



National Transportation Safety Board Aviation Accident Final Report

Location:	WALKER, CA	Accident Number:	LAX98FA075
Date & Time:	01/17/1998, 1230 PST	Registration:	N114GP
Aircraft:	Cessna 402C	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal, 1 Serious

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

The aircraft collided with trees and mountainous terrain about 9,500 feet msl. The wreckage was spread across the lee side of a mountain, in a grassy meadow surrounded by high mountainous terrain on all sides. The area, about 100 feet in front of the aircraft, was a rocky embankment which sloped upward approximately 30 degrees. About 100 feet from the tail of the aircraft, the terrain dropped off into a steep cliff, which sloped down about 65 degrees. At the base of the cliff was a valley, which was about 1/4 mile wide. The farthest piece of debris was found 410 feet away from the main wreckage site in a grove of trees. Fifteen tree disturbances were noted in the grove. The first disturbance began near the tops of the trees and continued in a descending path. Much of the airframe exhibited semicircular impressions consistent with the trunk diameters of the disturbed trees at the accident site. Organic material transfer was evident in the impressions. An analysis of the meteorological data showed that a clear or scattered cloud condition was likely in the accident area, and visibility was probably unrestricted. It also showed that an extended north-northwestward/south-southeastward cloud band was located over the Sierra Nevada Mountains about 9 to 10 miles southwest through west of the accident location around the time of the accident. The analysis estimated that the winds aloft at 10,000 to 12,000 feet msl in the mountains were from approximately 270 degrees at 40 to 45 knots. Further, moderate or greater turbulence and strong updrafts and downdrafts were reported along the pilot's route of flight. No mechanical discrepancies were found with the airframe or either engine during the postaccident examination.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's encounter with a downdraft while approaching high terrain at an altitude insufficient to ensure adequate terrain or obstacle clearance.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: CRUISE

Findings

1. TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. TERRAIN CONDITION - BLIND/BOX CANYON
3. WEATHER CONDITION - DOWNDRAFT
4. (C) ALTITUDE - INADEQUATE - PILOT IN COMMAND
5. EVASIVE MANEUVER - ATTEMPTED - PILOT IN COMMAND
6. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On January 17, 1998, at 1230 hours Pacific standard time, a Cessna 402C, N114GP, collided with trees and mountainous terrain about 11 miles west-southwest of Walker, California. The airplane was destroyed and the certificated airline transport pilot received fatal injuries. The other occupant, a non-revenue passenger, received serious injuries. The airplane was being operated by Redding Aero Enterprises, Redding, California, as a positioning flight under the provisions of 14 CFR Part 91 when the accident occurred. The flight originated in Reno, Nevada, at 1208, and was en route to Columbia, California. No flight plan was filed.

Following the accident, the passenger tuned in the emergency frequency, 121.5 MHZ, on his handheld radio and discovered that the aircraft's emergency locator transmitter (ELT) was not transmitting a signal. He attempted to activate it manually, then began broadcasting "MAYDAY" calls on 121.5, but received no response. He eventually established contact with another aircraft on one of the Oakland air route traffic control center frequencies. An Air National Guard Lockheed C-130 overheard the communications and initiated a search and rescue effort. Two U.S. Navy search and rescue helicopters from the Fallon Naval Air Station joined the search and located the injured passenger, who was then transported to a local hospital in Carson City, Nevada.

The passenger reported that he has no memory of the accident circumstances.

PERSONNEL INFORMATION

According to the pilot's logbooks, he had a total time of 3,942 hours. He reported having 1,252 hours in multiengine aircraft, and 139 hours in actual instrument conditions. The logbooks reflected that the pilot had accumulated 722 hours in Cessna 402's. The pilot held a first-class medical dated May 30, 1997.

The pilot had been employed with Redding Aero since November 2, 1996. Review of the pilot's training and Airman Competency/Proficiency Check records revealed that he had demonstrated proficiency during his 14 CFR Part 135 checkride (which included Part 135.293, 135.297, 135.299) on September 4, 1997, including IFR competency and emergency procedures. He was given satisfactory marks in all flight maneuvers, as well as in judgement and crew coordination. The pilot performed the checkride in the Cessna 402.

AIRCRAFT INFORMATION

The aircraft maintenance records were reviewed, with no noted discrepancies or anomalies. A review of the aircraft daily flight logs did not reveal any unresolved squawks.

The records revealed that at the time of the accident, the aircraft had a total time of 16,731 hours. The company had approval from the Federal Aviation Administration (FAA) for an Approved Inspection Program (AAIP) for their fleet and this aircraft. The last event inspection was on January 9, 1998, 8 hours prior to the accident.

The left engine had accumulated 2,114 total hours, with 150 hours since overhaul. The right engine had 4,394 total hours, with 189 hours since overhaul. Both engines were inspected on January 9, 1998.

