antidepressant and a narcotic medication to the Federal Aviation Administration. While the circumstances of the accident suggest the possibility of incapacitation, potentially due to an abnormal heart rhythm or seizure, the investigation was unable to determine whether the pilot became incapacitated 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 failure to maintain control during an attempted low pass maneuver.

Findings

Aircraft	Performance/control parameters - Not attained/maintained (Cause)
Personnel issues	Predisposing condition - Pilot
	Aircraft control - Pilot (Cause)

Factual Information

HISTORY OF FLIGHT

On June 1, 2008, about 1100 central standard time (CST), a Lucas D E/Lucas K A Acro Sport II, N114KT, was substantially damaged during impact with terrain, following a loss of control while maneuvering. The private pilot, who was the sole occupant, was fatally injured. The amateur built airplane was registered to and operated by the pilot. Visual meteorological conditions prevailed and a flight plan had not been filed for the 14 Code of Federal Regulations Part 91 personal flight. The flight had departed the Creve Coeur Airport (1H0) in St. Louis, Missouri on a local area flight.

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PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed the pilot held a private certificate with a rating for airplane single engine land.

The pilot held a third class medical certificate, with waivers or limitations, which was issued on June 21, 2007.

An examination of the pilot's logbook and the airplane maintenance logbook indicated he had an estimated total pilot flight time of 331 hours of which 130 hours was in the accident airplane. He had logged 20 hours in the last 90 days, and 3 in the last 30 days.

An examination of the pilot's logbook and statements from several persons that knew him did not show any previous history of aerobatic flight at low altitude.

AIRCRAFT INFORMATION

The airplane was a Lucas D E/Lucas K A Acro Sport II, serial number 28, equipped with a Lycoming IO-360-A3B6D engine. The Acro Sport II design is an amateur built, short wing-span biplane of conventional tail dragger configuration, with open cockpits and "spatted" main undercarriage. Its structure is a fabric-covered steel tube fuselage with a wood wing structure.

At the time of the accident, the airplane had accumulated 162.4 hours total time, with an engine total time of 162.4. The aircraft maintenance logs showed the most recent condition inspection had been completed on June 12, 2007 at 120.2 hours total time.

METEOROLOGICAL CONDITIONS

The weather reported at the Spirit of St. Louis Airport (SUS) at 1053 CST (5 miles southwest of the accident site) reported a calm wind, 10 miles visibility, few clouds at 25,000 feet, temperature 79 degrees Fahrenheit, dew point 66 degrees Fahrenheit, and an altimeter setting of 29.97 inches of Mercury.

COMMUNICATIONS

According to the FAA, the St. Louis Terminal Radar Approach Control (TRACON) had no record of radar contacts or communications contacts with the accident airplane.

WRECKAGE AND IMPACT INFORMATION

The Federal Aviation Administration (FAA) inspectors that responded to the accident scene reported that the airplane was destroyed on impact, with extensive damage from the propeller spinner aft to the rear of the aft cockpit. The smell of fuel was present at the scene, but there was no post crash fire.

The recording "G" meter in the rear cockpit indicated forces of 8.7 positive and 3.0 negative. The FAA inspectors reported that rudder and elevator control continuity was established from the control surfaces up to the aft cockpit. Because of crash damage they were unable to further determine control continuity.

MEDICAL AND PATHOLOGICAL INFORMATION

The Saint Louis University Health Sciences Center completed an autopsy. The cause of death was listed as: Immediate Cause: Massive Trauma of Head, Chest, Abdomen and Extremities.

