



National Transportation Safety Board Aviation Accident Final Report

Location:	SANTA MONICA, CA	Accident Number:	LAX99FA310
Date & Time:	09/23/1999, 0703 PDT	Registration:	N26585
Aircraft:	Cessna 421C	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor

Flight Conducted Under: Part 91: General Aviation - Executive/Corporate

Analysis

During the final approach, while executing a VOR-A instrument approach, the airplane landed hard, collided with the runway VASI display, and caught fire. The airplane had received radar vectors for the approach and was turned to a 20-degree intercept for the final approach course when 2.5 miles from the initial approach fix. Radar track data showed the airplane continued inbound to the field slightly left of course with a ground speed varying between 135 and 125 knots and a descent rate of approximately 700 feet per minute. The pilot said he descended through the clouds about 850 feet above ground level and saw the airport approximately 1 to 2 miles ahead. He noticed that he was left of the runway centerline and corrected to the right. He realized that he had overcorrected and turned back to the left. The pilot reported that he felt that the approach was stabilized although the descent rate was greater than usual. The airplane impacted the ground about 1,000 feet from the approach end of the runway abeam the air traffic control tower on an approximate heading of 185 degrees. The impact collapsed the landing gear and the airplane slid forward another 1,000 feet down the runway and came to rest approximately midfield on the runway. The pilot stated that he had not experienced any mechanical problems with the aircraft or the navigation equipment prior to the accident. A Special Weather Observation taken at the time of the accident contained the following: sky condition overcast at 500 feet; winds from 230 degrees at 3 knots; visibility 2 miles.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to establish and maintain a stabilized approach, which resulted in a hard landing and on-ground collision with the airport VASI display.

Findings

Occurrence #1: HARD LANDING

Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

Findings

1. (F) WEATHER CONDITION - LOW CEILING
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
3. (C) IFR PROCEDURE - NOT COMPLIED WITH - PILOT IN COMMAND
4. (C) PROPER ALIGNMENT - NOT OBTAINED - PILOT IN COMMAND
5. (C) PROPER DESCENT RATE - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: FIRE

Phase of Operation: LANDING - ROLL

Findings

6. LANDING GEAR - OVERLOAD

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: LANDING - ROLL

Findings

7. OBJECT - VASI LIGHT/SYSTEM

Factual Information

HISTORY OF FLIGHT

On September 23, 1999, at 0703 hours Pacific daylight time, a Cessna 421C, N26585, landed hard and subsequently caught fire while landing at the Santa Monica Airport, Santa Monica, California. The airplane, operated by River Transportation, LLC, was substantially damaged. The airline transport pilot suffered minor injuries. The flight was conducted under 14 CFR Part 91 as a corporate/executive transportation flight. The flight originated from Long Beach, California, about 0640, was making a planned stop in Santa Monica with the intent of picking up a passenger, and had a final destination of San Luis Obispo, California. An instrument flight rules (IFR) tower en route clearance was obtained for the flight leg from Long Beach to Santa Monica, and an IFR flight plan was filed for the flight leg from Santa Monica to San Luis Obispo. Instrument meteorological conditions prevailed.

The pilot reported that he was flying the VOR-A approach to runway 21 at Santa Monica. He descended through the clouds about 850 feet agl and saw the airport approximately 1 to 2 miles ahead. He noticed that he was left of the runway centerline and corrected to the right. He realized that he had overcorrected and turned back to the left. The pilot reported that he felt that the approach was stabilized, although the descent rate was greater than usual. The airplane impacted the runway about 1,000 feet from the approach end of the runway abeam the air traffic control tower on an approximate heading of 185 degrees. A fire immediately ensued. The airplane continued forward about another 1,000 feet down the runway, while still engulfed in flames, and came to rest approximately midfield on the runway. The pilot stated that the fire appeared to be involved on both the left and right sides of the aircraft. After the airplane came to a stop, the pilot exited the aircraft on his own via the cabin door.

The pilot stated that he had not experienced any mechanical problems with the aircraft or the navigation equipment prior to the accident.

Witnesses who were working on the airport grounds at the time of the accident reported that they observed the airplane making lateral corrections to line up with the runway centerline. They reported that when the airplane was over the runway, it banked left and then "dropped," losing altitude very quickly. Two of the witnesses reported specifically that they noted that the landing gear were down during the approach.

The pilot was interviewed by the Safety Board investigator. He stated that he was familiar with the VOR-A approach into Santa Monica, although he had only done it three or four times in actual instrument conditions. He stated that he usually began the approach from the north instead of from the south.

