



National Transportation Safety Board Aviation Accident Final Report

Location:	Rainbow City, AL	Accident Number:	ERA12FA149
Date & Time:	01/20/2012, 1818 CST	Registration:	N16RZ
Aircraft:	AERO VODOCHODY L39C	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot radioed an air traffic controller and obtained an instrument flight rules clearance while on the ground. The pilot read back the clearance and was informed that he was released for departure and to switch to advisory frequency. There was no further radio contact between air traffic controllers and the pilot, and the airplane was never radar identified. The base of the radar coverage at the airport is 4,000 feet. Another pilot, who was on the ground at the airport waiting to depart, informed the controller that he watched the flight depart and heard a pretty loud boom shortly afterward. A postcrash fire ensued. The ceiling was 300 feet overcast, with visibility 1 mile in mist. The main wreckage was located about 1.1 miles south-southwest of the airport in a swampy wooded area. Postcrash examination revealed no preaccident mechanical malfunctions or failures that would have precluded normal operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An in-flight loss of control in instrument meteorological conditions.

Findings

Aircraft	Performance/control parameters - Not attained/maintained (Cause)
Environmental issues	Low ceiling - Contributed to outcome (Cause)

Factual Information

HISTORY OF FLIGHT

On January 20, 2012, at 1818 central standard time (CST), an experimental exhibition, Aero Vodochody L39C airplane, N16RZ, collided with trees while maneuvering in the vicinity of Rainbow City, Alabama. The airplane was registered to Fighter Town USA LLC, and was operated by a private individual as a 14 Code of Federal Regulations Part 91 personal flight. The airplane sustained substantial damage and a postcrash fire ensued. Instrument meteorological conditions prevailed and an instrument flight rules flight plan was filed. The certificated airline transport pilot (ATP) was fatally injured. The flight departed from Northeast Alabama Regional Airport (GAD), Gadsden, Alabama, about 1817, en-route to Burlington, North Carolina.

A witness stated the pilot arrived at a maintenance facility to pick up the airplane in the afternoon. He conducted a preflight inspection in the hangar and the airplane was towed outside. The pilot performed the before start engine checks, started the engine, and taxied to runway 24 in preparation for takeoff. He conducted an engine run up and departed. The witness walked back inside the hangar and heard two loud explosions. An employee from the fixed base operator came by and stated the airplane had crashed in a wooded area off the departure end of runway 24.

The pilot called the Federal Aviation Administration (FAA) Birmingham Approach Control at 1815 via radio, while on the ground at GAD and requested his IFR clearance. The controller asked what runway he would be departing from and the pilot replied runway 24. The controller issued the clearance at 18:16:31. The clearance required the pilot to enter controlled airspace on a heading of 140 degrees to climb and maintain 5,000 feet and to expect flight level 190 within ten minutes after departure, and then on course when radar identified. The pilot read back the clearance and was informed he was released for departure and to switch to advisory frequency. There was no further radio contact between the controllers and the pilot. The base of the radar coverage at the GAD is 4,000 feet.

Another pilot, on the ground at GAD, waiting to depart, called Birmingham Approach and asked if they had picked up the accident airplane on radar. He informed the controller he watched the flight depart and heard a pretty loud boom shortly afterwards. The pilot also reported the airport was below weather minimums.

Another witness, who lived in front of the accident site, stated her mother-in-law called her while she was out at a restaurant and asked her if something had blown up at her house. She informed her mother-in-law that she was not home. She immediately left the restaurant and went home. Police and fire personnel were there and were putting out a fire in the woods behind her house. She stated that it was difficult to see the emergency responders due to the dense fog.

PERSONNEL INFORMATION

The pilot, age 58, held an ATP certificate with a rating for airplane multiengine land, and a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane, issued on March 3, 2010. In addition the pilot had a letter of authorization for "experimental aircraft AV-L39." The pilot held a second-class medical certificate, issued on February 11, 2010, with the restrictions, "Must wear corrective lenses." The pilot indicated on

the application for the second-class medical that he had 5,200 total flight hours and he had flown 80 hours in the last 6 months. The instructor pilot, who trained the accident pilot, stated he had conducted 20 training flights and the pilot had about 83 hours in the L39, of which 19 hours were dual flight instruction. The pilot's wife stated his logbook was in the accident airplane.