RADAR DATA

No radar data was located for the accident aircraft. According to the FAA Quality Assurance Office at the Western Region Headquarters, Oakland Air Traffic Control Center does not record data in that area, and Reno Terminal Radar Approach Control is not capable of recording radar data.

METEOROLOGICAL CONDITIONS

The Quality Assurance Office reported that there was no record of a weather briefing given to the pilot. The passenger reported that before they took off, the pilot spoke by telephone with one of his friends in Columbia. He stated that the pilot's friend reported that the weather in Columbia was "clear blue skies."

A Meteorological Factual Report prepared by a Safety Board staff meteorologist is attached. The report included surface weather observations for Reno, Nevada, which is at a field elevation of 4,400 feet msl and about 62 nautical miles north-northeast of the accident location. The report indicated that at 1156, visibility was 10 miles, and the sky condition was broken at 4,800 feet and broken at 6,000 feet. At 1256, visibility was 10 miles, and the sky condition was broken at 5,000 feet.

South Lake Tahoe is at a field elevation of 6,273 feet msl, and is located about 32 nautical miles northwest of the accident location. At 1247, the surface weather observation indicated: visibility 10 miles; shower vicinity; overcast sky at 2,500 feet; and visibility south 3 miles breaks in overcast.

The wind direction and speed at 10,000 to 12,000 feet in the central Sierra Nevada Mountains was from approximately 270 degrees at 40 to 45 knots. Moderate or greater turbulence and strong updrafts and downdrafts were reported along the pilot's route of flight.

The passenger recalled pulling his shoulder harness tighter because of the turbulence sometime during the initial portion of the flight.

WRECKAGE AND IMPACT

The wreckage was spread across a grassy meadow at an elevation of 9,500 feet msl in the Carson-Iceberg Wilderness area (Sierra Nevada Mountains), at latitude 38 degrees 23.70 minutes north and longitude 119 degrees 36.32 minutes west (GPS). High mountainous terrain surrounded the area. The area, about 100 feet in front of the aircraft, was a rocky embankment which sloped upward approximately 30 degrees. About 100 feet from the tail of the aircraft, the terrain dropped off into a steep cliff, which sloped down about 65 degrees. At the base of the cliff was a valley, which was about 1/4 mile wide. There was no fire.

The fuselage was lying inverted, with the nose oriented approximately 040 degrees magnetic. The left wing and engine were intact, and the left propeller was located about 55 feet in front of the aircraft. The cabin/cockpit area forward of the main spar carry-through area, including the nose, was damaged. The passenger seat remained attached to the pedestal structure, but the pilot seat was not attached to the pedestal. Twenty-five gallons of fuel were drained from the left wing fuel tank. The right fuel tank was ruptured.

There was a distance of approximately 410 feet from the farthest piece of debris to the main wreckage site. The farthest piece of debris from the main wreckage site was the right wing navigation light, which was located in a grove of trees. Fifteen disturbed trees were documented in the grove. The farthest disturbances began near the tops of the trees and moved toward the wreckage in a descending path. The right outer wing, right aileron, and

right nose cargo door were located around the trees. The right main landing gear was located about 370 feet from the fuselage. The right engine and a 3-foot section of the right wing were found approximately 350 feet from the main wreckage. The right nacelle and right cowling were found 200 and 250 feet from the main impact site.

TESTS AND RESEARCH

The wreckage was removed from the accident site when sufficient snow had melted on August 17, 1998, and was examined at Aircraft Recovery Services in Compton, California.

The right engine exhibited no external damage and held 10 quarts of oil. Thumb compression was verified in all cylinders and the valves showed equal movement. The exhaust risers displayed a lot of rust, and a light coloration inside. The intake risers did not exhibit any damage and appeared clean. The oil filter was clean, with no noted debris or deposits. Pine needles were found throughout the engine, on top of the cylinders.

The vacuum pump rotated freely and all the blocking veins were intact. The turbocharger showed scoring on the compressor case, and there was no clearance between the blades and the case. The seal did not exhibit any signs of deterioration.

The only external damage noted to the left engine was to the No. 5 cylinder. Metal chunks from the intake riser were noted inside the No. 5 cylinder. The flange was broken and a chunk was noted to be missing from the riser. Rotation established accessory gear continuity. Thumb compression was verified in all cylinders. The compression in the No. 5 cylinder was slightly weaker than the others. Pine needles were found throughout the engine. The oil filter was clean, with no noted debris or deposits. There were 10 quarts of oil. The intake risers were all clean.

The vacuum pump rotated freely and all the blocking veins were intact. Pine needles were found inside the turbo charger. The compressor wheel of the turbo charger was found to spin freely, and there was no leading edge damage noted to the blades.

Both magnetos sparked electrodes in their proper firing order when rotated by hand. The spark plugs for both engines displayed color and wear patterns consistent with normal wear indicated on the Champion Check-A-Plug Chart. The gaps were all between .015 and .019.

