Aviation Investigation Final Report

Location:	Twin Sisters Mtn, Washington	**Accident Number:**	WPR15FA215
Date & Time:	July 11, 2015, 07:45 Local	**Registration:**	N9712D
Aircraft:	Piper PA 22-160	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The noninstrument-rated private pilot was making a cross-country flight over mountainous terrain. Radar data showed the airplane flying in a northwesterly direction and climbing to an altitude of about 10,500 ft mean sea level (msl). About 38 minutes into the flight, the airplane's altitude started to decrease as it continued in a northwesterly direction, and, 6 minutes later, its altitude was 7,500 ft msl. The last radar return occurred 1 minute later at an altitude of 6,000 ft msl. The wreckage was located at the 6,000-ft level of a mountain ridgeline in the vicinity of the final radar return. Photographs of the wreckage revealed that the damage to the airplane was consistent with controlled flight into the terrain. The wreckage was not recovered from the accident site, and no follow-up examination was accomplished.

Weather radar imagery indicated that rain showers moved into the area from the south-southeast as the airplane approached the accident site. These showers extended from about 19,000 ft msl down to ground level. Although no direct weather observations of the accident location were available, the airplane's descent as it approached the site is consistent with an attempt by the pilot to maintain visual meteorological conditions while operating amidst rain and clouds that likely obscured the terrain.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The noninstrument-rated pilot's continued visual flight into instrument meteorological conditions, which resulted in controlled flight into mountainous terrain.

Findings

Personnel issues	Decision making/judgment - Pilot
Environmental issues	Mountainous/hilly terrain - Contributed to outcome
Environmental issues	Below VFR minima - Effect on personnel

Factual Information

History of Flight

Enroute-cruise	VFR encounter with IMC
Enroute-cruise	Controlled flight into terr/obj (CFIT) (Defining event)

On July 11, 2015, about 0745 Pacific daylight time, a Piper PA-22-160, N9712D, was destroyed when it impacted the ridge of Twin Sisters Mountain, about 12 miles north of Hamilton, Washington. The airplane was registered to the private pilot who was operating the airplane under the provisions of 14 Code of Federal Regulations Part 91, as a visual flight rules flight. The pilot and single passenger were fatally injured. Visual meteorological conditions prevailed for the flight, and no flight plan had been filed. The flight originated from Stehekin, Washington, about 0700.

The airplane was subject of an ALNOT (alert notification) missing aircraft issued on July 14. Initial radar data depicts an airplane track starting at 8,300 feet mean sea level (msl) 16 miles northwest of Stehekin, at 0718 on July 11. The track continues in a northwesterly direction at an altitude about 10,500 feet mean sea level (msl). At 0738, the airplane's track altitude starts to decrease; by 0744 the altitude was 7,500 feet, and continued in the northwesterly direction. The last radar return occurred at 0745, at an altitude of 6,000 feet msl.

The wreckage was located on the morning of July 15, at the 6,000-foot level of the Twin Sisters Mountain ridge line in the vicinity of the final radar return data point.

Pilot Information

Certificate:	Private	**Age:**	56,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	February 28, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	440 hours (Total, all aircraft)		

Passenger Information

Certificate:		**Age:**	58,Female
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

The pilot, age 62, held a private pilot certificate with a single-engine land rating, issued May 26, 2010, and a third-class airman medical certificate issued February 3, 2014, with the limitation that the holder shall possess glasses for near and intermediate vision. The pilot's log book was not recovered for examination. On the pilot's February 3, 2014, application for his medical certificate he reported 440 total flight hours, with 47 hours within the previous six months.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N9712D
Model/Series:	PA 22-160	**Aircraft Category:**	Airplane
Year of Manufacture:	1959	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-6624
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	June 16, 2015 Annual	**Certified Max Gross Wt.:**	2000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2400 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:		**Engine Model/Series:**	O-320 SERIES
Registered Owner:	On file	**Rated Power:**	160 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The four-seat, high-wing, fixed-gear airplane, serial number 22-6624, was manufactured in 1959. It was powered by a Lycoming O-360 series normally aspirated engine. It was equipped with a fixed pitch propeller. Aircraft records were not located or obtained for examination.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KBLI,148 ft msl	**Distance from Accident Site:**	23 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 3800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	135°	**Turbulence Severity Forecast/Actual:**	/ Unknown
Altimeter Setting:	29.87 inches Hg	**Temperature/Dew Point:**	17°C / 14°C
Precipitation and Obscuration:	Moderate - Patches - Squall		
Departure Point:	Stehekin, WA (K6S9)	**Type of Flight Plan Filed:**	None
Destination:	Eastsound, WA (KORS)	**Type of Clearance:**	None
Departure Time:	07:00 Local	**Type of Airspace:**	Class G

