



National Transportation Safety Board Aviation Accident Final Report

Location:	Venice, FL	Accident Number:	MIA04LA124
Date & Time:	08/25/2004, 1630 EDT	Registration:	N792MA
Aircraft:	Cessna 550	Aircraft Damage:	Substantial
Defining Event:		Injuries:	3 None

Flight Conducted Under: Part 91: General Aviation - Flight Test

Analysis

The pilot and copilot stated that during the flight and approach to the airport several cells of thunderstorms were observed of which one was a few miles from the airport. There was light rain after the accident landing and about 30 minutes later heavy showers were observed. The pilot stated the final approach was well established with no major correction for speed or attitude, gear down and full flaps were selected. At last glance to the airspeed, there was an indication of 105 knots. While approaching the threshold, there was a sensation that a tailwind or a downdraft was occurring, at which time the sink rate dramatically increased and before any correction was possible the airplane had already touchdown about 30 feet short of the runway. The airplane traveled another 1,500 feet down the runway before coming to a stop. At the time, he believed the main tires had blown due to him still having directional control of the airplane during the landing roll on the runway. Following the accident landing, an exterior inspection of the accident airplane revealed the flaps had been damaged. The left and right main landing gear had punctured through the top of the wings and the belly of the airplane had been dragged while the nose landing gear stayed partially intact. A witness stated he saw the aircraft on final approach low and slow at an almost level flight attitude, no flare or very little flare. The airplane landed hard and solid. A loud noise and smoke followed as the airplane slid down the runway. The data retrieved from the DFDR indicated that the airplane was descending through an indicated altitude of 1,450 feet, on an indicated heading of 226 degree, and an indicated airspeed of 146 knots. The airplanes heading changed to 135 degree as the airplane descended through 225 feet, and the indicated airspeed read 95 knots. As the airplane descended, the indicated airspeed was between 95 to 90 knots for about 15 seconds. The last five seconds of the flight, the indicated airspeed decreased to 83 knots. The last recorded data on the DFDR read that the airplane was on an indicated heading of 137 degree, indicated airspeed of 83 knots, and recorded a vertical acceleration of 4 g. At the time of the accident the airplane had several interior items removed. The weight and balance calculation sheet for that flight was not submitted for the investigation by the operator of the airplane. The pilot stated the airplane had 3,600 pounds of fuel on board at time of departure. Reference to Cessna's Section IV-Performance Standard Charts for stall speeds for the model 550, with full flaps and landing gear extended, a non-banked stall speed at 12,000 pounds gross weight is 80 knots calibrated airspeed.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot's failure to maintain adequate airspeed which resulted in a stall and undershoot of the runway.

Findings

Occurrence #1: UNDERSHOOT

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (C) DISTANCE/ALTITUDE - MISJUDGED - PILOT IN COMMAND
 2. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
 3. STALL/MUSH - INADVERTENT - PILOT IN COMMAND
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Occurrence #2: HARD LANDING

Phase of Operation: DESCENT - UNCONTROLLED

Findings

4. TERRAIN CONDITION - GROUND

Factual Information

On August 25, 2004, about 1630 eastern daylight time, a Cessna Citation 550, N792MA, registered to and operated by Grafair Inc., as a Title 14 CFR Part 91 personal flight, landed short of the runway at the Venice Municipal Airport, Venice, Florida. Visual meteorological conditions prevailed and no flight plan was filed. The airline transport-rated pilot, the commercial-rated copilot, and one passenger received no injuries. The airplane incurred substantial damage. The flight originated from St. Lucie County International Airport, Fort Pierce, Florida, earlier that day, about 1545.

The pilot stated the flight to Venice was uneventful as well the descent and joining of the traffic pattern for runway 13. The final approach was well established with no major correction for speed or attitude, gear down and full flaps were selected. At last glance to the airspeed, there was an indication of 105 knots. While approaching the threshold there was a sensation that a tailwind or a downdraft was occurring, at which time the sink rate dramatically increased and before any correction was possible the airplane had already touch down about 30 feet short of the runway. The airplane traveled another 1,500 feet down the runway before coming to a stop. At the time, he believed the main tires had blown due to him still having directional control of the airplane during the landing roll on the runway. After the landing the circuit breakers were secured. The circuit breaker for the flaps was found popped and the flap indicator was indicating 20 degrees of flap. The flap selector handle was in the full down (landing position).

The pilot and copilot stated during the flight and approach to the airport several cells of thunderstorms were observed of which one was a few miles from the airport. There was light rain after the landing and about 30 minutes later heavy showers were observed.

Following the accident landing, an exterior inspection of the accident airplane revealed the flaps had been damaged. The left and right main landing gear had punctured through the top of the wings and the belly of the airplane had been dragged while the nose landing gear stayed partially intact.

