



National Transportation Safety Board Aviation Accident Final Report

Location:	Bishop, CA	Accident Number:	LAX03FA254
Date & Time:	08/08/2003, 2132 PDT	Registration:	N340DC
Aircraft:	Cessna 340A	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

During a nighttime takeoff initial climb, the airplane collided with terrain near the airport. Witnesses reported watching the airplane accelerate on runway 12, rotate, and climb to 200 to 300 feet above ground level. The climb rate decreased and the airplane appeared to initiate a left turn, with the roll continuing to a wings vertical attitude. At this point the airplane descended into the terrain. One witness north of the accident site described the landing lights going from horizontal to vertical followed by a decrease in engine sound just before impact. According to the airplane owner, the pilot had never flown the accident airplane before the first leg to the accident location to drop off the owner and another passenger. Examination of the pilot records failed to locate any previous flight time in Cessna 300 or 400 series airplanes. In the last 30 days he had given instruction in a smaller light twin engine airplane. Post accident examination of the wreckage revealed the landing gear to be in the down position at the time of impact. The retractable landing lights were extended and the nose gear taxi light was destroyed. Both propellers exhibited symmetrical power signatures. No preimpact mechanical malfunctions or failures were identified. The impact site was east of the airport about 0.68 nautical miles. The departure direction is towards a mountain range with sparse population and few ground reference lights. The moon's disk was 25 degrees above the southeastern horizon and was 89 percent illuminated. The FAA AC61-23C Pilot's Handbook of Aeronautical Knowledge addresses the environmental factors and potential in-flight visual illusions, which could affect pilot performance. The reference material describes Somatogravic Illusion as, "a rapid acceleration during takeoff can create the illusion of being in a nose up attitude. The disoriented pilot will push the airplane into a nose low, or dive attitude. A rapid deceleration by a quick reduction of the throttles can have the opposite effect, with the disoriented pilot pulling the airplane into a nose up, or stall attitude."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's in-flight loss of control due to a Somatogravic illusion and/or spatial disorientation. Factors in the accident were the dark lighting conditions and the pilot's lack of familiarity with the airplane.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) LIGHT CONDITION - NIGHT
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND(CFI)
3. (F) SPATIAL DISORIENTATION - PILOT IN COMMAND
4. (F) VISUAL ILLUSION - PILOT IN COMMAND
5. (F) LACK OF FAMILIARITY WITH AIRCRAFT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

6. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On August 8, 2003, at 2132 Pacific daylight time, a Cessna 340A, N340DC, collided with terrain after a loss of control in the takeoff initial climb from the Bishop Airport (BIH), Bishop, California. The airplane was operated by the owner under 14 CFR Part 91. The commercial pilot was fatally injured, and the airplane was destroyed by post impact fire. Visual meteorological conditions prevailed and no flight plan was filed. The first leg of the flight originated at Upland, California, about 1915. After deplaning two passengers at BIH and refueling, the airplane was departing on the return leg to Upland when the accident occurred.

Witnesses reported watching the airplane accelerate on runway 12, rotate, and climb to about 200 - 300 feet above ground level with a decrease in climb rate; the airplane was then seen to initiate a left turn rolling to what appeared to be a wings vertical attitude. At this point the airplane descended into the terrain. One witness north of the accident site described the landing lights going from horizontal to vertical followed by a decrease in engine sound just before impact. The impact site was east of the airport about 0.68 nautical miles. The departure direction is towards the White Mountain Range with sparse population and few ground reference lights.

PILOT INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot started his aviation career as an Aviation Maintenance Technician with the issuance of an airframe and powerplant certificate on January 25, 1990. He then obtained a flight engineer certificate for turbojet engine airplanes on July 5, 1996. Subsequently, he began flight training and received a private pilot certificate on August 28, 1998, with an instrument pilot add-on rating March 5, 1999. The pilot became a commercial pilot on September 1, 2000, with a multiengine add-on rating October 11, 2000. He became a flight instructor on August 16, 2002, with an instrument instructor add-on rating January 27, 2003, and multiengine instructor on May 11, 2003.