An Automated Weather Observing System (AWOS) was located at Skagit Regional Airport (BVS) in Burlington/Mount Vernon, Washington, which was located about 22 miles southwest of the accident location at an elevation of approximately 145 feet. At 0735, BVS reported a variable wind at 5 knots, visibility of 9 statute miles, ceiling broken at 4,200 feet above ground level (agl), overcast cloud base at 5,000 feet agl, temperature of 17° Celsius (C), a dew point temperature of 14°C, and an altimeter setting of 29.88 inches of mercury.

WSR-88D Level-II weather radar base reflectivity imagery from Seattle/Tacoma, Washington (KATX), is located approximately 36 miles southwest of the accident site at an elevation of about 500 feet. Assuming standard refraction and considering the 0.95° beam width for the WSR-88D radar beam, the KATX 1.435° tilt would have "seen" altitudes between about 5,000 and 8,650 feet above msl at the accident location, the KATX 2.404° tilt would have "seen" altitudes between about 8,700 and 12,350 feet above msl at the accident location, the KATX 3.364° tilt would have "seen" altitudes between about 12,400 and 16,000 feet above msl at the accident location, and the KATX 4.292° tilt would have "seen" altitudes between about 15,900 and 19,500 feet above msl at the accident location.

The KATX base reflectivity imagery identified light values of reflectivity coincident with the accident location at the accident time, in a pattern consistent with light rain showers being present above/at the accident site. A review of a loop of KATX base reflectivity imagery indicated that these reflectivity features were moving from the south/southeast.

An Area Forecast that included the Cascade Mountains westward within the state of Washington was issued at 0345. The portion of the Area Forecast directed toward the Cascades forecasted for the accident time: broken clouds at 8,000 feet, cloud tops to FL200 (flight level 20,000 feet msl), scattered light rain showers, isolated thunderstorms and light rain, cumulonimbus cloud tops to FL350.

An Airmen's Meteorological Information (AIRMET) advisory for mountain obscuration issued at 0745

PDT was active for the accident location. Prior to this AIRMET, an AIRMET for mountain obscuration was issued at 0145 PDT and was active for the accident location.

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:**	48.689445,-121.970275(est)

The wreckage was located near the summit of Twin Sisters Mountain at 6,000 ft mean sea level (msl). The Whatcom County Sheriff Search and Rescue team provided photos of the accident site and wreckage. The wreckage consisted of two distinct sections within close proximity of one another on the rock face of steep terrain. The area was void of vegetation. The first section contained the cockpit, fuselage, left wing and tail. The second portion of the wreckage consisted of the right wing. The engine had separated from the engine mount and was located in the debris field. The propeller had separated from the engine crankshaft flange, one blade had about 4 inches of the tip missing and the trailing edge was deformed in an elongated s-shape, the other blade was bent aft. The wreckage was not recovered from the accident site and no follow-up examination was accomplished.

MEDICAL & PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on July 17, 2015, by the Whatcom County Chief Medical Examiner, Bellingham, Washington. The cause of death was listed as multiple blunt trauma injuries.

The FAA's Civil Aerospace Medical Institute (CAMI) Forensic Toxicology Research Team performed forensic toxicology on specimens from the pilot with negative results for ethanol or listed drugs. Tests for carbon monoxide and cyanide were not performed.

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	John Fisher; FAA; Portland, OR
Original Publish Date:	November 17, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=91567