Aviation Investigation Final Report

Location:	Portland, Oregon	**Accident Number:**	SEA08FA078
Date & Time:	February 16, 2008, 08:28 Local	**Registration:**	N621ER
Aircraft:	Lancair LC41	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Prior to initiating the first ILS approach to runway 10R, the pilot was advised by the tower controller that the runway visual range (RVR) was 600 feet, followed by being given a landing clearance. A little more than 2 minutes later the pilot declared a missed approach and was given radar vectors for a second ILS approach. After turning inbound on the localizer the pilot was advised that the runway visual range was 600 feet, midfield 800 feet, and roll out 800 feet. The pilot was then cleared to land. When the tower controller observed the airplane turning to the south of the runway on her radar display, she issued missed approach instructions, which was followed by an inaudible transmission. There were no further transmissions from the pilot. The airplane impacted the top of an 85-foot tall tree with its right wingtip, 3,200 feet southeast of the approach end of the runway, then continued on the collision course before impacting the ground about 845 feet from the initial impact point with the tree. The airplane was subsequently consumed by fire. The weather minimums for the approach required a ceiling of 200 feet and an RVR of 1,800 feet or one-half mile; the decision altitude was 224 feet msl. The FAA published missed approach procedure instructed the pilot to climb to 900 feet, then climbing right turn to 4,000 feet, intercept the 160 degree radial of the VORTAC, and proceed to a DME fix and hold. The airplane's turn to the southeast was consistent with the missed approach course of 160 degrees; however, a climb to 900 feet is required prior to commencing the right turn, as outlined on approach plate's missed approach instructions. It appears the pilot likely misinterpreted the missed approach instructions by making the right hand turn prior to initiating a climb to 900 feet, which resulted in the subsequent impact with the tree. No preimpact anomalies were found during an examination of the airframe and engine. The airplane's avionics components revealed that they were too thermally and impact-damaged to provide any data. No anomalies were found during a post accident examination of the instrument landing system components.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to follow the missed approach procedure. Contributing to the accident were the fog and below landing minimums visibility conditions.

Findings

Personnel issues	Incorrect action sequence - Pilot
Environmental issues	Fog - Effect on operation
Environmental issues	Low visibility - Effect on operation

Factual Information

History of Flight

Approach-IFR missed approach	Controlled flight into terr/obj (CFIT) (Defining event)

HISTORY OF FLIGHT

On February 16, 2008, about 0828 Pacific standard time, a Lancair LC41 550-FG, N621ER, was destroyed after impacting terrain while maneuvering near the Portland International Airport (PDX), Portland, Oregon. The pilot, who was the sole occupant and registered owner of the airplane, was killed. Instrument meteorological conditions prevailed at the time of the accident, and an instrument flight rules (IFR) flight plan had been filed and activated for the 14 Code of Federal Regulations (CFR) Part 91 personal cross-country flight. The flight departed the Klamath Falls Airport (LMT), Klamath Falls, Oregon, about 0630, with its destination as PDX.

Prior to departure, at 0517 the pilot filed an IFR flight plan using the Federal Aviation Administration's (FAA) Direct User Access Terminal (DUAT) service for pilots; at 0551 the pilot received a route briefing using the same service. After departing LMT, the pilot contacted Air Traffic Control (ATC) at 0642 requesting his IFR clearance to PDX; the clearance was issued at 0643.

At 0720, the pilot reported that he was level at 14,000 feet and proceeding direct to Corvallis.

At 0744, ATC issued the pilot a descent clearance to 10,000, which the pilot acknowledged.

At 0752, ATC instructed the pilot to change frequency to Portland Approach Control, which the pilot acknowledged. Subsequently, the pilot approached PDX from the southeast and received radar vectors to intercept the localizer course for the Instrument Landing System (ILS) runway 10R approach.

At 0809, the PDX tower controller advised the pilot of possible wake turbulence from a de Havilland Dash 8 on short final, and that the wind was calm. The controller cleared the pilot to land on Runway 10R, and was also advised that the runway visual range (RVR) was 600 feet. The pilot acknowledged the controller's transmissions.

At 0812, the pilot transmitted to the tower controller, "I'm not seeing the airport. I'll be missed approach." The controller replied, "Columbia one echo romeo, tower. Fly heading one zero zero, maintain two thousand." The pilot replied, "one zero zero to two thousand."

At 0812, the tower controller transmitted to the pilot, "Columbia one echo romeo, turn left heading zero five zero. Maintain three thousand." The pilot responded, "left zero five zero and

three thousand."

