National Transportation Safety Board
Aviation Accident Final Report

Location:	Sitka, AK	**Accident Number:**	ANC03FA066
Date & Time:	07/03/2003, 1600 AKD	**Registration:**	N777DX
Aircraft:	Cessna 421C	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	5 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot of the twin-engine accident airplane was on an IFR flight plan in instrument meteorological conditions when the right side nose baggage door opened. The pilot expressed concerns to air traffic control about baggage exiting the compartment and striking the right propeller. He requested a diversion to the nearest airport with an instrument approach. The flight was diverted as requested, and was cleared for a nonpercision instrument approach to a coastal airport adjacent to mountainous terrain. The flight was authorized to a lower altitude when established on the approach. A review of the radar track information disclosed that the pilot did not fly the published approach, but abbreviated the approach and turned the wrong direction, toward higher terrain, north of the approach course. The airplane was discovered in mountainous terrain, about 1,100 msl, and 1.5 miles north of the approach course. The crash path was initially at a shallow angle in the treetops, until the airplane struck larger trees. Postaccident inspection of the airplane disclosed no evidence of any preimpact mechanical problems, other than the baggage door, which was still attached to the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to follow IFR procedures by not following the published approach procedures, which resulted in an in-flight collision with terrain. Factors contributing to the accident were a low ceiling, and the pressure induced by conditions/events (the open baggage door).

Findings

Occurrence #1: MISCELLANEOUS/OTHER
Phase of Operation: CRUISE - NORMAL

Findings
1. (F) DOOR,CARGO/BAGGAGE - OPEN

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

Findings
2. (F) WEATHER CONDITION - LOW CEILING
3. (C) IFR PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
4. (F) PRESSURE INDUCED BY CONDITIONS/EVENTS - PILOT IN COMMAND
5. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On July 3, 2003, about 1600 Alaska daylight time, a Cessna 421C airplane, N777DX, was destroyed when it collided with terrain about 3 miles north of Sitka, Alaska, during an instrument approach to the Sitka Airport. The airplane was operated by the pilot as an instrument flight rules (IFR) personal cross country flight under Title 14, CFR Part 91, at the time of the accident. The pilot and the four passengers were fatally injured. Instrument meteorological conditions prevailed, and an instrument flight plan was filed. The flight departed Prince Rupert, British Columbia, en route to Anchorage, Alaska, about 1512.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on July 3, a specialist at the Sitka FAA Flight Service Station (FSS), said the pilot of the accident airplane reported to air traffic control (ATC) at Anchorage Center, that a forward baggage door on the right side of the airplane's nose had come open, and he was concerned baggage could be ejected into the right engine. He requested to divert to the nearest airport for landing to secure the door.

The airplane was diverted to Sitka, and was cleared for the GPS runway 11 instrument approach. The approach is principally a straight-in, nonprecision instrument approach, which necessitated the airplane flying past the airport, intercepting the instrument approach course, and approaching the airport from the northwest. The pilot contacted the Sitka, FAA Flight Service Station (FSS), and reported the airplane inbound on the approach. When the airplane did not arrive at the airport, the FSS specialist attempted to contact the airplane by radio. After failing to make contact, a search was initiated. On July 4, about 1200, searchers located the wreckage of the airplane on a steep, heavily wooded hillside, 3 miles north of the airport, at an elevation of 1,100 feet.

INJURY TO PERSONS

All five occupants of the airplane received fatal injuries.

DAMAGE TO AIRCRAFT

The airplane was destroyed by impact and postcrash fire.

PERSONNEL INFORMATION

The accident airplane was co-owned by four pilots, three of whom were aboard during the accident. Due to the severity of the crash and postimpact fire, it could not be definitively determined who the flying pilot was at the time of the accident. A seating chart created by the Alaska State Troopers, who recovered the occupants remains, indicates that the left front pilot's seat was occupied by the individual who filed the accident IFR flight plan, and for the purposes of this report, he will be considered the flying pilot.

No personal flight records were located for the pilot, and all the aeronautical experience listed was obtained from a review of FAA records. The pilot was issued an FAA Third Class Medical Certificate on September 18, 2001, and held a commercial pilot certificate with ratings for airplane single-engine land, airplane multi-engine land, helicopter, and instrument airplane. According to this medical certificate application dated September 18, 2001, the pilot had accumulated 9,200 total flying hours.

No record of a current biennial flight review was found, however the pilot had received recent annual recurrent training in the airplane, as required by the limited corporation directing co-ownership of the airplane. The airplane had been recently fitted with a new autopilot, and navigation/communications equipment by Autopilot Central, Tulsa Oklahoma. The pilot received training/checkout on the new systems from the installing company.

