National Transportation Safety Board
Aviation Accident Final Report

Location:	Carey, ID	**Accident Number:**	SEA03FA045
Date & Time:	03/15/2003, 1425 MST	**Registration:**	N70FJ
Aircraft:	Cessna 501	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

At 1407:11 the flight was cleared from Flight Level (FL) 240 to descend and maintain FL 190. At 1409:08 the controller cleared the flight to descend and maintain 15,000 feet, and at 1409:17 the pilot read back the clearance in its entirety. At 1410:20 the controller instructed the pilot to expedite his descent through 16,000 feet for traffic; however, there was no response. From 1410:33 to 1417:21 the controller made ten attempts to contact the pilot; again, there was no response. At 1417:26 the controller requested the pilot to ident if he could still hear him. At 1417:38 the controller received an ident from the aircraft and instructed the pilot to descend and maintain 15,000 feet. At 1418:36 the controller cleared the aircraft for the GPS approach and to acknowledge with an ident. There was no response. The aircraft had impacted a rocky drainage trench near the base of rock outcropping on a magnetic heading of 200 degrees in a wings level, approximately 40-degree nose down attitude, 15 nautical miles east-southeast of the destination airport at an elevation of 5,630 feet mean sea level. An examination of the aircraft's flight control, pressurization, and electrical systems revealed no anomalies with these systems which would have precluded normal operations. A further examination of the thermal damage to the aircraft, determined that there was no evidence of an inflight fire. Both engines underwent a complete teardown examination revealing no evidence of catastrophic or preaccident failure, and that both engines were functioning at the time of impact. Radar data revealed the aircraft was in level flight at FL 190 for more than 4 minutes, when it had previously been cleared to 15,000 feet. It subsequently began a climb reaching an altitude of 20,300 feet before beginning a right descending turn followed by a left descending turn. The last radar return before radar contact was lost indicated the aircraft was at 15,900 feet and descending. No evidence was available that suggests icing greater than light rime icing was present in the area and that weather was unlikely to have been a factor in the accident. The pilot was on two medications for high blood pressure and one for high cholesterol. The pilot had recently been found to have an elevated blood sugar, suggesting early diabetes or some other systemic disease or injury. The pilot had a family history of heart disease and high blood pressure, and had at least one episode of chest tightness in the past. It is possible that he had some unrecognized heart disease. The circumstances of the accident suggest substantial impairment or incapacitation of the pilot. It is possible that the pilot experienced an event such as a stroke or heart attack related to his previous medical conditions or as a new occurrence. It

is also possible that he became hypoxic as a result of a decompression event without using supplemental oxygen. There is insufficient information to conclude any specific cause for the pilot's impairment or incapacitation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Pilot incapacitation for unknown reasons.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CRUISE - NORMAL

Findings
1. AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (C) INCAPACITATION - PILOT IN COMMAND

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

Findings
3. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On March 15, 2003, approximately 1425 mountain standard time, a Cessna 501, N70FJ, was destroyed when it impacted terrain following an uncontrolled descent near Carey, Idaho. The airplane was registered to Dancing Wind Aviation LLC, of Livingston, Montana, and operated by the pilot. The airline transport pilot and two passengers sustained fatal injuries. Instrument meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the 14 CFR Part 91 personal cross-country flight. The flight originated from the Salt Lake International Airport (SLC), Salt Lake City, Utah, at 1340, and was destined for the Friedman Memorial Airport (SUN), Hailey, Idaho.