At 0813, the tower controller instructed the pilot, "Columbia one echo romeo, contact approach on one two four point three five." The pilot responded, "Twenty four thirty five, one echo romeo."

At 0824, the pilot transmitted, "Portland tower, Columbia six two one echo romeo is inbound on the localizer." The tower controller replied, "Columbia six two one echo romeo, tower, runway one zero right, rvr six hundred, mid eight hundred, rollout eight hundred, runway one zero right cleared to land." The pilot replied, "Cleared to land, one echo romeo."

At 0827, the tower controller transmitted, "Columbia one echo romeo, ah, maintain two thousand and turn right heading one four zero." The pilot replied with an unintelligible transmission, followed by "we're gonna crash." The tower controller attempted several times to contact the pilot with no response.

A review of the radar data depicting the approach, which was overlayed on a 2-dimensional site map, revealed that the airplane was stabilized on the localizer just prior to the runway threshold, which occurred at 0826:59. At 0827:09, radar depicted the airplane about 500 feet east of taxiway Bravo-1 and the runway threshold starting a right turn. Radar depictions at 0827:13, 0827:18, and 0827:23 indicate that the airplane had made a right turn to a south-southeasterly heading.

PERSONNEL INFORMATION

The pilot, age 62, held a commercial pilot certificate with ratings for airplanes single-engine and multiengine land, and instrument airplane. A review of the pilot's personal logbook revealed that he had accumulated a total of 5,152 hours of flight time, with 429 hours in the accident make and model, 516 hours of actual instrument time, and 119 hours of simulated instrument time. The pilot's most recent flight review was accomplished on December 31, 2007. Training records revealed that the pilot had successfully completed the Columbia 400 ground and flight training course on December 14, 2005, which was conducted at the Columbia Aircraft Manufacturing Facility in Bend, Oregon.

The pilot's most recent airman's medical examination was performed on June 19, 2007, with the limitation "Must wear corrective lenses."

AIRCRAFT INFORMATION

The airplane is a pre-mold, composite built, semi-monocoque, four seat, single engine, low wing, tricycle design airplane, and is certified in the utility category. A review of the airplane's logbook revealed that the last annual inspection was dated July 1, 2007, at a total airframe time of 297.2 hours.

The airplane was equipped with a Teledyne-Continental Motors TSIO-550-C(9) engine. An examination of the engine logbook indicated that a 100-hour inspection had been conducted on July 1, 2007, at an engine total time of 297.2 hours.

AIRPORT INFORMATION

The Portland International Airport (PDX), is a public, controlled airport located about 4 miles northeast of Portland, Oregon. The airport features three asphalt-grooved runways, Runway 10R/28L, which is 11,000 feet by 150 feet, Runway 10L/28R, is 8,000 feet by 150 feet, and Runway 03/21, is 7,001 feet by 150 feet.

Runway 10R was equipped with high intensity runway lighting (HIRL), centerline lighting (CL), airport lighting system with sequenced flashers II (ALSF2), Touchdown Zone Lights (TDZL), and a Precision Approach Path Indicator (PAPI) located on the right side of the runway. Runway 10R was configured for precision and non-precision approaches, which include ILS and global positioning (GPS) approaches.

The ILS approach to runway 10R at PDX included an inbound course with a magnetic heading of 101 degrees. The minimum descent altitude for the inbound section of the approach was 224 feet mean sea level (msl) when established on the localizer with a glideslope intercept altitude of 2,000 feet at YORKY intersection, which is also the final approach fix. The YORKY intersection was located 8 nautical miles (nm) distance measuring equipment (DME) on the approach course. The distance from YORKY intersection to the runway threshold is 5.9 nm. The published missed approach procedure instructed the pilot to "climb to 900, then a climbing right turn to 4,000 [feet] via BTG R-160 to MULES Int/BTG VORTAC 17.7 DME and hold."

According to the Federal Aviation Administration (FAA) Daily Record of Facility Operation, on February 16, 2008, at 1715, the Portland International Airport's Runway 10R instrument landing system was flight checked with no anomalies noted.

METEOROLOGICAL INFORMATION

At 0753, about 35 minutes prior to the accident, the PDX Automated Surface Observing System (ASOS) reported wind from 240 degrees at 3 knots, visibility 1/8 statute mile, Runway 10R Runway Visual Range 600 feet variable to 700 feet, fog, broken clouds at 100 feet, overcast clouds at 900 feet, temperature 1 degree C, dew point 1 degree C, altimeter setting 30.35 inches of Mercury; remarks, tower visibility 200 feet.

