Aviation Investigation Final Report

Location:	Mt. Charleston, Nevada	**Accident Number:**	LAX02FA018
Date & Time:	October 30, 2001, 15:13 Local	**Registration:**	N734VM
Aircraft:	Cessna P210N	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot lost control of his airplane while cruising at 16,000 feet in instrument meteorological conditions. The airplane entered a spin and impacted the ground at 7,100 feet mean sea level. An examination of the airplane wreckage did not reveal any evidence of preimpact mechanical failures or malfunctions. About 1 hour prior to departure the pilot had received a weather briefing. The briefer advised the pilot that there was an AIRMET along his proposed route of flight. The AIRMET forecast was for occasional moderate turbulence from the surface to 16,000 feet, and indicated occasional moderate icing in clouds and precipitation from the 12,000 foot freezing level up through 24,000 feet. The airplane was not equipped or certificated for flight into known icing conditions. While en route at 16,000 feet, with an average ground speed of 155 knots, the pilot encountered downdrafts. The pilot broadcast to the radar controller that he was "unable to maintain this altitude with this downdraft," requested permission to descend to 15,000 feet, and was cleared to descend. Recorded radar data indicated that the airplane's course changed from northwesterly to southeasterly, and then northeasterly, while its ground speed gradually decreased to 61 knots. The airplane's last recorded radar position was at 8,800 feet, and the airplane impacted into the underlying terrain within a 50-foot radius of this location. About 2 hours thereafter, another pilot reported experiencing severe turbulence while descending from 16,000 to 13,000 feet over the accident site vicinity.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain an adequate airspeed after continuing flight into forecast adverse meteorological conditions consisting of turbulence, icing, and downdrafts, which resulted in a stall/spin.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE - NORMAL

Findings
1. (F) WEATHER CONDITION - TURBULENCE IN CLOUDS
2. (F) WEATHER CONDITION - DOWNDRAFT
3. (F) WEATHER CONDITION - ICING CONDITIONS
4. (C) FLIGHT INTO ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING - TURN TO REVERSE DIRECTION

Findings
5. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
6. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On October 30, 2001, at 1513 Pacific standard time, a Cessna P210N, N734VM, descended into mountainous terrain in the Humboldt-Toiyabe National Forest, about 6.5 nautical miles (nm) north of Mt. Charleston, Nevada. The airplane was destroyed by impact forces and a post-impact ground fire. Instrument meteorological conditions prevailed in the vicinity, and an instrument flight rules (IFR) flight plan had been filed. The instrument rated private pilot was fatally injured. The airplane was operated by the owner of RLB Enterprises, LLC, Scottsdale, Arizona. The business flight was performed under the provisions of 14 CFR Part 91, and it originated from Flagstaff, Arizona, about 1340.

The pilot filed an instrument flight plan to Reno, Nevada, for a route that, in pertinent part, included cruising between Boulder City and the Beatty VORTACS (navigational aids). Data from the air traffic control facility at Nellis Air Force Base indicated that between 1505:00 to 1507:14, along this route segment and while on a 282-degree (magnetic) track at 16,000 feet, the airplane's average ground speed was 155 knots. Thereafter, the airplane's average ground speed decreased, and between 1507:14 and 1509:05, it was 143 knots.

At 1510:57, while still cruising at 16,000 feet, the pilot stated he was "unable to maintain this altitude with this downdraft," and by 1511:05, the airplane's average ground speed had decreased to 71 knots. Thereafter, the pilot reversed his direction of flight, and the airplane's northwesterly track changed to southeasterly.

During the next 2 minutes the airplane's direction of flight changed again, and it became predominately northeasterly, while the airplane's altitude decreased. At 1511:07, the pilot requested a descent to 15,000 feet, and seconds later he was issued the requested clearance.

The controller stated to the pilot, "advise when you can climb back to sixteen." The pilot responded at 1511:17, by stating "4VM, roger." This was the last recorded transmission from the pilot.

