		NTSB ID: SEA97FA037		Aircraft Registration Number: N278ML	
		Occurrence Date: 12/14/1996		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place EAGLE POINT		State OR	Zip Code 97524	Local Time 1520	Time Zone PST
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Bellanca		Model/Series 8KCAB		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>HISTORY OF FLIGHT</p> <p>On December 14, 1996, about 1520 Pacific standard time, N278ML, a Bellanca 8KCAB Super Decathlon, operated by Skinner Aviation, Inc., Ashland, Oregon, impacted terrain during an uncontrolled descent near Eagle Point, Oregon, and was destroyed. Visual meteorological conditions prevailed and no flight plan had been filed. The certified flight instructor (CFI) was fatally injured. The student, who was a commercial pilot receiving aerobatic instruction at the time of the accident, bailed out of the airplane and suffered minor injuries. The local flight departed from Ashland about 1500 and was conducted under 14 CFR 91.</p> <p>The second pilot (surviving pilot), stated (statement attached) that he wanted to perform aerobatics in a Decathlon, so he scheduled himself to fly aerobatics through Skinner Aviation about one week prior to the accident. That flight was canceled due to weather, so he had rescheduled for the day of the accident.</p> <p>The second pilot arrived at the Ashland Airport and met the first pilot (CFI) for the first time. The second pilot stated that he and the CFI sat down and underwent a "thorough" preflight briefing for a "spin series, ailerons rolls, and loops" that lasted from 30 to 45 minutes. The second pilot stated that the airplane was then fueled, and there were about 10 gallons in each wing after the fueling. The airplane then underwent a "thorough" preflight inspection with no problems noted. The second pilot stated that the CFI appeared to be feeling well. During the preflight inspection, the CFI demonstrated the use of the parachute to the second pilot. The second pilot stated that he attributes the parachute briefing to the saving of his life.</p> <p>The second pilot started the airplane "with a little trouble" because he "was not used to a fuel injected engine." The airplane was then taxied. The second pilot stated that he felt the airplane was "not very responsive taxiing on the ground" because of the gear, but no other problems were noted. The second pilot stated that the engine "ran fine" during the run-up and takeoff. The second pilot climbed to 6,500 feet, while performing Dutch rolls. After some clearing turns, the CFI asked the second pilot if he wanted to do some spins. The second pilot performed three upright spins; two spins with power off (one to the left and one to the right) and one spin with power on (to the left). He "recovered fine" from all three spins.</p> <p>The CFI then took control of the airplane to demonstrate an inverted spin, according to the second pilot. The CFI climbed to 7,200 feet, rolled inverted, and maintained inverted flight "for quite a while," heading northeast (south of the accident site). The second pilot stated that the CFI then "pitched the nose up and put it in a gradual inverted climb". The airplane stalled and the CFI added left rudder. The airplane "rolled upright" into an inverted spin, and it was a "normal spin entry."</p>					
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## Narrative (Continued)

After the third revolution, the second pilot began to think that the CFI "fouled up the recovery." The rate of the spin began to accelerate through the first three revolutions, then the "rate slowed," and the second pilot thought the CFI was going to recover. The rate then began to accelerate again and continued to make a few more revolutions for a total of five or six. The CFI then stated to the second pilot: "Help me with the rudder." The airplane was spinning to the left (as viewed inside the airplane) at the time. The second pilot "hit the right rudder" and noted that it was "against the stops." He then began to press on the left rudder pedal, at which time the CFI stated: "not that rudder." The second pilot then pressed back on the right rudder again, which was at its full forward stop.

The second pilot stated that the CFI had "pulled power off" when he first entered the inverted spin, and the second pilot did not perceive any addition or reduction of engine power again.

During the spin, the second pilot also "took a hold of the stick" which was resting in the forward position, and "pulled back about 3 to 4 inches." He stated that there was "no pressure against the elevators," and it was like the airplane was "sitting on the ground," and that he did not think that the CFI was "on the controls." He released the stick and it went forward again. The airplane was headed "nose down" during the spin. The second pilot's foot was on the right rudder.

The airplane made another revolution. The CFI then yelled to the second pilot to "bail out." The second pilot pulled the cabin door handle and jettisoned the door. He then unbuckled his harness and "rolled onto the wing." He remembered that the airplane was "in a fairly flat attitude" at this time, with little wind force. He still had his headset on and "stayed on the wing a little while." He then remembered his parachute deploying, and he stated that he "wasn't very high" at the time. He also stated that the wind was out of the north about 15 knots.

The second pilot remembered hearing the airplane impacting the ground, but he did not recall seeing it crash, nor did he recall the timing of the crash noise. He stated that he did not perceive any problems with the engine during the flight, nor did he report any mechanical malfunctions with the airplane.

According to an eyewitness (statement attached) who was traveling in a car along a highway at the time of the accident, the airplane was "going down in a corkscrew effect - kind of flat." The witness stated that the airplane was "nose down, then flattened, like in a spin" as it fell "straight down" toward the ground. She stated that the airplane was about 500 feet above the ground when she first spotted it, and that she saw two pieces of the airplane falling with it. She stated that one piece was larger than the other piece. She saw the airplane for "about 15 to 20 seconds in the sky" until it disappeared from her view.