A review of the pilot's logbook revealed that through August 7, 2003, the pilot logged 1,189 total single engine flight hours and 113 multiengine hours for a total flight time of about 1,302 hours. At the time of the accident the pilot was employed as a flight instructor at F.A.S.T. Aviation, El Monte, California. The only multiengine airplanes flown as the pilot-in-command according to the log, were a Beech 76 and a Piper PA34-200T. The last recorded multiengine flight time was 2.6 flight hours on August 5, 2003. The last recorded logbook entries were August 7, 2003, for three single engine dual instruction flights totaling about 6 hours. On the day of the accident, and prior to the accident flight, the pilot/instructor flew with three students in single engine land airplanes at El Monte. The instructional dual periods are typically scheduled in 2-hour blocks of time. The actual flight time was 2.4 hours with the remaining time as ground instruction. The pilot's work day started about 0800 and ended about 1700. He then drove to the Cable Airport, Upland, to fly the accident airplane to Bishop with the airplane owner and a passenger. The prearranged departure time from Cable was for 1500; however, the pilot did not arrive until about 1800.

According to the owner of the accident airplane, the pilot had never flown it prior to the accident flight. The initial leg from Upland to Bishop took about 1.25 hours. Examination of the pilot records failed to locate any Cessna 300 nor 400 series multiengine flight time. In the

last 30 days he had given instruction in a smaller light twin engine airplane.

AIRPLANE INFORMATION

Examination of the maintenance records revealed an annual inspection was accomplished on November 20, 2002, at a total flight time of 1,104.1 flight hours. A pre-purchase inspection was accomplished for the current owner by Foothill Aircraft Sales and Service, Inc., on June 17, 2003, (invoice 6986). The last airframe maintenance (Foothill invoice 6991) documented the replacement of all tires and tubes, brake pads, and a wheel half replacement on the left main wheel at 1,123 hours. No additional maintenance was performed on the engines since the annual. The last documented compliance with the certifying of the altimeters and the static systems (FAR 91.411) in accordance with FAR Part 43 Appendix E, occurred on November 7, 2002. Functional testing of the ATC transponder required by FAR 91.413 was accomplished in accordance with Part 43 Appendix F, on November 7, 2002. No operating times were recovered from the accident airplane instrumentation. The last maintenance time of 1,123 hours, plus the flight time of 1.25 hours to Bishop provided by the owner, totals 1,124.25 total flight hours on the airplane.

METEOROLOGICAL INFORMATION

At 2156, Bishop was reporting sky clear 10 statute miles visibility; wind 010 degrees at 06 knots; temperature 75 degrees Fahrenheit; dew point 39 degrees Fahrenheit; and the altimeter was 30.03 inHg. According to a Safety Board sun and moon program, the moon's disk was 89 percent illuminated about the time of the accident. The sunset was at 2000.

WRECKAGE AND IMPACT INFORMATION

The Safety Board examined the wreckage on scene. The site is on soft sandy soil. The scattered wreckage is measured about 52 feet in width and about 107 feet in length. All components of the airplane and engines display post accident fire damage. The point of first contact with the soil is associated with a wing tip bell frame and red glass fragments. On a magnetic heading of about 330 degrees at 16 feet from the first ground contact, the left 3-bladed propeller assembly is located buried in the sandy soil with a partial blade exposed and severed from the crankshaft. Beyond that is another crater with the nose baggage door/ice shield; at 34 feet the right propeller assembly is severed from the crankshaft and buried in the sand with a blade exposed. At 55 feet, wing tip tank parts were located in close proximity with green glass fragments. The farthest airplane parts on this heading are right wing tip tank parts at 107 feet.

The center of the main wreckage is located about 355 degrees and 104 feet from the first ground contact. The main wreckage consists of both engines, exhaust system and turbochargers, an outboard section of the right wing and aileron, the right horizontal stabilizer and elevator, remnants of the vertical stabilizer, cabin seat structure, and throttle quadrant assembly. The fuselage center section with system remnants are all severely fire damaged.

Both control yoke gust lock holes were found free from obstruction or damage to the hole dimension. Both turbine wheel and compressor wheels displayed rotational damage. A fuel control "Butterfly" door displayed sooting/burn marks in the closed position. The damaged throttle quadrant revealed the propellers and mixtures were in the forward position, and the throttles were aft and next to the takeoff trim "Nose Up" placard. The elevator trim indicator was found in the white arc of the takeoff range.

The 3-bladed Q-tip propellers displayed some leading edge damage and chordwise scoring with

some mild blade aft bending. The crank shafts were severed just aft of the crank flanges in an overload/bending appearance. Black and blue heat transfers were observed in the fracture smears perpendicular to the shaft surface.