Both propellers were sent to McCauley Propeller Systems for a teardown inspection. The testing was done under the supervision of an FAA inspector from the Columbus, Ohio, FSDO. The McCauley engineer determined that both propellers were rotating at impact. Neither propeller was found at or near the feather position. He stated that all propeller damage appeared to be a result of the impact, and there were no indications of any type of propeller failure prior to impact. The engineer further reported that the left propeller was operating at, or very near, the low pitch stop at impact. The right propeller may have been operating at a slightly higher angle at impact than the left. The engineer stated that the type and extent of the blade bending indicated that the right propeller was operating at a higher power than the left propeller. He opined that that may have been due to the fact that the right propeller impacted more trees than did the left, and that the right propeller remained attached to its engine during the entire impact sequence, while the left propeller became unattached sometime during the impact sequences. A copy of the report is attached to this file.

The aircraft was equipped with dual controls at the time of the accident. Continuity was established for the rudder, elevator, flaps, and ailerons. Both flaps and the flap actuator were

found in the "up" position, and the flap indicator and flap selector were found selected to 15 degrees down. The landing gear, gear selector, and gear actuator were found in the "up" position.

The horizontal stabilizer was structurally disconnected from the empennage, but remained attached by the control cables. Portions of both the left and right elevators remained attached to the horizontal stabilizer and control continuity was established. The vertical stabilizer and rudder were connected to the airframe and exhibited control continuity.

Much of the airframe exhibited semicircular impressions consistent with the trunk diameters of the disturbed trees at the accident site. Organic material transfer was evident in the impressions. Pine needles were found throughout the airframe and small chunks of wood were embedded in the pilot side door.

Since the ELT had not activated after the accident, an examination was performed by an FAA inspector from the Reno, Nevada, Flight Standards District Office. The test was conducted in accordance with Federal Aviation Regulation (FAR) Part 91.207 (d), which concerns the testing of ELT's.

The inspector reported that the ELT displayed a date of manufacture of October 1996, and a battery expiration date of November 1998. He reported that although there appeared to be adequate battery power present, he was unable to produce a transmission with the ELT in any configuration. He opined that that might indicate a possible internal problem in the ELT circuitry. A copy of his report is appended to this file.

ADDITIONAL INFORMATION

The passenger reported that he had flown with the pilot on one other occasion, also from Reno to Columbia. He recalled flying a similar route as on the accident flight, which took them on the east side of the Sierras before crossing the Sonora Pass and down the Stanislaus River to Columbia. The elevation of the Sonora Pass is 9,628 feet msl and the terrain immediately around the pass along the Stanislaus River is charted as 12,100 feet msl, according to the San Francisco Sectional Chart.

Further, the passenger reported that he had flown over the Sierras in that area several times before and always maintained altitudes of 11,500 feet msl to 12,500 feet msl.

MEDICAL PATHOLOGICAL

An autopsy was performed by the Alpine County Sheriff's office and a toxicological analysis was performed by the FAA's Civil Aeromedical Institute. Toxicological findings were negative.

Following the accident, the passenger was treated for a broken right femur, a broken right fibula, a broken joint of the big toe, two broken ankles, a partially separated left ear, and several cuts and abrasions.

RELEASE OF AIRCRAFT WRECKAGE

The aircraft was released to the Inflight Aviation Adjustment Group, Inc., representative for the insurance company/owner on March 25, 1999.

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	33, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	05/30/1997
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	3942 hours (Total, all aircraft), 722 hours (Total, this make and model), 170 hours (Last 90 days, all aircraft), 59 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N114GP
Model/Series:	402C 402C	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	402C0085
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	01/09/1998, AAIP	Certified Max Gross Wt.:	7210 lbs
Time Since Last Inspection:	8 Hours	Engines:	2 Reciprocating
Airframe Total Time:	16731 Hours	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	TSIO-520-VB
Registered Owner:	JOHN L. KILPATRICK	Rated Power:	325 hp
Operator:	REDDING AERO ENTERPRISES	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	MNVA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Unknown	Condition of Light:	Day
Observation Facility, Elevation:	TVL, 6264 ft msl	Distance from Accident Site:	34 Nautical Miles
Observation Time:	1247 PST	Direction from Accident Site:	312°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	Overcast / 2500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	190°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	7°C / 3°C
Precipitation and Obscuration:			
Departure Point:	RENO, NV (RNO)	Type of Flight Plan Filed:	Company VFR
Destination:	COLUMBIA, CA (O22)	Type of Clearance:	None
Departure Time:	1208 PST	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Serious	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	THOMAS H WILCOX	Report Date:	04/20/2000
Additional Participating Persons:	JERRY E ROBERTS; RENO, NV FRED LEEPER; WICHITA, KS MICHAEL J GRIMES; MOBILE, AL		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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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](#).