Aviation Investigation Final Report

Location:	Hyak, Washington	**Accident Number:**	SEA05LA133
Date & Time:	October 19, 2004, 12:00 Local	**Registration:**	N39TJ
Aircraft:	Aero Vodochody Aero. Works L-39C	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the en route climb to cruise, the pilot was cleared to 17,000 feet by the controller. About one minute later, the pilot was given a clearance to proceed direct to his ultimate destination, and at that time he gave no indication of having encountered any problem. Then about five seconds after receiving the clearance, the pilot advised Center that he had a flight control problem. About ten seconds after that, he stated that he had an in-flight emergency, and about fifteen seconds after declaring the emergency, the pilot transmitted three times in a rapid excited voice that he was "out of control." The controller was not able to make any further radio contact with the aircraft, which soon thereafter descended into the terrain at a high rate of speed. The aircraft wreckage was not found for over eight months, and when located was determined to be in over 1,000 pieces over a distance of approximately one-half mile. Due to the extent of the disintegration of the aircraft, no determination could be made as to the exact flight control malfunction that had occurred.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of aircraft control during climb to cruise due to an undetermined flight control malfunction.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CLIMB - TO CRUISE

Findings
1. (C) FLIGHT CONTROL SYSTEM - MALFUNCTION

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
2. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

On October 19, 2004, about 1200 Pacific daylight time, an Aero Vodochody L-39C, N39TJ, collided with mountainous terrain about seven miles east of Hyak, Washington, after radio and radar contact were lost at 1158. The 14 CFR Part 91 personal pleasure flight, which departed Boeing Field, Seattle, Washington, at 1146, was in an area of reported instrument meteorological conditions (IMC), and the pilot had activated his previously filed Instrument Flight Rules (IFR) flight plan. No ELT signal has been detected in the area where radar contact was lost, and the search for the aircraft was called off six days after the aircraft went missing (10/25/04). The jet aircraft, which had been issued an experimental-exhibition airworthiness certificate, was eventually located in the third week of June 2005, when some hikers came across the remains of the wreckage. About a week after they discovered the scene, the hikers realized that what they found may have been a previously undiscovered missing aircraft, so they reported their find to the FAA. Both occupants, a private pilot and his passenger, received fatal injuries, and the aircraft had been destroyed.

On the day of the accident, approximately nine minutes after takeoff, the aircraft was passed from Seattle Approach Control to Seattle Center. At that time, the pilot reported that he was passing 8,000 feet for 15,000 feet. About 70 seconds later, the center controller asked the pilot if he would prefer to climb to 15,000 feet or 17,000 feet, and the pilot responded with 17,000 feet. He was then cleared to 17,000 feet by the controller. About one minute later, the pilot was given a clearance to proceed direct to Lewiston, Idaho. At that time he gave no indication of having encountered any problem. Then about five seconds after being cleared to Lewiston, the pilot advised Center that he had a flight control problem, and about ten seconds after that, he stated that he had an in-flight emergency. About fifteen seconds after declaring the emergency, the pilot transmitted three times in a rapid excited voice that he was "out of control." The controller was not able to make any further radio contact with the aircraft.

A preliminary review of recorded radar tracking data (NTAP) indicates that the aircraft climbed to a mode C altitude of 17,100 feet, but was there for less than 15 seconds before starting to descend again. The aircraft was lost from radar just over one minute after it reached 17,100 feet (at 11:58:03), and at the time was approximately 15,900 feet. At the time it was lost from radar, its geographic location was 47 degrees, 21 minutes, 41.8 seconds North, and 121 degrees, 16 minutes, 38.7 seconds West. The aircraft wreckage was eventually found at 47 degrees, 22 minutes, 38.9 seconds North, and 121 degrees, 16 minutes, 7.76 seconds West.

The aircraft's initial impact with the terrain was through the trunks of two mature conifer trees, and a line drawn from those points of impact to the ground impact crater was approximately 70 degrees above the horizontal plane. The impact crater itself was about 10 feet wide and 14 feet long, and was approximately five feet deep at its center. Mounds of dirt had been pushed up around the perimeter of the crater by the force of the impact, and small pieces of wreckage

were scattered up to one-eighth mile to each side of the crater, and up to one-half mile out along the longitudinal axis of the crater. Except for portions of the engine, landing gear, and vertical stabilizer, the entire aircraft had been torn into numerous small pieces, most of which were hard to identify due to the extent of the damage they suffered during the impact sequence. According to the recovery team, which worked for three days in the mountainous terrain cleaning up the scattered wreckage, there were over 1,000 separate pieces of the aircraft recovered.

Although four small pieces of what appeared to be flight control surfaces were identified, due to the extent of the damage, no determination as to the integrity of the flight controls, or the functionality of the flight control system could be made. An inspection of the engine revealed that the majority of the compressor blades had either been bent 45 degrees or more in a direction opposite that of normal engine rotation, or had been broken off at their base. Many of the turbine blade tips had been ground down where they had made rotational contact with the outer wall of the turbine section, and many of both the compressor and turbine blades showed extensive foreign object damage on their leading edges.

Although there was an AIRMET (Airman's Meteorological Information) in effect for the general area of the flight that called for the possibility of occasional moderate rime and mixed icing in clouds and precipitation from the freezing level up to flight level 200, the pilot did not make any mention to the controller of the accumulation of ice on the aircraft, and the last PIREP (Pilot Weather Report) mentioning icing in the area (trace amount) was over two hours prior to the accident.

Pilot Information

Certificate:	Private	**Age:**	45,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	January 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1800 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Vodochody Aero. Works	**Registration:**	N39TJ
Model/Series:	L-39C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	812041
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	Condition	**Certified Max Gross Wt.:**	10360 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo fan
Airframe Total Time:	1950 Hrs at time of accident	**Engine Manufacturer:**	Ivchenko
ELT:	Not installed	**Engine Model/Series:**	AI-25-TL
Registered Owner:	Rocky L. Stewart	**Rated Power:**	3792 Lbs thrust
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KELN	**Distance from Accident Site:**	45 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	110°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 8500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.76 inches Hg	**Temperature/Dew Point:**	13°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Seattle, WA (KBFI)	**Type of Flight Plan Filed:**	IFR
Destination:	Lewiston, ID (KLWS)	**Type of Clearance:**	IFR
Departure Time:	11:46 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	47.384723,-121.270278

Administrative Information

Investigator In Charge (IIC):	Anderson, Orrin
Additional Participating Persons:	Harvey Tharps; Seattle FSDO
Original Publish Date:	February 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60418