Aviation Investigation Final Report

Location:	Riverside, California	**Accident Number:**	LAX03LA176
Date & Time:	May 31, 2003, 10:12 Local	**Registration:**	N73VL
Aircraft:	Winters Glasair SH-2	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The experimental single-engine airplane collided with terrain following a loss of control after takeoff. Witnesses reported seeing the airplane takeoff, climb to 200 to 300 feet (agl), make a sharp left turn, and nose-dive into the ground. A post-accident examination of the wreckage revealed no evidence of pre-impact anomalies to the airframe or engine.

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 of the airplane during an abrupt, low altitude maneuver during the takeoff-initial climb, which resulted in a collision with terrain during the subsequent uncontrolled descent.

Findings

Occurrence #1: ABRUPT MANEUVER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) LOW ALTITUDE FLIGHT/MANEUVER - INITIATED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On May 31, 2003, at 1012 Pacific daylight time, an amateur-built experimental Winters Glasair SH-2 single-engine airplane, N73LV, collided with terrain following a loss of control after takeoff at Riverside Airport (RAL), Riverside, California. The airplane was owned and operated by the pilot under the provisions of 14 CFR Part 91. The private pilot, the sole occupant, sustained fatal injuries; the airplane was destroyed. The local personal flight departed RAL at 1007, with a planned destination of Hemet-Ryan Airport (HMT), Hemet, California. Instrument meteorological conditions prevailed and a special visual flight rules flight plan had been filed.

Officers from the Riverside Police Department interviewed four witnesses to the accident. They reported seeing the airplane take off from runway 09, climb to about 200 to 300 feet (agl), make a sharp left turn, and nose-dive into the ground.

In a telephone conversation, with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), one of the other witnesses, a former police investigator and 3600-hour private pilot, recalled the engine sounding as though it were at full power, and that the airplane's climb performance appeared to be good. As the airplane approached the terminal (mid-runway), about 200 feet agl, it began to make a steep turn to the left. He thought that the bank was about 80 to 90-degrees. It headed straight down and the airplane's nose impacted the ground at a 90-degree angle. After the initial impact, the airplane bounced about 15 feet into the air and then came down impacting the ground again. He noted that he never heard a change in engine power and the rpm remained constant until impact. He drove up to the accident site about 2 minutes after the airplane impacted, and noted an abundance of fuel on the ground.

Another officer, who responded to the accident site, reported the airplane came to rest with the wings intact. The wings' leading edges remained in contact with the ground, while the trailing edges were pointing straight up into the air. About 36 feet southwest of the main wreckage was a crater where the propeller and propeller housing were located.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed the pilot held a private pilot certificate with an airplane single-engine land rating. He was issued a second-class medical certificate on March 26, 2003, with a limitation to wear corrective lenses. According to the last medical certificate application, the pilot reported having accumulated a total of 1,300 hours of flight time. The pilot's logbook was not recovered during the investigation.

MEDICAL AND PATHOLOGICAL INFORMATION

The FAA Toxicology and Accident Research Laboratory performed toxicological testing of specimens of the pilot. The results of the toxicological tests were negative for carbon monoxide, cyanide, volatiles, and tested drugs.

TESTS AND RESEARCH

The wreckage was transported to the City of Riverside maintenance facility and examined by an FAA inspector, and an engine manufacturer's representative on June 6, 2003. The airplane had a Textron Lycoming O-320-E2A engine, serial number L-18521-27A, installed. Total time on the engine at the last condition inspection was 629.20 hours.

The Lycoming Technical representative examined the engine and reported the following. The engine remained attached to the engine mounts and sustained severe impact damage to the top left forward section of the case. Visual examination of the components revealed no evidence of pre-impact catastrophic mechanical malfunction. Manual rotation of the crankshaft was not possible due to the extent of the damage. The cylinders were examined via the use of a lighted borescope. The combustion chambers were undamaged and displayed no evidence of foreign object ingestion.

The left magneto sustained damage to two of the four distributor cap posts. Both intact posts produced spark during hand rotation of the drive. The right magneto produced a spark at all four posts during hand rotation of the drive. Timing could not be ascertained due to the destruction of the flywheel.

The top spark plug electrodes were gray in color, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart.

The crankshaft propeller flange was separated from the crankshaft. The propeller was attached at the crankshaft propeller flange and both blades remained attached to the propeller hub. Both blades exhibited chordwise striations and minimal leading edge damage.

Flight control cables were traced from the flight control attachment points to the cockpit. All flight control surfaces remained attached to their respective hinges. The fuel selector valve was found in the "main tank" position.

The landing gear was observed to be in the extended position, which corresponded to the cockpit mounted switch position. The flap gear motor jackscrew measured 3.5 inches and the flaps were observed in the fully retracted position.

Pilot Information

Certificate:	Private	**Age:**	58,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	March 26, 2003
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	1300 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Winters	**Registration:**	N73VL
Model/Series:	Glasair SH-2	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	145
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	October 3, 2002 Condition	**Certified Max Gross Wt.:**	2100 lbs
Time Since Last Inspection:	24 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	652.99 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	O-320
Registered Owner:	On file	**Rated Power:**	180 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	RAL,818 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	10:10 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	2 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.94 inches Hg	**Temperature/Dew Point:**	23°C / 15°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:	Riverside, CA (RAL)	**Type of Flight Plan Filed:**	VFR
Destination:	Hemet, CA (HMT)	**Type of Clearance:**	Special VFR
Departure Time:	10:07 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Riverside Municipal RAL	**Runway Surface Type:**	Asphalt
Airport Elevation:	818 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	09	**IFR Approach:**	None
Runway Length/Width:	5401 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.951946,-117.445274

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	Eric Jackson; WP-FSDO-Riverside, California
Original Publish Date:	December 28, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57117