At 1511:20, the airplane's altitude was 15,700 feet. At 1512:00, the controller broadcast "Centurion 4VM, Nellis Control." No answer was recorded. Between 1512:09 and 1512:42, the airplane's average ground speed was 61 knots, and at 1512:38, the airplane descended through 10,100 feet. The airplane's last recorded position was at 1512:48, at which time it had descended to 8,800 feet.

PERSONNEL INFORMATION

The pilot was issued a private pilot certificate in 1978 with an airplane single engine land rating. In 1997 he was issued an instrument rating.

The pilot's personal flight record logbook was not provided to the National Transportation Safety Board investigator for review. In an insurance application that the pilot had completed in September 2000, the pilot declared he had a total of about 1,000 flight hours, with 580 in a Cessna P210. Of this flight time, 231 hours were listed as instrument flight hours. According to the Federal Aviation Administration (FAA), in January 2001, when the pilot last applied for an aviation medical certificate, he reported having 1,200 total hours of flight time.

Regarding the pilot's recent flying experience, the pilot's wife reported that he had flown his airplane about 250 hours during the preceding 12 months. She stated that he flew his airplane every weekend.

The flight times shown in the flight time matrix box of this accident report form are estimated. They are based in part upon insurance company application data and FAA data.

AIRCRAFT INFORMATION

According to the Cessna Aircraft Company participant, the accident airplane was pressurized, and it was manufactured with partial plumbing provisions for a deice system. However, no deice wing leading edge, elevator, or vertical stabilizer boots were installed at the time of delivery. According to the Cessna Information Manual, the airplane was prohibited from flying into known icing conditions.

METEOROLOGICAL INFORMATION

A staff meteorologist with the National Transportation Safety Board, Office of Aviation Safety, Washington, D.C., conducted a study of the observed and forecast meteorological conditions for the time and location of the accident site area. In pertinent part, the study revealed that the National Weather Service had issued Airmen's Meteorological Information (AIRMET), which was pertinent to the accident flight.

The AIRMET forecast was for occasional moderate rime or mixed icing in clouds and in precipitation above the freezing level to 24,000. The freezing level was forecast between 12,000 and 15,000 feet. Also, an AIRMET for occasional or moderate turbulence below 16,000 was forecast in this same area. (See the factual meteorological report contained in the docket for this accident for additional information.)

The pilot obtained a weather briefing at 1243:06. In this briefing the pilot was advised that an AIRMET had been issued. In pertinent part, the AIRMET indicated that along the pilot's route of flight, from Las Vegas onward, there was a forecast for "occasional moderate rime or mixed icing in clouds and precipitation, from the freezing level to flight level two four zero." Also, there was a forecast for "moderate turbulence below sixteen thousand from Kingman or Peach

Springs on(ward)."

About 1700, a pilot flying a Cessna Citation jet on the leeward side of Mt. Charleston encountered what he considered to be severe turbulence. At the time, he was descending from 16,000 to 13,000 feet. According to this pilot, light icing existed in the clouds, and the winds were westerly at 42 knots. The prevalent cloud layer precluded him from observing the adverse weather conditions causing the turbulence.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was found on estimated 15-degree upsloping terrain, at an altitude of about 7,100 feet mean sea level (msl). This location, on the leeward side of Mr. Charleston, was within a 50-foot radius of the last recorded radar position. The global positioning satellite (GPS) coordinates for the crash site are 36 degrees 21.768 minutes north latitude by 115 degrees 36.662 minutes west longitude.

The entire airplane, including all flight control surfaces, was found at the impact site. All wreckage was located within a 30-foot radius of the fuselage, which was surrounded by intact trees. The landing gear and flaps were retracted.

The fuselage structure collapsed in a vertical direction. Several components separated from the airplane, including the engine exhaust heat exchanger scoop, engine cowling, propeller assembly, and the red navigation light lens. These components were scattered throughout a circular area around the airplane.

MEDICAL AND PATHOLOGICAL INFORMATION

Family members reported that the pilot was in satisfactory health and did not take over-the-counter or prescription medications.

The FAA's manager, Toxicology and Accident Research Laboratory, performed toxicological tests on specimens from the pilot. No evidence of screened drugs was reported. No blood, urine, or vitreous was available for testing. Ethanol was detected in specimens of muscle and kidney at a level of 34 and 39 mg/dL, respectively.

