



National Transportation Safety Board Aviation Accident Factual Report

Location:	Laramie, WY	Accident Number:	DEN03FA002
Date & Time:	10/01/2002, 1627 MDT	Registration:	N210HC
Aircraft:	Cessna T210M	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Business		

HISTORY OF FLIGHT

On October 1, 2002, approximately 1700 mountain daylight time, a Cessna T210M, N210HC, registered to and operated by W I Leasing of Englewood, Colorado, was destroyed when it impacted terrain while maneuvering 16 miles northeast of Laramie, Wyoming. The instrument rated private pilot, the sole occupant aboard, was fatally injured. Although visual meteorological conditions were reported in Laramie, evidence indicates instrument meteorological conditions existed at the accident site. An IFR flight plan had been filed for the business flight being conducted under Title 14 CFR Part 91. The flight originated at Twin Bridges, Montana, at 1335.

According to Federal Aviation Administration (FAA) documents, the pilot contacted the Great Falls, Montana, Automated Flight Service Station (AFSS) on his cellular telephone at 1115, and obtained a preflight weather briefing "to Denver Centennial or...in the Denver area somewhere down there." The pilot said he could go IFR but preferred VFR, because "[I] don't like it over the mountains that much." His preferred route was from "Sheridan straight to Laramie then down to Front Range. After some initial confusion as to where he was departing (Sheridan, Montana, not Sheridan, Wyoming), the pilot was advised of an AIRMET (airman meteorology) for "mountain obscurement and potential for icing."

The controller said, "I would certainly expect mountain obscurement. To go VFR underneath, you'd have to be fairly low, so it would be a little bit of a scud running situation. Can't recommend VFR into the mountains." The pilot replied, "It doesn't really sound like too good a trip to me," and the controller said, "No. At best, it'd be scud running. At worst, it would be IFR." Towards the end of the briefing, the controller added, "[You're looking at] mainly mountain obscurement and some spotty IFR through western and southwestern Wyoming. So, again, out over the plains, say, to Billings, and cut down the east sides of the Big Horns, you'll be in pretty good shape. If you stay VFR, in you want to stay VFR, you'll have to be fairly low altitude, but looks like there's enough room." The briefing terminated at 1127.

According to the pilot's wife, her husband departed Twin Bridges airstrip, near Dillon, and was

en route to Erie, Colorado, on business. At 1412, the pilot contacted the Salt Lake Air Route Traffic Control Center (ARTCC), reported his position as being 22 miles southwest of Livingston, Montana, and requested an IFR clearance to Erie. The controller asked the pilot if he had a current flight plan on file, and what were his flight conditions. The pilot replied that he was not operating under a current flight plan, that he was not yet clear of clouds and had not encountered icing, and was receiving navigational signals from the Billing VOR. The controller told the pilot to contact Great Falls AFSS and file a flight plan, then report back to him.

At 1419, he contacted Great Falls AFSS, advised that he was in contact with the Salt Lake ARTCC, that he had been flying VFR "but had to cancel out," and wanted to air file an IFR flight plan. The pilot said he had departed Twin Bridges, Montana, at 1335, and his route of flight "from approximately Livingston" would be "direct Billings, direct Laramie, direct 48V (Erie, Colorado)." He said he had 4 hours, 15 minutes of fuel on board, and his estimated time en route was "another two hours." At 1423, the pilot reestablished contact with Salt Lake ARTCC. At 1527, the flight was handed off to the Denver ARTCC.

Recorded NTAP (National Track Analysis Program) radar data was retrieved by the Denver ARTCC and plotted. Data began at 1609:44 and terminated at 1625:52. In addition, FAA provided a transcript of voice communications, beginning at 1527:46 and terminating at 1620:43. According to this data, at 1527, the pilot contacted Denver ARTCC and reported to be level at FL190 (19,000 feet). He was given a heading change "for traffic" at 1550:45. At 1553:30 and again at 1554:44, the pilot requested a "turn back on course and if you could work out a lower altitude, we'd appreciate it." At 1555:23, the pilot was "cleared direct Laramie," and at 1555:58, he was cleared to "descend and maintain one seven thousand (feet)." He was also given the Casper, Wyoming, altimeter setting of 30.09.