Review of training records at SIMCOM, Orlando, Florida, revealed the pilot attended SIMCOM Beech 200 recurrent training from August 20, 2011, to August 21, 2011, and he satisfactorily completed the pilot flight review and instrument proficiency check in a King Air simulator. The pilot indicated on the SIMCOM Pilot Data form for 2011, that he had 5,200 total flight hours and he had flown 150 hours in the last 12 months. The pilot indicated he had 1,800 total instrument flight hours and 700 hours in airplane single-engine land. In addition, the pilot indicated he had received 2 hours of flight instruction in the last 12 months. The pilot's logbook was not located in the wreckage. Review of the pilot's insurance application form, dated November 9, 2011, indicated the pilot had 5,540 total flight hours and he had flown 5 hours of instrument flight in the last 12 months in the L39, and 15 hours in the King Air in the last 12 months. In addition, the pilot indicated he had 90 total hours in the L39. The pilot's last flight review for the L39 was conducted on April 14, 2011.

AIRCRAFT INFORMATION

The Aero Vodochody L-39 Albatross is a high-performance tandem seat jet trainer aircraft serial number 132013, manufactured in 1981. The airplane is powered by a single turbo fan Ivchenko AI-25TL 3,792-lb thrust engine. Review of logbook information provided by International Jets revealed the last 100-hour condition inspection on the engine was conducted on January 19, 2012, at HOBBS time of 320.2 hours. The engines total time in service was 382.7 hours. The 100-hour condition inspection on the aircraft was conducted on January 19, 2012, at HOBBS time of 320.2 hours. The airplanes total time in service was 898.0 hours. The HOBBS meter was not located at the accident site. The last altimeter, static system test and transponder encoder test was conducted on November 3, 2009. The airplane was topped off with 59 gallons of Jet fuel at GAD on January 20, 2012.

A pilot for the maintenance base, test flew the airplane after the 100-hour condition inspection. No anomalies were noted with the airplane during the test flight.

METEOROLOGICAL INFORMATION

The National Weather Service (NWS) Surface Analysis Chart for 1800 CST depicted a stationary front extending east-to-west across northern Georgia, Alabama, into southern Tennessee and into Arkansas. An area of extensive fog and overcast clouds was depicted along the front. The station models across Alabama indicated southerly winds with overcast clouds with temperatures in the mid to upper 50's degrees Fahrenheit with temperature dew point spreads of 2 degrees or less, high relative humidity, low visibilities, low cloud cover, and near saturated conditions.

The GOES-13 infrared red satellite image at 1815 depicted a low stratiform cloud layer over northern Alabama with a radioactive cloud top temperature –minus 0.16 degrees C, which corresponded to cloud tops near 12,000 feet.

The Birmingham, AL 1800 sounding indicated a saturated low-level environment with the lifted condensation level (LCL) at 420 feet above ground level (agl) with a relative humidity greater than 90 percent from the surface to 4,500 feet. The sounding also indicated rapidly increasing winds with altitude, with the wind increasing from the southwest at 45 knots at 5,400 feet.

IFR conditions due to low ceilings and visibility had been reported since 1335.

GAD weather at 1815, wind from 080 degrees true at 5 knots, visibility 1 statute mile (in mist), ceiling overcast at 300 feet agl, temperature 12 degrees C, dew point missing, altimeter 29.94.

Several air carrier pilots in the vicinity of Huntsville (HSV), Alabama, indicated cloud tops near 3,000 feet near the time of the accident with sky clear above. No reports of turbulence or icing were received over Alabama surrounding the period.

The astronomical data from the United States Naval Observatory indicated the following astronomical conditions on January 20, 2012, for Gadsden, Etowah County, Alabama.

Begin civil twilight: 0621 CST

Sunrise: 0648 CST

Sunset: 1702 CST

End civil twilight: 1729

Moonset: 1436 CST

Moonrise: 0516 CST on January 21, 2012

At the time of the accident, both the Sun and the Moon were more than 15 degrees below the horizon and provided no illumination. The Moon phase was a waning crescent with only 8 percent of the disk illuminated when visible.