The landing gear position was determined mechanically to be in the down position. The flap position was undetermined. The landing lights were extended and the nose taxi light was destroyed. The elevator trim tab actuator (subject to cable pull) was measured 1.65 inches, or 4 degrees tab up. The rudder trim tab was measured at .8 inches. The fuel selectors, (subject to cable pull), were found in the off positions. Limited instrumentation indications were obtained. The copilot directional gyro was indicating 210 degrees.

MEDICAL AND PATHOLOGICAL INFORMATION

The Inyo County Medical Examiner performed an autopsy on the pilot. During the course of the procedure samples were obtained for toxicological examination by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma. The results of the examination were negative for carbon monoxide, cyanide, ethanol, and drugs.

TESTS AND RESEARCH INFORMATION

Due to the degree of post accident fire damage to the engines and accessories, and the requirement for special tooling to disassemble them, the engines were shipped to the manufacturer. Teledyne Continental Motors, Mobile, Alabama, performed the formal disassembly and examination with FAA oversight. There were no catastrophic mechanical failures found in the engines that would have precluded the engines from functioning. The Continental report is attached to the docket.

ADDITIONAL INFORMATION

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On August 18, 2004, the wreckage was released to an officer of the corporation owning the airplane.

A copy of the self-service refueling system receipt was obtained from the Bishop airport operator. The refueling service was activated at 20:49:47, and 57.91 gallons of 100LL aviation fuel was dispensed.

According to FAR Part 61.57 Recent Flight Experience: Pilot in command. (c) General experience: "No person may act as pilot in command of an aircraft carrying passengers, nor of an aircraft certificated for more than one required pilot flight crew member, unless he has made three takeoffs and three landings as the sole manipulator of the flight controls in an aircraft of the same category and class and, if a type rating is required, of the same type."

The FAA AC61-23C Pilot's Handbook of Aeronautical Knowledge, addresses the environmental factors, which affect pilot performance. In that section they address in-flight visual illusions. The Cessna Aircraft Company publishes a "Pilot Safety and Warning Supplements" booklet to address illusions in flight. In that section it describes Somatogravic Illusion, "a rapid acceleration during takeoff can create the illusion of being in a nose up attitude. The disoriented pilot will push the airplane into a nose low, or dive attitude. A rapid deceleration by a quick reduction of the throttles can have the opposite effect, with the disoriented pilot pulling the airplane into a nose up, or stall attitude."

Pilot Information

Certificate:	Flight Instructor; Commercial; Flight Engineer	Age:	36, 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:	No
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:	10/08/2002
Occupational Pilot:		Last Flight Review or Equivalent:	05/11/2003
Flight Time:	1302 hours (Total, all aircraft), 1 hours (Total, this make and model), 290 hours (Last 90 days, all aircraft), 117 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N340DC
Model/Series:	340A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	340A0968
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	11/20/2002, Annual	Certified Max Gross Wt.:	5990 lbs
Time Since Last Inspection:	19 Hours	Engines:	2 Reciprocating
Airframe Total Time:	1123 Hours at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	TSIO-520-NB
Registered Owner:	WSP Leasing, Inc.	Rated Power:	310 hp
Operator:	WSP Leasing, Inc.	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	BIH, 4120 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	2157 PDT	Direction from Accident Site:	180°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	Variable	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.11 inches Hg	Temperature/Dew Point:	11° C / 2° C
Precipitation and Obscuration:			
Departure Point:	Bishop, CA (BIH)	Type of Flight Plan Filed:	None
Destination:	Upland, CA (CCB)	Type of Clearance:	None
Departure Time:	2130 TN	Type of Airspace:	Class E

Airport Information

Airport:	Bishop (BIH)	Runway Surface Type:	Asphalt
Airport Elevation:	4120 ft	Runway Surface Condition:	Dry
Runway Used:	12	IFR Approach:	None
Runway Length/Width:	7498 ft / 100 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	37.377500, -118.363611

Administrative Information

Investigator In Charge (IIC):	GEORGE E PETERSON	Report Date:	04/28/2005
Additional Participating Persons:	David H Butlter; Federal Aviation Administration; Reno, NV Mike Grimes; Teledyne Continental; Mobile, AL Robert August; Cessna Aircraft Co.; Wichita, KS		
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](#).