At 1600:56, the controller advised all aircraft on his frequency of "convective SIGMET (significant meteorology) Four Whiskey (the transcript inadvertently said Four Two Charlie), ...for portions of Wyoming, Utah and Arizona, also valid until two three five five Zulu (1755)," and to contact Flight Watch or Flight Service (Station) for details.

At 1611:20, the pilot of N210HC asked the controller if he could "work us out of one seven thousand (feet), down to one three thousand (feet) or one one thousand (feet)." The controller cleared the pilot to descend to 13,000 feet. The pilot acknowledged the clearance and remarked, "see if we can work our way through these clouds." Radar data showed the airplane already at 16,800 feet, and it began its descent at 1612:08.

At 1619:22, the pilot attempted to contact the controller but radio communications were unreadable, and the controller told the pilot to contact him on frequency 132.1 MHz. When the pilot did so, he said, "Yes, sir, I'm presently about thirty nine miles to the northwest of Laramie. Got a pretty big opening there. I ought to cancel out on this IFR. I think I can make a big circle and get under this scattered layer, if that's okay with you." At that point, radar data showed the airplane at 12,900 feet and descending. The controller approved the pilot's request to cancel his IFR flight plan and the pilot said, "We're showing thirty eight point eight (miles) to the northwest of Laramie." The controller confirmed the location. This was the last known

radio transmission with the pilot.

According to the NTAP data, the transponder code was switched from 6042 to 1200 (VFR) at 1620:45 when the airplane was at 12,900 feet. Between 1620:26 and 1621:33, the airplane started a right turn and descended to 12,600 feet. Between 1621:33 and 1622:40, the airplane entered a left turn and descended from 12,600 feet to 12,100 feet. Between 1622:40 and 1623:28, the airplane started another right turn and descended from 12,100 feet to 11,900 feet. Between 1623:28 and 1625:52, the airplane made a 360-degree right turn, descending from 11,900 feet to 11,100 feet. At this point, radar returns became sporadic. At 1627:18, a radar return at 10,600 feet was detected to the north. At 1627:37, another radar return at 10,400 feet was detected. This was the last known radar contact with the airplane. These latter radar returns indicated the airplane was still in a right circling turn.

At 1817, satellites began picking up an ELT (emergency locator transmitter) signals from an area north-northeast of Laramie. Denver ARTCC issued an ALNOT (alert notice) at 2234. Ground search and rescue teams, working through the night, located the wreckage approximately 1100 the next morning at a location of 41 degrees, 25'24" north latitude, and 105 degrees, 29'48" west longitude, at an elevation of 8,461 feet.

The radar return at 1627:39 was at a position of 41 degrees, 51'35" north latitude, and 106 degrees, 07'31" west longitude and 10,500 feet. The first ground strike was at a location of 41 degrees, 25.772' north latitude, and 105 degrees, 28.518' west longitude, and 8,491 feet, a difference of 44.5 miles and 2,909 feet.

PERSONNEL (CREW) INFORMATION

The 59-year old pilot held a private pilot certificate with airplane single-engine and instrument ratings, dated January 5, 1994. His third class airman medical certificate, containing no restrictions or limitations, was dated May 10, 2002.

The second of the pilot's two logbooks, containing entries from February 10, 1991, through July 5, 2002, was found in the wreckage and examined. According to the logbook, the pilot had logged the following flight hours as of July 5:

Total Time: 1,649.9

Solo/Pilot-in-Command: 1,552.7

Instruction Received: 237.2

Single-Engine: 1,618.0

Multiengine: 33.8

High-Performance: 1,576.8

Cross-Country: 1,413.4

Night: 89.9

Simulated Instruments: 82.0

Actual Instruments: 37.3

The pilot's most recent biennial flight review was dated May 24, 2001, and his most recent instrument proficiency check was dated June 6, 2001. In the 6 months preceding the accident, the pilot had logged 1.5 hours actual instruments and 2.0 hours simulated instruments. The number of instrument approaches was not recorded.

