Aviation Investigation Final Report

Location:	Pioneer, California	**Accident Number:**	WPR11FA230
Date & Time:	May 18, 2011, 15:45 Local	**Registration:**	N121J
Aircraft:	Cameron LANCAIR LEGACY	**Aircraft Damage:**	Substantial
Defining Event:	VFR encounter with IMC	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the personal flight, the airplane impacted mountainous terrain. The witness marks and debris field were consistent with an in-flight collision with trees and terrain. Weather information available for the time of the accident showed suspended precipitation and/or instrument meteorological conditions (IMC) near the accident site and the potential for icing in the accident area. The airplane's altitude could not be identified on radar; therefore, it could not be determined whether the airplane was flying in frozen, liquid, or a mixed-phase of precipitation at the time of the accident. Postaccident examination of the airframe and engine revealed no mechanical malfunctions or failures that would have precluded normal operation. The airplane likely impacted terrain due to the pilot's decision to continue flight into IMC at an insufficient altitude to clear terrain.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's continued flight into instrument meteorological conditions at an insufficient altitude to clear terrain.

Findings

Personnel issues	Decision making/judgment - Pilot
Aircraft	Altitude - Not attained/maintained
Environmental issues	(general) - Contributed to outcome
Environmental issues	Mountainous/hilly terrain - Contributed to outcome

Factual Information

History of Flight

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

HISTORY OF FLIGHT

On May 18, 2011, about 1545 Pacific daylight time, an experimental amateur built Cameron Lancair Legacy airplane, N121J, impacted a snow-covered mountain under unknown circumstances near Pioneer, California. The pilot/owner operated the airplane under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. The pilot, the sole occupant, was fatally injured. The airplane sustained substantial damage during the accident sequence. Visual meteorological conditions (VMC) prevailed for the flight that departed Minden, Nevada, at an undetermined time. No flight plan had been filed. The flight was destined for Tracy, California.

The flight was the subject of a family concerned alert notification (ALNOT), when the pilot did not arrive at his destination. According to the family, the pilot traveled extensively between the two locales for business and personal reasons.

Amador County Sheriff's Department was notified and commenced a search in the area of Bear River Reservoir, and the airplane was located at 1545 on May 20, 2011.

PERSONNEL INFORMATION

The pilot, age 78, held a private pilot certificate with ratings for airplane single and multi-engine land and instrument airplane issued on January 8, 2009. The pilot held a third-class medical certificate issued on August 18, 2010, with the limitation that the holder shall wear corrective lenses.

No personal flight records were located for the pilot. The National Transportation Safety Board (NTSB) investigator-in-charge (IIC) obtained the aeronautical experience listed in this report from a review of the Federal Aviation Administration (FAA) airmen medical records on file in the Airman and Medical Records Center located in Oklahoma City, Oklahoma. The pilot reported on his most recent medical application, dated August 18, 2010, that he had a total time of 6,020 hours with 30 hours logged in the last 6 months.

AIRCRAFT INFORMATION

The two-seat, low-wing, retractable landing gear airplane, N121J, serial number L2K-232, was issued a special airworthiness, experimental amateur-built, certificate, on May 1, 2004. An entry in the airplane logbook indicated that on December 2, 2010, the airplane had been inspected in accordance with an annual condition inspection and was found to be in an airworthy condition. Total airframe time was recorded as 354.6 hours. The last entry in the airframe logbook dated May 18, 2011, was the removal of

the EI fuel flow transducer, and installation of the Floscan model 201 transducer. An engine ground run was performed and the operation and leak checks were noted as good.

A Teledyne Continental Motors (known as Continental Motors Inc., (CMI) for the purposes of this report) IO-550-N13B engine, serial number 687922, was originally installed on the airplane on October 31, 2005; engine total time 130 hours. An entry dated November 27, 2006, indicated that the engine designation changed due to the addition of an oil cooler, part number 654580, installed on the engine; CMI IO-550-EXPERIMENTAL serial number EXP687922. An entry dated December 2, 2010, indicated that the engine had been inspected in accordance with a 100-hour/annual condition inspection.

The airplane was originally equipped with a Hartzell HC-J3YF-1RF/F7391D-3 propeller. According to a propeller logbook entry, on December 21, 2006, Top Gun Aviation, Inc., installed a new MTV-9-D/183-50A, serial number 05203, propeller. An entry dated July 29, 2010, indicated that the propeller had been overhauled.

METEOROLOGICAL INFORMATION

There had been no record of the pilot having received a weather brief prior to the accident.

Icing forecast at the time of the accident indicated a small area of significant icing probability in the accident area at 9,000 feet. There were no pilot reports identified below 30,000 feet within 3 hours of the accident time and 100 miles of the accident site. Geostationary operations environmental satellite (GOES)-11 infrared data indicated that the accident site was under cloudy skies at the time of the accident. Automated weather reports (AMDAR) data corresponded to cloud top heights of about 15,000 to 21,000 feet. Due to the presence of high clouds near the accident site, a determination of the height of lower-topped clouds was not possible with the satellite imagery from the GOES-11.

There were no SIGMETs active for the accident location at the time of the accident. There were numerous AIRMETs for mountain obscuration, turbulence, strong surface winds, and icing conditions over the western portion of the United States during the accident time. The accident area was encompassed by AIRMET SIERRA and AIRMET TANGO; AIRMET SIERRA for mountain obscuration issued at 1345 advised of mountain obscuration by clouds, precipitation and mist. AIRMET TANGO issued at 1345 advised of moderate turbulence between flight level (FL) 18,000 (FL180), and FL410.