The airplane wreckage was located in hilly terrain 15 nautical miles from the departure airport at an elevation of about 1,500 feet msl. The accident occurred during the hours of daylight at the following coordinates: 42 degrees, 26.31 minutes North and 122 degrees, 38.10 minutes West.

## AIRCRAFT INFORMATION

The aircraft, a 1977 Bellanca model 8KCAB "Super Decathlon," was designed as a tandem-seated, wood/fabric, high-wing, single-engine, aerobatic airplane. The aircraft had been recently purchased by the first pilot about three months prior to the accident. The pilot then leased the aircraft back to the operator.

An examination of the airplane's maintenance logbooks did not reveal any unresolved discrepancies. The airplane had received an annual inspection on February 21, 1996. It had

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## Narrative (Continued)

accumulated about 3,064 total flight hours at the time of the accident. Its engine, a Lycoming model AEIO-360-HIA, had been overhauled 184 operating hours prior to the accident.

The Safety Board examined the most recent weight and balance records (attached) of the airplane. By utilizing the data from these records, documented weights of both pilots, and estimated fuel weights and fuel consumption rates, the Safety Board computed the estimated weight and balance at takeoff and during the time of the accident. The computations (attached) revealed that the airplane had exceeded its published maximum gross weight by 88 pounds at takeoff, and 52 pounds at the time of the accident. The computations also revealed that the moment of the airplane loading during the accident were within the extrapolated center of gravity envelope for the overgross condition.

According to Bellanca Pilot's Operating Manual for the aircraft (excerpts attached):

It is the pilot's responsibility to insure that the aircraft is loaded properly and within the weight and balance limitations. All flight procedures and characteristics are based on this prerequisite. If ..is to be used for aerobatic flight, it must be loaded within the flight envelope.

The manual also provides procedures to initiate and recover from an inverted spin. The manual states:

Enter from inverted stall power off with full forward stick and full rudder in the direction of desired spin. Maintain with full pro spin c 1/4 to 1/2 turn prior to recovery heading. Recover with posi of stick to neutral position and full opposite rudder. Hold controls until rotation stops and positive control and flying speed Then neutralize rudder and smoothly recover from dive to level release of controls is not adequate for spin recovery. Positiv the controls by the pilot is required.

## PERSONNEL INFORMATION

The first pilot, a 30-year-old male, was a certificated commercial pilot with ratings for instrument single and multiengine land airplanes. He was also a CFI with ratings in instrument, single-engine, and multiengine airplanes. According to FAA records, the pilot was issued an FAA Second Class Medical Certificate on July 12, 1996, with no restrictions or limitations. The Safety Board was unable to recover the pilot's personal flight log books; however, the pilot reported that he had accumulated 1,225 hours of total flight experience at the time of his most recent FAA medical application on July 12, 1996. According to the operator and an airplane flight log sheet found in the wreckage, the pilot had logged a total of 19.3 hours of flight time in type, including 6.3 total flight hours during the previous 90 days of the accident, and no hours during the previous 30 days of the accident.

The second pilot (surviving pilot), a 35-year-old business man, was a certificated commercial pilot with rating in single-engine land airplanes. According to FAA records, the pilot was issued an FAA Second Class Medical Certificate on April 26, 1996, with no restrictions or limitations. The second pilot reported that he had accumulated 600 hours of total flight experience at the time of his most recent FAA medical application on April 26, 1996. He stated that he had accumulated about 4 to 6 hours of aerobatic flight time in a Decathlon in 1990, and about 2 hours in a Pitts aerobatic airplane in 1996.

## WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the accident site on the morning after the accident.

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## Narrative (Continued)

The wreckage was found inverted and in one piece. Only the propeller, exit door, and some pieces of Plexiglas had separated from the airplane. No evidence of fire, explosion, or in-flight structural failure was found. The second pilot's parachute was found about 50 feet from the wreckage. The CFI was found strapped into the rear seat of the airplane. A 1-foot-deep ground scar in soft dirt containing the separated propeller was found about 3 feet in front of, and to the north of the nose of the airplane.

All primary and secondary flight control surfaces were accounted for at the accident site and were intact on the airplane. The airplane's skin was cut open by investigators to allow views of all flight control hardware. No evidence was found to indicate a flight control deficiency or malfunction. Flight control cable continuity was verified for all flight control surfaces.

An examination of the left wing revealed aft "accordion" crush damage on its leading edge beginning a point about 5 feet from its tip and continuing to the tip. The crush damage was oriented along a direction moving from the top of the wing and curling over to its underside. The wing was found inverted and its lift struts had broken off at the fuselage. The underside wing attachments of the lift struts remained attached.

An examination of the right wing also revealed aft "accordion" crush damage on its leading edge. The right wing tip was relatively undamaged in comparison with the left wing. The wing was found inverted and its lift struts were secured at both ends.