At 0853, about 25 minutes after the accident, the PDX ASOS reported, wind calm, visibility 1/4 statute mile, Runway 10R Runway Visual Range 800 feet variable 1,400 feet, fog, broken clouds at 100 feet, overcast clouds at 900 feet, temperature 2 degrees C, dew point 2 degrees C, altimeter setting 30.37 inches of Mercury; remarks, tower visibility 1/4 mile.

WRECKAGE AND IMPACT INFORMATION

The wreckage was examined at the accident site on February 17, 2008. The examination revealed that the airplane initially impacted the top of an 85-foot tall tree with its right wingtip, about 3,200 feet southeast of the approach end of Runway 10R, on a magnetic heading of about 160 degrees. A 5-foot long section of the outboard right wing and right aileron were located near the base of the impacted tree. The right main landing gear was found about 100 feet south of the impacted tree. The airplane continued on the collision course before impacting the ground in a left wing low, nose down attitude, about 845 feet from the initial impact point with the tree. It then traveled through an airport perimeter fence before coming to rest on a perimeter road in an upright position, about 15 feet from the ground impact point.

The main wreckage was almost entirely consumed by fire. All cockpit instruments were destroyed, and there was no recoverable non-volatile memory from the flight displays. The throttle, propeller, and mixture control levers were observed to be in the full forward position.

All primary and secondary flight controls were accounted for at the accident site including the right elevator trim tab, right aileron trim tab, left aileron servo tab, and fixed ground adjustable rudder tab. Flight control continuity was confirmed for the ailerons and elevators in the fuselage. Rudder control cable continuity was confirmed from the rudder to the cockpit floor area. Flap continuity was confirmed from the flap motor to the left and right bell cranks.

MEDICAL AND PATHOLOGICAL INFORMATION

On February 18, 2008, an autopsy of the pilot was performed at the Oregon State Medical Examiner's Office, Clackamas, Oregon. The cause of death was listed as "blunt force trauma."

The toxicological testing report from the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma, indicated that all tests were negative for alcohol and drugs.

TESTS AND RESEARCH

A postaccident examination of the airframe's structure and engine revealed no pre impact failures or malfunctions, which would have precluded normal operation.

An examination of the airplane's avionics components revealed that they were too thermally and impact-damaged to provide any data.

ADDITIONAL INFORMATION

According to FAA regulation 91.175(c) titled Operation below Decision Height or MDA, no pilot may continue below the authorized decision altitude/decision height (DA/DH) unless the airplane is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, the flight visibility is not less than the visibility prescribed for the instrument approach procedure, and the runway

environment is distinctly visible and identifiable to the pilot.

According to FAA regulation 91.175(e) titled Missed Approach Procedures, a pilot must immediately execute an appropriate missed approach procedure when, upon arrival at the missed approach point, including a DA/DH where a DA/DH is specified and its use is required, and anytime until after that until touchdown

Pilot Information

Certificate:	Commercial	**Age:**	62,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
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:**	June 19, 2007
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 31, 2007
Flight Time:	5152 hours (Total, all aircraft), 429 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Lancair	**Registration:**	N621ER
Model/Series:	LC41 550FG	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	41527
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 1, 2007 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	86 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	383 Hrs at time of accident	**Engine Manufacturer:**	Teledyne Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-550 C9
Registered Owner:	Richard E. Otoski	**Rated Power:**	310 Horsepower
Operator:	Richard E. Otoski	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PDX,30 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	10°
Lowest Cloud Condition:	100 ft AGL	**Visibility**	0.25 miles
Lowest Ceiling:	Broken / 100 ft AGL	**Visibility (RVR):**	600 ft
Wind Speed/Gusts:	3 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.35 inches Hg	**Temperature/Dew Point:**	1°C / 1°C
Precipitation and Obscuration:	Heavy - Patches - Fog		
Departure Point:	Klamath Falls, OR (LMT)	**Type of Flight Plan Filed:**	IFR
Destination:	Portland, OR (PDX)	**Type of Clearance:**	IFR
Departure Time:	06:30 Local	**Type of Airspace:**	

Airport Information

Airport:	Portland International PDX	**Runway Surface Type:**	Asphalt
Airport Elevation:	30 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	10R	**IFR Approach:**	ILS
Runway Length/Width:	11000 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	45.583889,-122.618057

Administrative Information

Investigator In Charge (IIC):	Little, Thomas
Additional Participating Persons:	Johnny D Miller; Federal Aviation Administration; Portland, OR Andrew Swick; Teledyne-Continental Motors; Mobile, AL Peter J Basile; Cessna Aircraft Company; Wichita, KS Kelli Brooks; Cessna Aircraft Company; Wichita, KS
Original Publish Date:	January 29, 2009
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=67527