The terminal aerodrome forecast (TAF) issued for Lake Tahoe at 1020 forecasted for the accident time, in part, light rain or small hail/snow pellet showers, thunderstorms in the vicinity, broken ceiling at 3,500 feet above ground level (agl), broken clouds at 6,000 feet with cumulonimbus.

The area forecast for the Sierra Nevada mountain range in California issued at 1245 and forecasted for the time of the accident, identified a broken ceiling at 10,000 feet mean sea level (msl) with layered clouds to 14,000 feet msl, isolated light rain showers, and isolated thunderstorms with light rain and cumulonimbus tops to FL280 and FL240 in the northern and southern portions of the mountains respectively.

Near the time of the accident, the Center Weather Advisory (CWA) indicated that an area of isolated thunderstorms was moving from 360 degrees at 15 knots with tops to FL290. A detailed weather study report is attached to the public docket for this accident.

COMMUNICATIONS

According to the FAA, the airplane was not in communication with air traffic controllers, nor was it actively tracked. The FAA reported that a primary radar target was tracked to 26 miles east-southeast of the Hangtown (HNW VOR/DME), Placerville, California.

Radar data was obtained from the FAA. A review of the radar data showed no flight tracks leading to the accident site that was squawking a 1200 primary code.

WRECKAGE AND IMPACT INFORMATION

Responding search and rescue personnel documented the accident site, which was located in a remote area of Amador County at an elevation of 6,500 feet and buried in snow about 10 feet. The area was heavily forested and was about 1 mile south of the South Bear River Reservoir. The debris field was distributed along a southeast heading over a 300-yard area, with several trees in the area damaged from the airplane traveling through them before it impacted the ground.

MEDICAL AND PATHOLOGICAL

According to the Amador County Sheriff's Department, the search and rescue Nordic team (SAR) was dispatched on the morning of May 19, to begin a search for the pilot and airplane. The SAR team discovered the wreckage and the pilot on May 20. Upon arrival on-scene, deputies noted bear activity and tracks in the wreckage field.

A toxicology examination was not performed due to an insufficient amount of body fluid. There were not enough vital organs identified/located to examine to determine if there was a significant health issue that might have caused the accident to occur. The pilot was identified from finger prints collected and submitted to the Department of Justice. The cause of death was listed as traumatic injuries to the head, chest, and abdomen due to an aircraft collision.

TESTS AND RESEARCH

An inspection of the airframe and engine revealed no obvious malfunctions that would have precluded normal operation. The airframe sustained impact damage throughout the entire airframe. Pieces of the flight control surfaces were located and accounted for. The cockpit components and instrumentation was also identified, and were severely fragmented and crushed.

The inspection of the engine revealed that it had separated from the airframe and sustained extensive impact damage. Cylinders 2, 4, and 6 had separated from the engine crankcase; the number 6 cylinder had separated into several pieces. With the cylinders separated from the left side, investigators noted that the main bearing journals were visible with no thermal discoloration noted and that the camshaft had separated forward of the number 4 cam lobe. Cylinders 1, 3, and 5 remained attached to the crankcase, but sustained impact damage. The propeller assembly remained attached to the crankshaft.

Portions of propeller blade butt ends remained in two of three propeller hubs. All of the spark plugs were removed with the exception of the number 3 spark plugs due to cylinder damage and the number 6 cylinder spark plugs; due to damage to the cylinder, the spark plugs were visible and undamaged.

According to the Champion Check-A-Plug chart AV-27 comparison chart, the spark plugs had a worn out-normal appearance.

Both magnetos had separated from the engine; the right magneto remained intact. The internal coil of the left magneto was found with the main wreckage. Manual rotation of the right magneto induced spark at the ignition leads at the distributor cover and impulse coupling engagement. The fuel system and lubrication system were inspected with no anomalies noted. Investigators were not able to locate the vacuum pump in the wreckage debris. Additional detailed reports are attached to the public docket for this accident.

A Garmin GPSMAP 496 was recovered from the accident site and shipped to the NTSB's Vehicle Recorder Laboratory in Washington, D.C., for inspection. Visual examination revealed impact damage. An internal inspection also revealed internal impact damage. The non-volatile memory chip was identified and removed from the circuit board. The vehicle recorder specialist was able to read out the chip memory and extract track history. The accident flight was not recorded in the tracklog history. However, the tracklog showed recurrent flights between Minden, Nevada, and cities in California that included Tracy, Clearlake, and Pope Valley. Additional detailed reports are attached to the public docket for this accident.

Pilot Information

Certificate:	Private	**Age:**	78
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	August 18, 2010
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	6020 hours (Total, all aircraft), 0 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cameron	**Registration:**	N121J
Model/Series:	LANCAIR LEGACY	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	L2K-232
Landing Gear Type:		**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	CONT MOTOR
ELT:		**Engine Model/Series:**	IO-550 SERIES
Registered Owner:	TUMBLEWEED INC	**Rated Power:**	300 Horsepower
Operator:	TUMBLEWEED INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CXP,4705 ft msl	**Distance from Accident Site:**	48 Nautical Miles
Observation Time:	15:55 Local	**Direction from Accident Site:**	30°
Lowest Cloud Condition:	Few / 2100 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.8 inches Hg	**Temperature/Dew Point:**	9°C / 0°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Minden, NV	**Type of Flight Plan Filed:**	None
Destination:	Tracy, CA	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	TRACY MUNI TCY	**Runway Surface Type:**	
Airport Elevation:	193 ft msl	**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	38.518333,-120.231391

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Norbert G Schuchbauer; Federal Aviation Administration; Sacramento, CA
Original Publish Date:	July 9, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=79160