TESTS AND RESEARCH

The airframe and engine were examined under the supervision of the Safety Board investigator.

Airframe and Propeller Examination.

All the flight control surfaces were found during the airframe examination. The fuselage, including the cockpit, and most of the wing structure was consumed by the post-impact fire.

The wing leading edges were destroyed, and they were not observed.

The empennage and left wing were next to, but separated from, the fuselage. Deice boots were not installed on the empennage. Aileron control cable continuity was established from the aileron push/pull rods to the control yoke. The horizontal stabilizer, elevator, and rudder assemblies were attached to the empennage. Elevator and rudder control cable continuity was confirmed from these control surfaces to the cockpit area. No evidence of oil streaking or smoke residue in an aft (streamlined) direction was noted on the empennage.

The artificial horizon was partially disassembled, and no scoring was noted on the gyroscope's rotor or housing. A vacuum pump was attached to the engine. Its drive gear coupling was melted.

One of the propeller blades bore leading edge nicks and was scored over its entire span. The blade appeared straight. No leading edge nicks were noted on the other two blades. These blades appeared devoid of "S" bending signatures and torsional deformation evidence.

Engine and Accessory Examination.

The crankshaft could not be rotated by hand. The rocker box covers were partially melted. The fuel metering unit's inlet screen was clear. No holes were in the engine case. The flow divider was opened, and the rubber diaphragm was melted. The engine manufacturer's representative verbally reported that the spark plugs' electrode gaps appeared within serviceable limits, and normal combustion signatures were observed.

Initially, the turbocharger compressor could not be rotated. Upon partial disassembly, rotational scoring was noted on the inside of its case, and the turbine rotated freely. The engine participant opined that there was no evidence of preimpact malfunction.

Radar Study.

The Safety Board's Office of Research and Engineering, Vehicle Performance Division, Washington, D.C., conducted a study of recorded radar data. Airport surveillance radar data was received from Nellis Air Force Base. The extracted data was plotted in tabular and graphical formats, which showed the airplane's flight path and the impact site. In summary, the data shows the airplane was initially flying in a northwesterly direction while maintaining 16,000 feet. During the cruise flight the airplane's ground speed gradually decreased. At 1510:57, the airplane changed course and made a left turn. The airplane made several additional turns while descending. By 1511:57, the airplane increased its altitude and was traveling in an easterly direction. Then it entered a descent, its vertical speed increased while its ground speed decreased, and it disappeared from radar. The last radar hit was at 1512:48, at 8,800 feet. The accident airplane was found about the same coordinates as the last radar hit.

WRECKAGE RELEASE

The wreckage was released to the owner's assigned insurance company recovery agent on November 2, 2001.

Pilot Information

Certificate:	Private	**Age:**	46,Male
Airplane Rating(s):	Single-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 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 25, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	November 2, 1999
Flight Time:	1200 hours (Total, all aircraft), 600 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N734VM
Model/Series:	P210N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000612
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 18, 2000 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3166 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed	**Engine Model/Series:**	TSIO-520-520P
Registered Owner:	On file	**Rated Power:**	310 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DRA,3299 ft msl	**Distance from Accident Site:**	25 Nautical Miles
Observation Time:	15:15 Local	**Direction from Accident Site:**	308°
Lowest Cloud Condition:	Scattered / 2000 ft AGL	**Visibility**	2 miles
Lowest Ceiling:	Overcast / 5000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	14°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Flagstaff, AZ (FLG)	**Type of Flight Plan Filed:**	IFR
Destination:	Reno, NV (RNO)	**Type of Clearance:**	IFR
Departure Time:	14:40 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	36.362777,-115.611114

Administrative Information

Investigator In Charge (IIC):	Pollack, W.
Additional Participating Persons:	Nicholas F Harrington; Federal Aviation Administration; Las Vegas, NV Thomas Teplik; Cessna Aircraft Company; Wichita, KS Michael Grimes; Continental Engines; Lancaster, CA
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