According to initial data from the Western Air Defense Sector, McCord Air Force Base, Tacoma, Washington, and the Salt Lake Air Route Traffic Control Center (SLC ARTCC), N70FJ departed flight level 350 for flight level 240 at 1359:57. At 1407:08 the pilot reported that he was at flight level 240, and at 1407:11 SLC ARTCC cleared the aircraft to descend and maintain flight level 190. At 1408:25 the pilot queried SLC ARTCC "if aircraft were missing the approach into Hailey?" At 1408:29 the controller told the pilot, "You can make it in on the RNAV (Area Navigation) approach sir. Are you able the RNAV?" The pilot replied, "That's affirmative." At 1408:37 the controller further advised the pilot, "The last one made it in on an RNAV just at the bare minimums and Hailey says it's getting worse there, so I got a couple stacked up right now. I'll get you lower and a holding pattern set up. I'll put you in a hold at Oreye if that's going to work for you sir. N70FJ, cleared direct Oreye. Expect holding at Oreye and expect the RNAV approach from there once I get the pattern clear sir." At 1409:07 N70FJ confirmed "direct Oreye for Fox Juliet." At 1409:09 the controller cleared the aircraft to 15,000 feet, which was followed by N70FJ confirming the clearance. At 1410:21 the controller instructed the pilot of N70FJ to expedite his descent to 16,000 feet for traffic. There was no response. From 1410:33 to 1417:21, SLC ARTCC made ten attempts to establish radio communications with N70FJ, all of which proved unsuccessful. At 1417:26 the controller requested N70FJ to "ident if you hear me." At 1417:39 the controller confirmed that she had received N70FJ's ident, that she had not received any replies to her previous attempts to contact the aircraft, and that if possible the pilot might try using another radio to establish communications with SLC ARTCC. The controller also instructed the pilot to descend and maintain 15,000 feet. At 1418:36 the controller cleared the aircraft direct to the Oreye intersection for the GPS (global positioning system) approach and to acknowledge with an ident. There was no further radio communication or radar contact with N70FJ. Post accident data provided by SLC ARTCC indicates center received the ident at 1417:35 reporting 19,700. The ident remained on for one (1) minute until 1418:35.

On March 15, 2003, at 1527, an alert notification (ALNOT) was issued for N70FJ. At approximately 0700 on March 16, 2003, the aircraft wreckage was located in an area of mountainous terrain bordered by a valley running east to west 10 nautical miles north of Carey, Idaho, and 15 nautical miles east-southeast of SUN. On March 18, 2003, the aircraft wreckage was recovered by personnel from Air Transport, Phoenix, Arizona.

PERSONNEL

The pilot held an airline transport pilot certificate with a multiengine land rating and a Cessna 500 type rating, commercial privileges for single engine land and sea airplanes, and private

privileges for helicopters. The pilot obtained his Cessna 500 type rating on April 12, 1986, and his most recent single pilot proficiency check for the Cessna 500 was satisfactorily completed on May 24, 2002. Records furnished by a family member indicated that the pilot had accumulated a total of 1,382 hours of total flying time in Cessna 500 series aircraft from March, 1985, through December, 1999.

According to Federal Aviation Administration (FAA) aeromedical records, dated April 11, 2002, the pilot reported having 14,000 total flying hours with 150 hours in the 6 months prior to the examination. The pilot held a second class medical certificate with the limitation "must wear corrective lenses".

AIRCRAFT INFORMATION

N70FJ, a Cessna 501 Citation (certified for single pilot operation), serial number 0073, was issued an airworthiness certificate on July 31, 1978. The airplane was configured to carry six passengers and two pilots, and was equipped with two Williams/Rolls FJ44-2A fanjet engines rated at 2,300 pounds of thrust per engine.

The Cessna Citation Operating Manual limitations for single pilot operations include in part: "1 boom microphone or headset mounted microphone." The operating manual states in part: "The pilot-in-command must have a C-500 Type Rating and meet the requirements of FAR 61.58 for two-pilot operation, or FAR 61.57 for single pilot operation (Model 501 only).

The aircraft was modified in accordance with numerous Supplemental Type Certificates (STCs) during the period of August 2002 through October 2002. These modifications included the Eagle SP recontoured wing leading edges, increased gross weight, increased fuel capacity, installation of the Williams/Rolls FJ44-2A engines, complete interior refurbishment, installation of Keith Products air conditioning system, aft baggage compartment, and numerous interior modifications. There were also numerous avionics installations and alterations to the aircraft, including Traffic Alert and Collision Avoidance System (TCAS), Enhanced Ground Proximity Warning System (EGPWS), Electronic Flight Information System (EFIS), Multi Function Display (MFD), and a Global Positioning System (GPS).

The last completed Aircraft Flight Log page includes flight information through March 10, 2003, which included an aircraft total time of 7118.0. The flight time for the final four flights between March 13th and March 15th were estimated by the Flying J, Inc., Aviation Department, based on their knowledge of the pilot's activity during this time period. The estimated total aircraft time at the time of the accident was 7120.2 hours, and the total time for each engine was 91.8 hours.