AIRCRAFT INFORMATION

The airplane was a model year 1975 Cessna 421C, twin-engine airplane. An annual inspection was completed on June 23, 2003, and the airplane had accumulated a total airframe time of 7,996 hours at the time of the inspection. The left engine had accumulated 3,040 total hours, and 208 hours since major overhaul. The right engine had accumulated 3,376 total hours, and 1,010 hours since major overhaul. On January 23, 2003, the airplane's instrumentation and communications equipment were upgraded with two Garmin Color Moving Map/GPS/NAV/COM, GNS-530 navigation systems. According to the surviving owner, the system was loaded with the latest Jeppesen navigation, airport, and approach databases, and certified for IFR operation. The airplane was also equipped with a fully coupled S-Tec autopilot during the installation.

METEOROLOGICAL INFORMATION

Prior to commencing the instrument approach to Sitka, the ATC specialist provided the 1553 Sitka weather information to the pilot, which included 10 miles visibility, wind 200 degrees at 10 knots, an overcast ceiling at 2,600 feet, temperature 12 degrees C, dewpoint 11 degrees C, and an altimeter setting of 29.83 inHg. The ATC specialist also advised that a DC-9 airplane had just completed the instrument approach, and reported breaking out at 400 feet msl, one and one-half miles out, and that conditions were deteriorating.

The weather forecast for southeast Alaska valid for the time of the accident included an AIRMET, calling for IFR conditions, mountains obscured, occasional ceilings below 1,000 feet msl, and visibility less than 3 miles in light rain and blowing rain.

AIDS TO NAVIGATION

The Sitka Global Positioning System (GPS) Runway 11 instrument approach is a nonprecision approach with a minimum descent altitude (MDA) of 580' msl. The instrument approach is northwest of Sitka, with a southeasterly inbound course. The charted initial approach fix (IAF) is "HESOK", 6.7 nm northwest of "TIPEH", the final approach fix (FAF), which is 4 nm northeast of "WEGWI", the missed approach point. The minimum crossing altitude for "TIPEH" is 1,500 msl. To the south side of the inbound approach course is open water, and to the north side is mountainous coastal terrain varying in elevation from sea level to over 3,000' msl. The charted holding/procedure turn area at "HESOK" is on the southwest side of the inbound course over open water. A copy of the GPS runway 11 approach chart is included in the docket for this report.

Radar coverage was available for the entire approach. According to radar data, the airplane was approaching Sitka from the southeast, tracking direct to "TIPEH". The airplane started to descend about 14 miles southeast of Sitka. As the airplane neared "TIPEH," it descended below 2,700' msl and commenced a descending right turn toward rising coastal terrain. The turn was completed over open water, and the airplane proceeded southeast on a course roughly paralleling the inbound approach course, but offset about 1.5 miles north of the inbound course centerline. The airplane continued to descend with the last radar hit at an altitude of 1,400'

msl. The last radar hit also indicates the airplane was making a course correction to the right toward the course centerline. GPS coordinates from the accident site indicate the point of impact about 1,800 feet southeast from the last radar hit. A diagram of the airplane's radar track is included in the docket for this report.

COMMUNICATIONS

According to FAA ATC tapes/transcripts, about 1521, the pilot advised ATC that a front baggage compartment door had come open, and requested to divert to the nearest airport for landing. ATC advised the pilot that Sitka was the nearest airport with an instrument approach, and provided vectors to Sitka, with an authorized descent to an altitude of 10,000 feet msl. ATC asked the pilot if he was declaring an emergency, and the pilot stated he was not. The pilot was told to fly direct to the Biorka Island Very High Frequency Omnirange (VOR) transmitter, and to expect the Localizer Type Directional Aid/Distance Measuring Equipment (LDA/DME) runway 11 instrument approach which has a MDA of 400' msl, or 381' height above terrain (HAT). ATC gave the pilot the current weather observation at Sitka, and authorized a descent to 8,000 feet msl. The pilot requested an approach procedure change to the GPS Runway 11 instrument approach at Sitka which has an MDA of 580' msl, or 556' HAT. Granting the pilot's request, ATC asked the pilot if he wanted vectors direct to an initial approach fix for the GPS runway 11 approach. The pilot stated he did, and when asked which initial approach fix he wanted, he stated "TIPEH." ATC queried the pilot as to his selection of TIPEH, (TIPEH is the final approach fix), and the pilot stated, "direct to TIPEH." The pilot was cleared direct to TIPEH, and told to maintain 8,000 feet msl. The pilot was then cleared for a descent to 7,000 feet msl. At 1550 the pilot was told to "maintain 7,000 feet msl until established on a published portion of the approach, cleared for the GPS Runway 11 approach to Sitka Airport."