AIRCRAFT INFORMATION

N210HC (s/n 210-62536), a model T210M, was manufactured by the Cessna Aircraft Company, Wichita, Kansas, in March 1978. It was equipped with a Continental TSIO-520-R engine (s/n 512651), rated at 310 horsepower, and a McCauley D3A34C402 all metal, 3-blade, constant-speed propeller (s/n 805480). The airplane maintenance records were found in the wreckage and the following was noted:

Airframe:

Annual inspection: June 27, 2002

Tachometer/airframe time: 3,467.3

Engine:

Annual inspection: May 1, 2001

Tachometer/airframe time: 3,391.9

Time since major overhaul: 230.4

o-time remanufacture date: December 11, 1997

Previous total time brought forward: 3,161.5

Propeller:

Annual inspection: June 27, 2002

Total time: 3,467.3

Since overhaul: 305.8

Overhaul date: December 24, 1997

Avionics:

Transponder, encoding altimeter, static system IFR certification: May 16, 2002

Tachometer: 3,460.0

The most recent weight and balance data was dated February 23, 1998.

METEOROLOGICAL INFORMATION

The following weather observations were recorded at the Laramie Regional Airport, located 11 nautical miles southwest of the accident site, at 1656 and at 1707:

Wind, 110 degrees at 18 knots, gusting to 24 knots; visibility, (greater than) 10 statute miles; scattered clouds at 2,600 feet; temperature, 9 degrees C.; dew point, 2 degrees C.; altimeter, 30.00; remarks: A02; peak wind, 120 degrees at 29 knots/2126; sea level pressure, 118; T00940022=

Wind, 120 degrees at 23 knots, gusting to 28 knots; visibility, (greater than) 10 statute miles; ceiling, 2,600 feet broken; temperature, 9 degrees C.; dew point, 3 degrees C.; altimeter, 30.00; remarks: A02; peak wind, 100 degrees at 28 knots/2159=

As mentioned previously, at 1600:57, the air traffic controller that was handling N210HC advised all aircraft on his frequency that Convective SIGMET Four Two Charlie and Four Three Charlie was current and valid until 1755. This SIGMET reported an area of thunderstorms (50ENE SLC-40NE BCE-10SW PGS-60SSE ILC-503N3 ALC) moving from 240 degrees at 30 knots, with tops to FL350 (35,000 feet). The area of thunderstorms was not in the vicinity of N210HC.

It was requested that NTSB's Engineering Division conduct a weather study in support of this investigation. The meteorologist's factual report is attached as an exhibit to this report.

WRECKAGE AND IMPACT INFORMATION

Two ground scars, aligned on a magnetic heading of 336 degrees, were noted on upsloping rocky terrain, beginning at an elevation of 8,491 feet. A small tree, with several of its branches lying on the ground near the base, stood about 30 feet in front of the initial ground scar at an elevation of 8,484 feet. At the beginning of this scar were four slash marks, 23, 43, and 69 inches apart, respectively. The city of Laramie could be seen in the distance, bearing 201 degrees magnetic. The beginning of the second scar was at an elevation of 8,491 feet, was fan-shaped, and 27 feet long. To the left of this scar were the left door window, baggage door, battery and upper engine cowling, and at end of this scar were the #1 propeller blade tip and the left door pocket. The third ground scar was aligned on a magnetic heading of 330 degrees. Strewn alongside the scar were the glare shield, left cabin door, and a piece of the propeller hub. At the end of this scar was the main body of wreckage.

The forward portion of the airplane was aligned on a magnetic heading of 356 degrees, and the empennage was aligned on a magnetic heading of 030 degrees. The outboard portions of the left and right wings were crushed aft. The ailerons and flaps remained attached. The aft fuselage was breached at the beginning and directly below leading edge of the dorsal fin. The vertical stabilizer, rudder, rotating beacon, right horizontal stabilizer and elevator were intact, but the leading edge of the left horizontal stabilizer was crushed. It exhibited an inboard leading edge-to-outboard trailing edge wrinkle. The cockpit and cabin area was crushed from vertical forces. The right main gear was partially extended; the left main gear remained retracted. The engine, with retracted nose gear, separated and came to rest 50 feet from the airframe. All three propeller blades separated from the hub. Blade #1, with its tip missing, was to the right of the airplane. Blade #2 was next to the left wing tip, and blade #3 lay near the engine. All three blades were gouged, scraped, twisted and bent.