METEOROLOGICAL INFORMATION

The Terminal Aerodrome Forecast (TAF) for Hailey, Idaho (SUN), issued March 15, at 1030, valid March 15, 1100 to March 16, 1100, indicated wind 160 degrees at 5 knots, visibility greater than 6 miles, showers in the vicinity, scattered clouds at 2,000 feet, overcast clouds at 6,000 feet; temporary 1100 to 1400, light rain showers, broken clouds at 2,000 feet, overcast clouds at 6,000 feet. From 1400, wind 160 degrees at 5 knots, visibility greater than 6 statute miles, light rain showers, overcast clouds at 2,500 feet; temporary from 1400 to 1800 visibility 4 statute miles, light rain showers, mist, overcast clouds at 1,500 feet.

At 1346, the weather reporting facility at Hailey, Idaho (SUN), located approximately 15 nautical miles northwest of the accident site, reported wind 260 degrees at 5 knots, visibility 15

statute miles, showers in the vicinity, scattered clouds at 2,000 feet, overcast clouds at 3,000 feet, temperature 7 degrees C, dew point 1 degree C, and an altimeter setting of 29.62 inches of Mercury.

At 1446, the SUN weather reporting facility reported wind 350 degrees at 5 knots, visibility 20 statute miles, overcast clouds at 2,700 feet, temperature 6 degrees C, dew point 1 degree C, and an altimeter setting of 29.61 inches of Mercury.

A Senior NTSB meteorologist reported that occasional moderate rime/mixed icing was present between the freezing level and FL 220, and that there were no Non-convective or Convective SIGMETs issued relevant to the accident area.

Pilot reports (PIREPS) indicate that light to moderate mixed icing was present in the region.

WRECKAGE AND IMPACT INFORMATION

A global positioning system (GPS) revealed that the accident site was at latitude 043 degrees 26.85 minutes North and longitude 114 degrees 00.12 minutes West at an elevation of 5,630 feet. The area consists primarily of rolling hills surrounded by high mountainous terrain in all geographical quadrants, accompanied by sparse sagebrush vegetation. The aircraft impacted a rocky drainage trench near the base of rock outcropping at an impact angle estimated to be approximately 40 degrees nose down. Evidence of the initial impact was a smooth ground scar area 6 feet in length by 2 feet in width, oriented on a magnetic heading of 200 degrees. Twenty-five feet forward of the initial impact scar was an impact crater which measured 20 feet by 10 feet, and approximately 18 inches deep. Debris comprised of components of the airplane was located on an energy path of 240 degrees magnetic, extending 1,023 feet from the impact crater. Lateral distribution of the wreckage extended approximately 250 feet on both sides of the energy path.

The main body of the wreckage, including the cabin, empennage, and left engine was located 183 feet forward and 35 feet to the left of the main impact crater. The area was evidenced by extensive fire damage and sooting. The cabin and cockpit areas were destroyed due to impact forces. Portions of the interior were strewn throughout the energy path. Documentation of individual seats and restraints could not be accomplished given the extent of damage to these components. The position of the occupants could not be confirmed. The instrument panel was broken into multiple sections; many of the instruments were dislodged from the panel. The pilot's yoke was separated from the control column. Both yoke handles were broken off; the left side remained attached to the bottom section of the yoke via wires. The hose for the pilot's quick-donning oxygen mask was pinched in the armrest storage box. The four oxygen mask storage containers from the cabin exhibited impact damage. Six of the eight passenger oxygen masks were recovered and examined; five of the eight were mostly intact. None of the masks had evidence of human remains nor were the elastic bands in a tightened position.

The fuselage was heavily fragmented from the nose to the empennage. The larger sections of fuselage consisted of several frame and stringer sections, but none more than approximately one-third the fuselage circumference. Some fuselage sections had pieces of the interior still attached. The main cabin door was in multiple pieces; six side and two top locking pins were extended. The door width was reduced to approximately 8 inches. Each landing gear was separated from the respective mounts. The nose landing gear actuator was extended and the main landing gear actuators were not extended, indicating a retracted landing gear position.

The right wing was heavily fragmented, the largest section approximately 6 feet in length. The

aileron separated approximately 2 1/2 feet outboard from the inboard attach point. The aileron was nearly separated at mid-span. The aileron pulley/actuator had both cables attached; the other end of each cable was separated with signatures consistent with tension overload. The spoiler actuator was detached and the piston was in the retracted position. The flap was separated adjacent to the middle flap track. The inboard flap track remained attached to the flap and wing aft spar. The outboard flap track was separated from the flap and wing structure. The flap cables were separated and signatures were consistent with tension overload.