PERSONNEL INFORMATION

According to the Federal Aviation Administration (FAA) airman certification database, the pilot held an airline transport pilot certificate with single engine land, multiengine land, and instrument ratings. The FAA airman medical certification database revealed that the pilot held a first-class medical, dated June 18, 1999, with the following limitation: "must wear corrective lenses." The pilot's logbook reflected that his most recent flight review was on May 16, 1999, during which he demonstrated proficiency in a CE550 simulator.

The pilot reported that he had 4,050 hours of total flight time, including 2,150 hours in the

accident make and model. He also had 172 hours of actual instrument flight time, and 56 hours of simulated instrument time.

AIRCRAFT INFORMATION

The airplane was a Cessna 421C, N26585, serial number 421C00832. A review of the airplane's logbooks revealed the aircraft had last received an annual inspection on March 2, 1999. The aircraft had flown 122.5 hours since the annual inspection at the time of the accident. The pilot stated that a VOT test had been performed within the past 30 days.

WRECKAGE AND IMPACT

According to witnesses, the airplane impacted the runway in a right wing down and nose down attitude. The right landing gear hit the VASI light. There were long indentations and drag marks from the landing gear strut. There was a deep indentation from the left landing gear, and a drag mark from the strut or gear piece. A spray pattern was observed from the end of the left tire mark along with melted asphalt. A sooting pattern was noted in line with the landing gear.

Also at the initial impact site, there were two series of ground scars, perpendicular to the initial impact scar. There were five scars on the left side and three on the right side. The series of scars was about 17 1/2 feet apart. The three-view drawing for the Cessna 421C reflects that the distance between the two propellers is 17.38 feet. The drawing also indicates that the normal propeller tip to ground clearance is 0.71 inches.

Debris from the aircraft was strewn along the runway from the initial impact site to the main wreckage. A charred piece of the airplane's belly antenna was located next to the broken runway light. Continuing along the path were a brake pad, right landing gear door, parts from a brake and undercarriage assembly, ADF antenna, a piece of propeller blade hub, and other small pieces identified to be from the airplane.

Extensive thermal destruction of the left cabin and wing section was noted. The right side showed burn damage around the engine and trailing edge portion of the wing. The right aileron was partially burned away along with an area of the engine nacelle. The left wing exhibited more fire damage and discoloration than the right wing. The left aileron, trailing edge section of the engine nacelle, and a section of the flaps were burned away.

The left wing fuel tank was found disintegrated. Both fuel selector handles in the cockpit were found in the left tank position.

Both engines were intact, and both sets of propeller blades exhibited chordwise striations and aft curling.

The right main landing gear was torn from the trunnion mounts and had pushed upwards through the engine nacelle. The left main landing gear trunnion remained attached but the strut was torn from its mounts. The right landing gear trunnions were bent downward and the clevice fittings were torn from the strut. The strut was shoved up through the nacelle. The left landing gear failed outboard.

The right landing gear downlock was secured. The wheel and trunnion had twisted about 90 degrees from the actuator piston. The gear door was separated. The exposed piston in the actuator assembly on the right gear measured 1 foot 2 3/4 inches.

Control cable continuity was established for all flight control surfaces to the cockpit.

The interior cockpit and cabin of the aircraft had sustained post impact fire and smoke damage. All seats, seat belts, and shoulder harnesses were intact. The mid-cabin seats were not scorched, but did exhibit burn damage. The emergency exit door was securely intact and functioned appropriately when opened.

AIDS TO NAVIGATION

The pilot reported that he was using the number 1 VOR to navigate the approach, and had the GPS set up as the secondary instrument. He reported that he had the 212-degree radial selected, with the heading bug set to that radial. He stated that he had not experienced any problems with any of the navigation equipment.

The FAA Airways inspector flew the VOR-A approach following the accident. He reported that there were no problems with the approach.