The FAA Toxicology and Accident Research Laboratory performed toxicological testing of specimens of the pilot with the following results: NO CARBON MONOXIDE detected in Blood, NO CYANIDE detected in Blood, NO ETHANOL detected in Urine, AZACYCLONOL detected in Urine, AZACYCLONOL detected in Liver, BUPROPION detected in Blood, BUPROPION detected in Urine, BUPROPION METABOLITE detected in Urine, DIHYDROCODEINE detected in Blood, 0.012 (ug/mL, ug/g) DIHYDROCODEINE detected in Urine, 0.019 (ug/ml, ug/g) HYDROCODONE detected in Blood, 0.093 (ug/ml, ug/g) HYDROCODONE detected in Urine, LOSARTAN detected in Urine, LOSARTAN detected in Liver, QUININE detected in Urine, and QUININE detected in Liver.

The pilot had noted on his most recent application for airman medical certificate, dated 6/21/2007, a history of asthma requiring only intermittent treatment, allergies, high blood pressure treated with losartan/hydrochlorothiazide, and use of the cholesterol-lowering medication atorvastatin and the antihistamine fexofenadine. No other conditions or medications were noted on that application.

The pilot's personal medical records documented a history of chronic knee pain, chronic back pain treated with surgery and hydrocodone/acetaminophen (used once a day on average), depressive symptoms treated with bupropion extended release 150 mg twice a day, and a history of frequent abnormal heart rhythms. An electrophysiologist documented in 2002 that the pilot had a "…history of recurrent episodes of supraventricular tachycardia … rate of approximately 220 beats per minute. … six to seven year history of recurrent episodes … three or four times a year … associated with moderate to strenuous activities … abrupt onset of palpitations and fullness in his neck … he will lie down and the palpitations will subside after 1 to 5 minutes. … can be somewhat dangerous for him … discussed the treatment options …" A 2004 primary care physician's note indicated "…Episodic supraventricular tachycardia. The patient has not had any episodes recently. He has seen [an electrophysiologist] for an opinion, but for the time being he is not interested in pursuing that option…"

The autopsy report on the pilot noted "Arteriosclerotic Heart Disease: Coronary artery, right, severe [75% occlusion] atherosclerosis." The report also noted that the blood for toxicology

testing was “from the chest.”

TESTS AND RESEARCH

The wreckage was moved to a storage facility. An FAA inspector examined the engine and the airframe and found no evidence of preexisting anomalies with either.

History of Flight

Maneuvering-low-alt flying	Abrupt maneuver Loss of control in flight (Defining event)

Pilot Information

Certificate:	Private	**Age:**	52, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Rear
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 With Waivers/Limitations	**Last Medical Exam:**	06/21/2007
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	331 hours (Total, all aircraft), 130 hours (Total, this make and model), 20 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	LUCAS D E/ LUCAS K A	**Registration:**	N114KT
Model/Series:	AcroSport II	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental	**Serial Number:**	28
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	06/12/2007, Annual	**Certified Max Gross Wt.:**	1540 lbs
Time Since Last Inspection:	42 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	162 Hours	**Engine Manufacturer:**	Lycoming
ELT:	C91A installed, not activated	**Engine Model/Series:**	IO-360-A3B6D
Registered Owner:	On file	**Rated Power:**	200 hp
Operator:	On file	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	KSUS, 463 ft msl	**Observation Time:**	1054 CDT
Distance from Accident Site:	5 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	240°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Few / 25000 ft agl	**Temperature/Dew Point:**	26°C / 19°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	Calm	**Visibility (RVR):**	
Altimeter Setting:	29.97 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ST LOUIS, MO (1H0)	**Type of Flight Plan Filed:**	None
Destination:	ST LOUIS, MO (1H0)	**Type of Clearance:**	None
Departure Time:	1045 CDT	**Type of Airspace:**	

Airport Information

Airport:	Creve Coeur Airport (1H0)	**Runway Surface Type:**	
Airport Elevation:	463 ft	**Runway Surface Condition:**	
Runway Used:	N/A	**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):	Thomas Latson	**Adopted Date:**	05/06/2010
Additional Participating Persons:	Danny V Little; FAA St Louis FSDO; St Ann, MO Larry E Sadowski; FAA St Louis FSDO; St Ann, MO		
Publish Date:	05/06/2010		
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.ntsb.gov/pubdms/.		

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