The left wing was destroyed by impact forces and was heavily fragmented. Thermal damage was observed on the largest section, approximately 6 inches in length (span wise), common to fuel filler port. The aileron was in multiple sections and completely separated from the wing. The aileron pulley/actuator had both cables attached; the other end of each cable was separated. The aileron trim tab remained mostly attached to the aileron and exhibited substantial impact damage. The trim tab actuator was separated from the wing and attached to the tab by one push/pull tube; the other was broken. The flap was separated into two primary sections at mid-span. The outboard track was attached to a section of rear spar and flap. The outboard flap bell crank remained attached to the flap and two control cables. One cable was separated; the other appeared to have been cut. Both spoilers were observed detached from the wing.

The left side of the horizontal stabilizer had even accordion compression along the span. The right side was broken into multiple pieces, some of which also exhibited accordion damage. The left elevator was separated from the horizontal stabilizer into two sections at mid-span. The left elevator counterweight was found securely installed. A broken piece of the push/pull rod was attached to the elevator control horn. Outboard of the center hinge, the right elevator was broken into multiple small pieces. A section of the elevator remained attached to the horizontal stabilizer at the center hinge via the trim tab linkage (no missing hardware). The elevator counterweight was observed detached from the elevator. A broken piece of the push/pull rod was attached to elevator control horn.

The rudder remained attached to the vertical stabilizer's aft spar at the bottom and middle hinges. Above the middle hinge, the rudder was separated into multiple pieces. The rudder counterweight remained securely attached. The rudder cables remained attached to the control horn at the bottom of the rudder. Forward of the aft spar the vertical stabilizer was heavily fragmented. The rear spar remained attached to a small section of the tail cone.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was conducted by the Blaine Country Coroner's Office, Hailey, Idaho on March 18, 2003. The pilot's cause of death was reported as "multiple blunt force trauma."

The NTSB Medical Officer reviewed the pilot's medical records, which were supplied by the family of the pilot.

10/8/02: Physician's note indicates that the pilot’s medications include "Zocor [simvastatin], hypertension medication, Cardura [doxazosin]." The note also indicates that the pilot's "father died of myocardial infarction" and that the pilot "exercises regularly," "had possible tightness in chest one year ago" and had a history of a "heart murmur." The physician noted blood pressure of "140/100," a "dermal lesion to left upper arm, ...no cardiac symptoms," and "hypertension." The physician noted that the pilot "...should not require stress test."

12/12/02: Physician's note indicates blood pressure of "137/97" and indicates refill of "Toprol XL [metoprolol] 100mg/day," " hydrochlorothiazide 12.5mg/day," and "Lipitor [atorvastatin]."

2/5/03 Physician's note indicates that the pilot's "...fasting blood sugar is 126 but Hgb A1c is normal at 5.5..."

The NTSB Medical Officer extracted the following information from the pilot's medical records which was obtained from his dermatologist:

2/20/03 Dermatologist's note indicates that the pilot "...was referred ...for a melanoma of the left arm, Breslow depth 3.72 mm, Clark level V. This was removed with a wide local excision and sentinel lymph node biopsy on 10-25-02 ...Five lymph nodes were sampled and ...all of them were negative for melanoma ...he has had several recurrent upper respiratory infections, although the symptoms have been different for each infection, suggesting new viral infections as opposed to a persistent infection. He otherwise feels well with no changes in his weight ...and has no CNS symptoms. ...Stage IIA melanoma, T3a tumor, with an estimated five-year survival of 78.7%. The recurrent upper respiratory infections could possibly be related to postoperative stress and decreased immune function..."

Aviation toxicological testing was performed by the FAA Civil Aeromedical Institute (CAMI) at Oklahoma City, Oklahoma. The test was negative for ethanol in the muscle, while Doxazosin was detected in the muscle. Doxazosin is a high blood pressure medication also used to control symptoms of prostate enlargement.

TESTS AND RESEARCH

On April 2 & 3, 2003, and on December 14, 2003, representatives from the National Transportation Safety Board, Cessna Aircraft Company, Sierra Industries Inc., Columbia Avionics, and Williams International met at the facilities of Air Transport, Phoenix, Arizona, for the purpose of examining the aircraft wreckage. Both examinations revealed no physical evidence of any in-flight malfunction with the flight controls, pressurization system, or the aircraft's electrical system. There was also no evidence that an in-flight fire had occurred.