ATC maintained radio communications with the accident airplane until the pilot was cleared for the approach and advised by ATC to change to the FSS advisory frequency at Sitka. The pilot made one radio call to the Sitka Flight Service Station (FSS) after changing to the advisory frequency. He stated he was inbound on the approach. The flight service specialist gave the current Sitka weather, and repeated the pilot report from the DC-9 previously given to the pilot by ATC. When the accident airplane failed to arrive at the airport, attempts to contact the airplane by radio were made by the FSS, ATC, and the pilot of another airplane holding for the approach. No further radio transmissions were received from the accident airplane.

WRECKAGE AND IMPACT INFORMATION

On July 4, about 1200, search personnel located the airplane's wreckage. The wreckage was on a steep, heavily wooded hillside. A postcrash fire had consumed most of the fuselage. The accident site was inside the final approach fix, about 3 miles prior to the missed approach point, and about 1.5 miles north of the course centerline. Elevation at the accident site was about 1100 feet msl.

On July 5, the IIC inspected the wreckage at the accident site. The site is located on a heavily wooded hillside in the Tongass National Forest. The hillside varies from 20 to 30 degrees of slope, and is covered with mature evergreen trees approximately 100 feet tall, and 2-3 feet in diameter at the base. The under growth is thick fern and shrub type vegetation. The hillside is crisscrossed with large deadfall trees, and cut by deep erosion furrows.

The wreckage path started in the top of the trees, about 100 feet above the ground, and

proceeded in a generally southeasterly direction for about 300 feet. The path descended through the trees at a shallow angle, 3-10 degrees, gradually steepening to about 30 degrees at the point of final impact. Wreckage found nearest the initial point of impact included the nose gear, and pieces of the nose section, including the baggage and electronics bay doors. The right baggage compartment door was intact, broken off at the hinges. The latches on the right door, and latching devices on the right nose section were undamaged. The left baggage door had been torn from the nose section destroying the latching devices. The nose gear showed aft bending, and had been broken off at its upper fuselage mount. The next large piece of wreckage located along the wreckage path was the outboard section of the left wing from the nacelle to the wingtip, which was severed from the airplane. Next in line, to the right side of the wreckage path, was the complete right wing assembly, including the engine and nacelle. The right wing was severed at the wing root. The right main landing gear was extended in the down and locked position. The right inboard flap appeared to be extended, but control continuity could not be confirmed. The cabin/fuselage impacted at the base of a large tree, and came to rest semi-inverted, with the left engine and nacelle tucked underneath. The left main landing gear was in the down and locked position. The left nacelle contained a wing locker fuel tank, which ruptured, and the cabin/fuselage was consumed by fire. The vertical speed indicator (VSI) was ejected from the airplane, and was the only basic flight instrument recovered. The VSI needle was captured in the 650 feet per minute down position. All the other basic flight instruments, and navigation equipment were consumed by the fire.

On November 12 and 13, the wreckage was reexamined in a hangar in Sitka. Present with the IIC were representatives of the FAA, Cessna Aircraft, and Teledyne Continental Motors. Due to the fire, flap position and control continuity could not be confirmed. No preimpact mechanical anomalies were found with the engines. All the propeller blades showed significant torsional bending and twisting. The propeller spinners were crushed, and showed rotational shredding and scoring.

MEDICAL AND PATHOLOGICAL INFORMATION

Due to the postcrash fire, no pathological or toxicological information is available.

TESTS AND RESEARCH

After the accident, the approach was taken out of service until operational checks could be performed. No anomalies were found with the GPS approach.

ADDITIONAL DATA

No components or parts were retained by the NTSB. The wreckage has been released to the owner's insurance company.

Pilot Information

Certificate:	Commercial	**Age:**	56, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	09/18/2001
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	9200 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N777DX
Model/Series:	421C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	421C0048
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	05/29/2003, Annual	**Certified Max Gross Wt.:**	7450 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	7981 Hours as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	GTSIO-520-F-K
Registered Owner:	Bowl Aviation LLC.	**Rated Power:**	435 hp
Operator:	Bowl Aviation LLC.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	PASI, 21 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	1540 ADT	**Direction from Accident Site:**	340°
Lowest Cloud Condition:		**Visibility**	0 Miles
Lowest Ceiling:	Overcast / 2600 ft agl	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.83 inches Hg	**Temperature/Dew Point:**	12°C / 11°C
Precipitation and Obscuration:			
Departure Point:	Prince Rupert (CYPR)	**Type of Flight Plan Filed:**	IFR
Destination:	Sitka, AK (SIT)	**Type of Clearance:**	IFR
Departure Time:	1512 ADT	**Type of Airspace:**	Class C

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	4 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	5 Fatal	**Latitude, Longitude:**	57.097778, -135.368889

Administrative Information

Investigator In Charge (IIC):	Lawrence R Lewis	**Report Date:**	09/29/2004
Additional Participating Persons:	Charles Wisner; Juneau FSDO-05; Juneau, AK Henry J Soderland; Cessna; Wichita, KS Robert S Boyle; Continental Motors; 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.ntsb.gov/pubdms/.		