WRECKAGE AND IMPACT INFORMATION

The main wreckage was located about 1.1 miles south-southwest of GAD in a swampy wooded area, adjacent to the 700 block of Perman Lake Road in the vicinity of Rainbow City, Alabama. Examination of the crash site revealed the airplane collided with the tops of 60 to 80-foot tall trees, in a steep nose down attitude, left wing low on a heading of 070 degrees magnetic. The airplane collided with the ground 88 feet from the initial tree impact. The nose section (zone 1 fuselage) and (zone 2 cockpit sections) was buried 7 feet below the surface of the ground. The crater was 15 feet wide and 31 feet long. The forward ejection seat remained in the crater. The rear ejection seat separated from its rail and was located to the left of the crater next to a tree. Both ejection seats were armed and deactivated by maintenance personnel. The engine assembly separated from the airframe and was located 121 feet down the crash debris line (CDL). The tail section was located 21 feet to the right of the engine assembly on a heading of 100 degrees magnetic. The inboard and outboard section of the right wing was located along the CDL, 259 feet from the beginning of the CDL.

The nose section (zone 1) with the nose landing gear was fragmented and located in the initial

impact crater. The nose landing gear was in the retracted position.

The front and rear cockpit (zone 2) was located in the initial impact crater. The forward wind screen was fragmented. The forward canopy was separated and fragmented. The forward instrument panel was fragmented. The front ejection seat was separated from the rail. Continuity of the flight control systems could not be determined due to the structural damage to the airframe.

The rear canopy was separated and fragmented. The instrument panel was fragmented. The rear ejection seat separated from the rail and was located outside of the crater edge next to a tree in the armed position. Continuity of the flight control system could not be determined due to structural damage to the airframe.

The right wing was separated at the main landing gear center section of the wing. There was no evidence of sooting or bubbling of paint present. The leading edge of the right wing was fragmented. The right aileron was damaged and separated from its hinge points. The right flap separated from its hinge points and its position was not determined. The metal auxiliary fuel tank was ruptured and separated from the wing. An odor of fuel was present at the crash site. The dummy missile separated from the right wing pylon mount. The right main landing gear separated and the land gear was in the retracted position and was located in the creek.

The fuselage and engine section (zone 3) was fire damaged and fragmented extending aft to the tail cone section (zone 4). The three main bladder fuel cells were ruptured and the majority of the fuel was contained in the impact crater.

The vertical fin separated from the empennage. The leading edge and top of the vertical fin were damaged. The rudder separated from all hinge points and was located adjacent to the vertical fin. The tail section was separated at the tail separation point and was lying inverted on the ground. The left horizontal stabilizer was damaged and the left elevator remained attached at all hinge points. The left elevator trim tab was in the neutral position. The right horizontal stabilizer was not damaged. The right elevator remained attached at all hinge points and the trim tab was in the neutral position. There was no evidence of sooting or bubbling of paint present on any of the surfaces.

The left wing separated at the main landing gear center section of the wing and fire damaged. The leading edge of the left wing was fragmented. The left aileron was damaged and separated from its hinge points. A section of the left flap was fire damaged and located in the impact crater and the position could not be determined. The metal auxiliary fuel tank was ruptured and separated from the wing. An odor of fuel was present at the crash site. The dummy missile separated from the wing pylon mount. The left main landing gear was located in the impact crater and was in the retracted position.

The engine assembly was on its left side. The first stage fan disk was separated from the engine. The rotor blades were bent opposite the direction of rotation. The second and third stage fan disks remained in the engine and were visible. The respective blades were bent opposite the direction of rotation.

The oil reservoir was bent around the right front engine mount. The oil reservoir filler cap separated from the oil filler. The top of the filler cap was sheared off. The fuel-oil heat exchanger was damaged and separated from the engine.

The bleed air flapper valve for the air conditioner was in the fully open position. The engine deice flapper valve was fully closed. The right hand igniter plug was broken where it exits the igniter can.

The right rear engine mount was intact and fire damaged. The exhaust gas temperature (EGT) harness was intact and the four EGT probes were in place. The engine's exhaust pipe was damaged and remained attached to the engine by metal tubing. The exhaust pipe attachment clamp remained attached to the exhaust pipe with a tightened and safetied turnbuckle.