A witness stated he saw the aircraft on final approach low and slow at an almost level flight attitude, no flare or very little flare. The airplane landed hard and solid. A loud noise and smoke followed as the airplane slid down the runway.

The weather automated surface observation system (ASOS) at the Venice Airport showed no signs of fluctuation in wind from the time between 1301, and 1701 local. The wind velocity was also varying between 03 and 07 knots at those times. Tampa weather radar WSR-88D at 1547, showed a level 5 cell about 8 nautical miles, north-northeast, of Venice Airport. A level one echo was indicated in the vicinity of the airport at 1542, but was diminished at 1547 local time.

The FAA inspector who responded to the accident retained the digital flight data recorder (DFDR), enhanced ground proximity warning system (EGPWS), and the cockpit voice recorder (CVR) for read out of the data. The accident DFDR and the CVR was sent to the NTSB Vehicle Recorders Division in Washington DC, for analysis. The data retrieved from the DFDR indicated that the airplane was descending through an indicated altitude of 1,450 feet, on an indicated heading of 226 degree, and an indicated airspeed of 146 knots. The airplane's heading changed to 135 degree as the airplane descended through 225 feet, and the indicated airspeed read 95 knots. As the airplane descended, the indicated airspeed was between 95 to 90 knots for about 15 seconds. The last five seconds of the flight, the airspeed decreased to 83

knots. The last recorded data on the DFDR read that the airplane was on an indicated heading of 137 degree, indicated airspeed of 83 knots, and recorded a vertical acceleration of 4 g.

At the time of the accident the airplane had several interior items removed. The weight and balance calculation sheet for that flight was not submitted for the investigation by the operator of the airplane. The pilot stated the airplane had 3,600 pounds of fuel on board at time of departure. Reference to Cessna's Section IV-Performance Standard Charts for stall speeds for the model 550, with full flaps and landing gear extended, a non-banked stall speed at 12,000 pounds gross weight is 80 knots calibrated airspeed (KCAS).

The CVR and EGPWS were not operational at the time of the accident and no data was recovered. The pilot stated that there were no mechanical failures or malfunctions to the airplane or any of its systems prior to the accident.

The retained components were released to the airplane's owner on May 9, 2005.

Pilot Information

Certificate:	Airline Transport	Age:	62, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Helicopter; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last Medical Exam:	04/23/2004
Occupational Pilot:		Last Flight Review or Equivalent:	04/05/2004
Flight Time:	16000 hours (Total, all aircraft), 750 hours (Total, this make and model), 15700 hours (Pilot In Command, all aircraft), 2 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Commercial	Age:	43, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):		Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last Medical Exam:	09/28/2003
Occupational Pilot:		Last Flight Review or Equivalent:	04/22/2004
Flight Time:	6000 hours (Total, all aircraft), 3 hours (Total, this make and model), 5800 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Cessna	Registration:	N792MA
Model/Series:	550	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	550-302
Landing Gear Type:	Retractable - Tricycle	Seats:	9
Date/Type of Last Inspection:	08/22/2004, Continuous Airworthiness	Certified Max Gross Wt.:	14500 lbs
Time Since Last Inspection:	1.5 Hours	Engines:	2 Turbo Jet
Airframe Total Time:	1.5 Hours	Engine Manufacturer:	Pratt & Whitney
ELT:	Installed, not activated	Engine Model/Series:	JT15-4
Registered Owner:	Grafair Inc.	Rated Power:	2500 lbs
Operator:	Grafair Inc.	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	VNC, 18 ft msl	Observation Time:	1621 EDT
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Thin Broken / 2600 ft agl	Temperature/Dew Point:	31 °C / 25 °C
Lowest Ceiling:	Broken / 5500 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 210°	Visibility (RVR):	
Altimeter Setting:	30 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ft. Pierce, FL (KFPR)	Type of Flight Plan Filed:	None
Destination:	(KVNC)	Type of Clearance:	VFR
Departure Time:	1545 EST	Type of Airspace:	Class E

Airport Information

Airport:	Venice Airport (KVNC)	Runway Surface Type:	Asphalt
Airport Elevation:	20 ft	Runway Surface Condition:	Dry
Runway Used:	13	IFR Approach:	None
Runway Length/Width:	5000 ft / 150 ft	VFR Approach/Landing:	Traffic Pattern

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	27.071389, -82.440278

Administrative Information

Investigator In Charge (IIC):	Jose L Obregon	Adopted Date:	12/20/2005
Additional Participating Persons:	Robert Anderson; Tampa FSDO; Tampa, FL Henry J Soderlund; Cessna; 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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