The entire empennage remained attached to the airframe and was inverted. An examination of the rudder/vertical stabilizer revealed that it was imbedded into the ground and the rudder was deflected to the left (left rudder pedal position) at maximum travel .

An examination of the cockpit controls and instrument panel revealed the following: The engine tachometer read 1,300 revolutions per minute. The mixture control was in the full rich position. The rear (first pilot) throttle position was found damaged and was open about two-thirds of its travel. No obstructions were found at the bases of both control sticks.

The engine underwent an external examination and detailed inspection at the accident site; the inspection did not reveal evidence of any preimpact mechanical malfunctions. Evidence of fuel was found in the inlet and outlet fuel lines of the fuel servo valve.

The two-bladed Hartzell controllable propeller had separated from the engine and was found about 3 feet from it. Oil was found inside the hub. Blade no. 1 was secure in the hub and was relatively straight, intact, clean, and undamaged as compared to Blade no. 2. Blade no. 2 was found imbedded into the ground and was also secured in the hub. It exhibited slight "S" bending at its mid-section and near its tip. Blade no. 2 also had exhibited chordwise scratching on its outboard half, and a piece of the blade tip had been sheered off in forward twisting.

## MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the first pilot in Medford, Oregon, by Dr. James N. Olson, M.D., Deputy State Medical Examiner for Jacksonville County, Oregon, on December 16, 1996. The cause of death was listed as "Massive craniofacial, neck thoracic, abdominal and bilateral upper and lower extremity injuries due to single engine fixed wing aircraft crash, pilot." A toxicological analysis was ordered and performed on specimens taken from the pilot by the FAA Civil Aeromedical Institute in Oklahoma City, Oklahoma. According to their report (attached), results were negative for carbon monoxide, cyanide, alcohol. An unspecified amount of the drug Meconin was found in the pilot's urine, but none in the blood sample. No evidence of pilot impairment at the time of the accident was found.

## ADDITIONAL INFORMATION

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**FACTUAL REPORT**

**AVIATION**

SAFETY BOARD


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Narrative (Continued)

The aircraft wreckage was released to Mr. James V. Stiger, Bellevue, Washington, on December 20, 1996. Mr. Stiger was representing the operator of the airplane at the time of the release.

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<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach: NONE					
VFR Approach/Landing: None					
<b>Aircraft Information</b>					
Aircraft Manufacturer Bellanca		Model/Series 8KCAB		Serial Number 301-77	
Airworthiness Certificate(s): Acrobatic					
Landing Gear Type: Tailwheel					
Homebuilt Aircraft? No	Number of Seats: 2	Certified Max Gross Wt. 1800 LBS	Number of Engines: 1		
Engine Type: Reciprocating	Engine Manufacturer: Lycoming	Model/Series: AEIO-360-H1A	Rated Power: 180 HP		
- Aircraft Inspection Information					
Type of Last Inspection Annual	Date of Last Inspection 02/1996	Time Since Last Inspection 62 Hours	Airframe Total Time 3064 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner NICHOLAS, WILLIAM C.		Street Address P.O. BOX 1612			
		City JACKSONVILLE	State OR	Zip Code 97530	
Operator of Aircraft SKINNER AVIATION, INC.		Street Address 403 DEAD INDIAN MEMORIAL ROAD			
		City ASHLAND	State OR	Zip Code 97520	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Instructional					

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**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 30
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Sex: M	Seat Occupied: Rear	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Flight Instructor; Commercial

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
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Medical Cert.: Class 2	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 07/1996
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	961	19	840							
Pilot In Command(PIC)	877	19	700							
Instructor	420	7								
Last 90 Days	40	7								
Last 30 Days	4									
Last 24 Hours										

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? Yes	Second Pilot? Yes
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**Flight Plan/Itinerary**

Type of Flight Plan Filed: None

Departure Point ASHLAND	State OR	Airport Identifier S03	Departure Time 1500	Time Zone PST
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Destination Local Flight	State	Airport Identifier	
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Type of Clearance: None

Type of Airspace: Class G

**Weather Information**

Source of Briefing: No record of briefing

Method of Briefing:

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<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
MFR	1550	PST	1331 Ft. MSL	11 NM	232 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Broken		25000 Ft. AGL		Visibility: 30 SM	Altimeter: 30.00 "Hg
Temperature: 7 °C	Dew Point: 2 °C	Wind Direction: 290		Density Altitude: Ft.	
Wind Speed: 4	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

<b>Accident Information</b>		
Aircraft Damage: Destroyed	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot			1		1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -	1		1		2
Other Ground	0	0	0		0
- GRAND TOTAL -	1	0	1		2



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**FACTUAL REPORT**

**AVIATION**



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Occurrence Date: 12/14/1996

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

JEFFREY B. GUZZETTI

Additional Persons Participating in This Accident/Incident Investigation:

GREG SIME

FAA; 1800 NE 25TH AVE.; STE 15

HILLSBORO, OR 97124