On May 15, 2003, both of the aircraft's engines were examined under the supervision of the NTSB investigator-in-charge at the facilities of Williams International, Walled Lake, Michigan. Both engines underwent a complete teardown examination, and no evidence of catastrophic or preaccident failure was noted.

On October 24, 2003, an examination of the aircraft's Sperry Flight Director/Mode Selector (FD) was conducted at the facilities of Honeywell's Business and Commuter Aviation Division, Glendale, Arizona, under the supervision of a FAA avionics inspector. Examination of the Flight Director Mode Selector bulb filaments was conducted in an effort to determine which FD mode may have been selected at the time of impact. Although the controller was significantly damaged, most of the bulbs remained intact. An examination of each bulb filament under a microscope revealed that the Flight Director was in the NAV CAP (navigation capture) lateral mode and the ALT (altitude hold) was in the vertical mode. Also, NAV/HSI (navigation/horizontal situation indicator) was selected to No. 1 (left) side. It could not be determined if the autopilot was engaged or coupled to these Flight Director modes.

RADAR INFORMATION:

Radar data revealed the following: The aircraft started its descent from FL 240 to FL 190 at 1407:37. When the pilot was instructed to descend to 15,000, feet it was descending through

21,100 feet. The aircraft leveled off at 20,100 feet at 1410:01 and remained there until 1411:12 when it began a gradual descent to FL 190. The aircraft leveled off at 19,000 feet at 1413:03, although it had previously been cleared to 15,000 feet. Radar data indicated the aircraft remained at FL 190 until 1417:14. It then began a climb, reaching an altitude of 20,300 feet at 1417:51 before beginning a 70 degree right descending turn. The descent stopped at FL 190 for two radar returns. The aircraft then continued a descent and a 180 degree left turn. Radar contact was lost at 1419:58, with no altitude recorded. The previous radar return, at 1419:55, indicated an altitude of 15,900 feet.

ADDITIONAL INFORMATION

The airplane and all parts retained were released to the owner's representative, Air Transport, Phoenix, Arizona, on March 22, 2004.

Pilot Information

Certificate:	Airline Transport; Commercial	**Age:**	62, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	04/11/2002
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	14000 hours (Total, all aircraft), 1382 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N70FJ
Model/Series:	501	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	501-0073
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	08/16/2002, Continuous Airworthiness	**Certified Max Gross Wt.:**	12650 lbs
Time Since Last Inspection:	91.8 Hours	**Engines:**	2 Turbo Jet
Airframe Total Time:	7120.2 Hours at time of accident	**Engine Manufacturer:**	Williams International
ELT:	Installed, not activated	**Engine Model/Series:**	FJ44-2A
Registered Owner:	Dancing Wind Aviation LLC	**Rated Power:**	2400 lbs
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	SUN, 5319 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	1346 MST	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Partial Obscuration	**Visibility**	15 Miles
Lowest Ceiling:	Overcast / 3000 ft agl	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.62 inches Hg	**Temperature/Dew Point:**	7°C / 1°C
Precipitation and Obscuration:			
Departure Point:	Salt Lake City, UT (SLC)	**Type of Flight Plan Filed:**	IFR
Destination:	Hailey, ID (SUN)	**Type of Clearance:**	IFR
Departure Time:	1342 MST	**Type of Airspace:**	Class E

Airport Information

Airport:	FRIEDMAN MEMORIAL (SUN)	**Runway Surface Type:**	
Airport Elevation:	5319 ft	**Runway Surface Condition:**	
Runway Used:	NA	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	43.447500, -114.001944

Administrative Information

Investigator In Charge (IIC):	Thomas M Little	**Report Date:**	10/28/2004
Additional Participating Persons:	Patrick Darling; Federal Aviation Administration; Boise, ID Todd Sigler; Cessna Aircraft Company; Wichita, KS Ernest W King; Sierra Industries Inc.; Uvalde, TX Chris Greene; Williams International; Walled Lake, MI William B Carter; Honeywell Inc.; Phoenix, AZ Lance Fox; Columbia Avionics Inc.; Columbia, MO		
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.ntsb.gov/pubdms/.		