COMMUNICATIONS

The Southern California (SOCAL) Terminal Radar Approach Control (TRACON) air traffic controller was interviewed by the Safety Board. He reported, that on the day of the accident, he first became aware of the accident airplane when the previous approach control sector initiated a handoff to him. He accepted the handoff and retrieved the flight strip for the aircraft, which contained information on the flight identification, beacon code, altitude, destination, and IFR/VFR status. The controller reported that he handled the aircraft in accordance with normal procedures for arrivals to Santa Monica airport. N26585 was the first arrival to Santa Monica that day, and was radar vectored to the VOR approach to runway 21. The controller stated that he had not noticed any indication of unusual winds aloft when vectoring other aircraft. He reported that he turned the airplane to a downwind heading of 040 or 050 degrees, then a base leg heading of 300 degrees, and a 230-degree heading to intercept the final approach course for runway 21. The ground tracks appeared to be consistent with the headings issued. His intention was to have the aircraft intercept the final approach course about 1 to 2 miles outside of Bevey intersection. He stated that according to FAA Order 7110.65, Air Traffic Control, the airplane should have been established on the final approach course at least 1 mile outside Bevey intersection for this approach. He reported that he would break an aircraft off the approach to make another approach for traffic reasons, pilot request, or if the approach looked bad. In this case, he stated that the aircraft appeared to be tracking direct to the VOR, and didn't seem to need another approach.

The pilot reported that he didn't have any concerns or problems with the headings the controller assigned to him. He further stated that he hadn't needed to make any wind corrections.

The controller noticed that the airplane was left of course and advised the pilot that he could turn another 10 degrees to the right to intercept if he needed. He then told the pilot to change over to the Santa Monica tower frequency. He stated that Santa Monica arrivals from the south are coordinated with the Burbank area, and the aircraft's data block is then forced onto the Santa Monica tower's DBRITE radar display in accordance with facility automated information transfer procedures.

According to Santa Monica air traffic control, the tower opens at 0700. The audiotapes from the morning of the accident were reviewed. At 0700, the local controller at Santa Monica made the opening broadcast. At 0701, the pilot of N26585 called Santa Monica Tower and advised that he was turning final for runway 21. No reply was heard from the tower and there was no

further communication from the pilot.

The three Santa Monica tower air traffic controllers provided witness statements. They each reported observing the aircraft making lateral corrections to attempt to line up with the runway centerline. One of the controllers reported that at one point, it appeared as if the aircraft was headed directly towards the tower cab. He stated that the aircraft then banked left, but appeared to have overshot the left bank, and the aircraft then lost lift and collided with the ground.

METEOROLOGICAL INFORMATION

A special weather observation was issued at Santa Monica, at 0702, with the following observations: sky condition was overcast at 500 feet; winds were from 230 degrees at 3 knots; altimeter setting 29.94 inHg; temperature 63 degrees Fahrenheit; and dew point 61 degrees Fahrenheit. On a scale of 0 to 8, the total sky cover was recorded as "8."

The pilot reported the visibility as 6 miles, and the lowest cloud condition as broken at 700 feet. He stated that visibility was restricted by haze, and there was no precipitation. He reported that en route from Long Beach to Santa Monica, the tops of the clouds were between 1,900 to 2,000 feet, and stated that he was only in the clouds for approximately 2 minutes.

ADDITIONAL INFORMATION

The wreckage was released to the owner's insurance representative on October 1, 1999.

Pilot Information

Certificate:	Airline Transport	Age:	58, 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):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	06/18/1999
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	4050 hours (Total, all aircraft), 2150 hours (Total, this make and model), 3950 hours (Pilot In Command, all aircraft), 70 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N26585
Model/Series:	421C 421C	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	421C0832
Landing Gear Type:	Retractable - Tricycle	Seats:	7
Date/Type of Last Inspection:	03/02/1999, Annual	Certified Max Gross Wt.:	7500 lbs
Time Since Last Inspection:	123 Hours	Engines:	2 Reciprocating
Airframe Total Time:	3915 Hours	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	GTSIO-520
Registered Owner:	RIVER TRANSPORTATION LLC	Rated Power:	375 hp
Operator:	RIVER TRANSPORTATION LLC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	SMO, 175 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0702 PDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Thin Overcast / 500 ft agl	Visibility	2 Miles
Lowest Ceiling:	Overcast / 500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	63° C / 61° C
Precipitation and Obscuration:			
Departure Point:	LONG BEACH, CA (LGB)	Type of Flight Plan Filed:	None
Destination:	(SMO)	Type of Clearance:	IFR
Departure Time:	0640 PDT	Type of Airspace:	Class D

Airport Information

Airport:	SANTA MONICA (SMO)	Runway Surface Type:	Asphalt
Airport Elevation:	175 ft	Runway Surface Condition:	Dry
Runway Used:	21	IFR Approach:	VOR/DME
Runway Length/Width:	4987 ft / 150 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	NOELANI MARS	Report Date:	01/02/2002
Additional Participating Persons:	FRANK SIEBOLD; LOS ANGELES, CA LEAH YEAGER; 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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