Aviation Investigation Final Report

Location:	Hermiston, Oregon	**Accident Number:**	SEA05LA006
Date & Time:	October 14, 2004, 09:00 Local	**Registration:**	N706C
Aircraft:	Caldwell Glasair II	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After performing a number of low-level aerobatic maneuvers to the east of the airport, the pilot made a low-level pass over the runway from east to west. He then executed a rapid pull-up, and climbed on a near-vertical line. As the aircraft climbed, its airspeed decreased to the point that when the pilot executed a wingover maneuver at the top of the climb, the aircraft entered a spin. It then spun two or three times to the left, before its rotation rate began to decrease. As the rotation rate decreased, the pilot attempted to pull out of the dive, but the aircraft impacted the terrain and immediately burst into flames. There was no indication of any problems with the flight controls, nor any evidence that there had been a malfunction associated with the 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 an airspeed above stall speed while executing a wingover maneuver at the top of a vertical climb, leading to an inadvertent spin, and the pilot's inadequate remedial action in attempting to recover from the spin. Factors include performing aerobatic maneuvers close to the terrain.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
2. STALL/SPIN - ENCOUNTERED - PILOT IN COMMAND
3. (C) REMEDIAL ACTION - INADEQUATE - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
4. AEROBATICS - PERFORMED - PILOT IN COMMAND
5. (F) LOW ALTITUDE FLIGHT/MANEUVER - INTENTIONAL - PILOT IN COMMAND
6. TERRAIN CONDITION - GROUND

Factual Information

On October 14, 2004, approximately 0900 Pacific daylight time, an experimental Caldwell Glasair II, N706C, impacted the terrain while the pilot was performing low-level aerobatic maneuvers about one-half mile southwest of Hermiston Municipal Airport, Hermiston, Oregon. The private pilot, who was the sole occupant, received fatal injuries, and the aircraft, which was owned and operated by the pilot, was destroyed by the impact and post-crash fire. The 14 CFR Part 91 personal pleasure flight, which departed Hermiston about 15 minutes before the crash, was being operated in visual meteorological conditions. No flight plan had been filed. There was no report of an ELT activation.

According to witnesses, the pilot, who had been performing low-level aerobatic maneuvers to the east of the airport, made a low-level pass over the runway from east to west. The aircraft then pulled up rapidly and climbed on a near-vertical line. As the aircraft reached the top of its climb, its forward speed appeared to became very slow, and then it was witnessed doing a "wingover-like" maneuver to the left. As it completed the wingover maneuver, it appeared to enter a spin. The aircraft spun two or three times to the left, and then according to the witnesses, its rotation rate decreased. The witnesses reported that at the point where the rotation seemed to decrease, the nose of the aircraft started to rise, "as if the pilot was attempting to pull out of the dive." But soon after the rotation decreased and the nose started to rise, the aircraft impacted the terrain and immediately burst into flames.

All witnesses noted that the aircraft's aerobatic smoke system was producing a significant amount of smoke as it climbed, but there was disagreement as to the amount it produced on the way down. Some said that no smoke was produced on the way down, but others said that once the rotation rate slowed and the nose started to rise, that the smoke started being produced again. There was also some disagreement about whether the engine was producing power during the entire sequence. All witnesses said that the engine sounded as if it were at full power on the way up, but some thought that it was not producing much power on the way down. A number of witnesses stated that it appeared to them that the pilot may have pulled the power to idle after the wingover, and then about half way down, the engine went back to full power and the aerobatic smoke started being produced again.

According to the FAA Inspector who evaluated the aircraft wreckage at the scene, there was no evidence of any engine malfunction, or any indication that there had been a problem with the flight control system.

A toxicology examination was negative for all tested substances, and the autopsy identified the cause of death as accidental as the result of blunt impact forces.

Pilot Information

Certificate:	Private	**Age:**	60,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:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 7, 2004
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	1350 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Caldwell	**Registration:**	N706C
Model/Series:	Glasair II	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	307
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	1900 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	IO-360
Registered Owner:	Steven M. Caldwell	**Rated Power:**	200 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KHRI,644 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	40°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	11°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hermiston, OR (HRI)	**Type of Flight Plan Filed:**	None
Destination:	(HRI)	**Type of Clearance:**	None
Departure Time:	08:45 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Hermiston Municipal Airport KHRI	**Runway Surface Type:**	
Airport Elevation:	644 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	45.823055,-119.277496

Administrative Information

Investigator In Charge (IIC):	Anderson, Orrin
Additional Participating Persons:	Robert Eccles; Portland FSDO; Hillsboro, OR
Original Publish Date:	September 13, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60337