The fuel control unit was attached to the remnants of the engine gear box. The throttle lever position was at about 90 percent. The engine high pressure fuel pump was attached to the engine by one fuel line.

The anti G suit bleed air plumbing was attached to the bleed air port. The ram air turbine was separated from the fuselage structure. The auxiliary power unit was separated from the engine compartment and was damaged. The main generator was separated from the engine and was damaged.

The airframe and engine assembly was transported to a salvage company in Griffin, Georgia for storage. The engine was disassembled and examined by an NTSB Powerplants Group. The first stage fan disk was intact, but was recovered separate from the engine. The second and third stage fan disks were also intact, but remained attached to the rest of the engine. All of the first, second, and third stage fan blades were in their respective disks, although there were several first and second stage fan blades that were fractured across the airfoil. All of the longer or full length first, second, and third stage fan blades were bent opposite the direction of rotation. The inlet bullet, inlet guide vanes, and fan blades were examined under an ultraviolet light and nothing fluoresced. The seventh and eighth stage compressor blades were in place, but were bent opposite the direction of rotation. There was no metal spray on the seventh and eighth stage compressor blades. The second stage turbine blades were all intact and did not have any apparent damage to the airfoils. There was no metal spray on the second stage turbine blade airfoils and turbine exhaust case struts.

MEDICAL AND PATHOLOGICAL INFORMATION

The Huntsville Forensic Laboratory, Huntsville, Alabama, Medical Examiner conducted a postmortem examination of the pilot, on January 25, 2012. The cause of death was severe blunt force injuries. The FAA Bioaeronautical Sciences Research Laboratory performed toxicology testing on specimens from the pilot. Carbon monoxide and cyanide samples were not performed. The results were positive for 46 (mg/dl, mg/hg) ethanol detected in the muscle. No ethanol was detected in the liver. N propanol 8 (mg/dl, mg/hg) was detected in the muscle. These volatiles are consistent with postmortem production of alcohols.

ADDITIONAL INFORMATION

The Department of Defense Flight Information Publication (Terminal) Low Altitude United States Airport Diagrams for Louisiana, Mississippi, and Alabama, Volume 14 found in the crater were effective October 20, 2011, and expired December 15, 2011. The Low Altitude United States Airport Diagrams for Virginia, Tennessee, and North Carolina, Volume 17 found in the crater were effective September 23, 2010, and expired November 18, 2011.

History of Flight

Initial climb	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT) Unknown or undetermined

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	58, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	02/11/2010
Occupational Pilot:	No	Last Flight Review or Equivalent:	04/14/2011
Flight Time:	5200 hours (Total, all aircraft), 83 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	AERO VODOCHODY	Registration:	N16RZ
Model/Series:	L39C	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Experimental	Serial Number:	132013
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	01/19/2012, Condition	Certified Max Gross Wt.:	11618 lbs
Time Since Last Inspection:	0 Hours	Engines:	1 Turbo Jet
Airframe Total Time:	898 Hours at time of accident	Engine Manufacturer:	IVCHENKO
ELT:	Installed, not activated	Engine Model/Series:	AL-25SERIES
Registered Owner:	FIGHTER TOWN USA LLC	Rated Power:	3792 lbs
Operator:	Thomas L. Coble	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	GAD, 569 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1815 CST	Direction from Accident Site:	70°
Lowest Cloud Condition:		Visibility	1 Miles
Lowest Ceiling:	Overcast / 300 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	80°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.94 inches Hg	Temperature/Dew Point:	12° C
Precipitation and Obscuration:	Mist; Fog; No Obscuration		
Departure Point:	Gadsden, AL (GAD)	Type of Flight Plan Filed:	IFR
Destination:	Burlington, NC (BUY)	Type of Clearance:	IFR
Departure Time:	1817 CDT	Type of Airspace:	Class G

Airport Information

Airport:	Northeast Alabama Regional (GAD)	Runway Surface Type:	
Airport Elevation:	569 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:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	1 Fatal	Latitude, Longitude:	33.952222, -86.101389 (est)

Administrative Information

Investigator In Charge (IIC):	Carrol A Smith	Report Date:	05/30/2013
Additional Participating Persons:	David W Hargett; Birmingham FSDO; Birmingham, AL		
Publish Date:	05/30/2013		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=82708		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).