Examination of the cockpit revealed the altimeter was set to 30.10, and indicated 8,420 feet. The radar altimeter indicated 0 feet, and the bug was set to 500 feet. The HSI indicated 335 degrees, the heading bug was set to 085 degrees, and the course selector was set to 099 degrees. The #2 navigation radio's OBS was set to 140 degrees. The communications and navigation radio were all-digital and extensively damaged. The ADF was tuned to 337 kHz, and the needle indicated a bearing of 055 degrees. The transponder was set to mode C and the damaged faceplate indicated 6X00. The autopilot switch was off. The fuel selector was on the right tank, and the cowl flaps were partially open. The tachometer indicated 0 rpm and 3,489:80 hours, and the Hobbs meter indicated 2,453.1 hours. The clock has stopped at 4:38.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy (#AO 02-11) was performed on the pilot at the McKee Medical Center in Longmont, Colorado.

FAA's Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma City performed a toxicological screen. According to CAMI's report (#200200280001), no carbon monoxide or cyanide was detected in blood samples, and no ethanol was detected in the urine. Quinine, however, was detected in the urine. According to his wife, the pilot was taking prescribed quinine sulfate for the treatment of muscle cramps in his leg.

TESTS AND RESEARCH

The engine was examined at Beegles Aircraft Services, Greeley, Colorado, on November 2, 2002. All hoses, cables and wires were stretched or broken. A West Star Aviation Gold Star tag was attached to the case. There was extensive impact engine damage, especially to the bottom front case, which was broken. The engine was pushed back into the firewall. The oil sump and cooler were crushed up and aft against the engine. Disassembly of the oil sump revealed no metal particles, and the screen was clean. The oil filter and induction tubing were crushed. The main fuel supply line between the fuel pump and fuel control unit (FCU) contained fuel, as did the fuel pump. It turned freely and the coupler was intact. The FCU was unremarkable. The spring and diaphragm were intact, and there was fuel in the chamber. The screen was dry and clean. The throttle body was also crushed up and aft against the engine, and the butterfly valve was jammed closed.

The camshaft and lifters were unremarkable. Turning the crankshaft revealed continuity to the accessory section. There was "thumb compression" on all cylinders. The no. 6 rocker box cover was broken open, exposing broken cylinder parts. The turbocharger was hanging from its mounts. The impeller and turbine turned freely with no FOD (foreign object debris/damage) noted on the blades. The propeller hub was fractured with the rear portion remaining attached to the flange. The propeller governor was hanging from the control linkage. The starter was knocked off. The top spark plug (Champion RHB32E) electrodes were clean, exhibited normal wear patterns, but were ready for changing. Both magnetos remained attached to their mounting pads, and provided spark to the top spark plugs. Vacuum pump disassembly revealed a cracked rotor, but the vanes and coupler were intact.

Electrical power was applied to the damaged nav/comm radios after they had been removed from the instrument panel. The only useful information recovered was from the no. 2 communications radio, which was tuned to 118.7 MHz. It could not be determined if this was an active or standby frequency.

ADDITIONAL INFORMATION

According to the pilot's son, his father normally filed IFR flight plans and flew in the IFR "system" to stay current with instrument procedures and controller phraseology but, as a rule, he avoided flying in actual instrument meteorological conditions.

In addition to the Federal Aviation Administration, parties to the investigation included the Cessna Aircraft Company, and Teledyne-Continental Motors.

The wreckage was released to the insurance company's adjuster on October 3, 2002.

Pilot Information

Certificate:	Private	Age:	59, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	05/10/2002
Occupational Pilot:		Last Flight Review or Equivalent:	06/06/2001
Flight Time:	1650 hours (Total, all aircraft), 1563 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N210HC
Model/Series:	T210M	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	210-62536
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	06/27/2002, Annual	Certified Max Gross Wt.:	3800 lbs
Time Since Last Inspection:	23 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3490 Hours at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	TSIO-520-L
Registered Owner:	W I Leasing	Rated Power:	300 hp
Operator:	W I Leasing	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	
Observation Facility, Elevation:	LAR	Distance from Accident Site:	
Observation Time:	1607	Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	10 Miles
Lowest Ceiling:	Broken / 2600 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	23 knots / 28 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	9°C / 3°C
Precipitation and Obscuration:			
Departure Point:	Billings, MT (BIL)	Type of Flight Plan Filed:	IFR
Destination:	Erie, CO (49V)	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	
Ground Injuries:	N/A	Aircraft Explosion:	
Total Injuries:	1 Fatal	Latitude, Longitude:	41.430278, -105.475556

Administrative Information

Investigator In Charge (IIC):	Arnold W Scott
Additional Participating Persons:	Robert D Hardwick; FAA Flight Standards Field Office; Casper, WY
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/ .