

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: IAD05FA067		Aircraft Registration Number: N778LP	
		Occurrence Date: 05/21/2005		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Brooklyn	State NY	Zip Code 11224	Local Time 1332	Time Zone EDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer Cessna		Model/Series 172S		Type of Aircraft Airplane	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident: *** Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. *** HISTORY OF FLIGHT On May 21, 2005, at 1332 eastern daylight time, a Cessna 172S, N778LP, was substantially damaged when it impacted terrain while maneuvering near Brooklyn, New York. The certificated flight instructor and three passengers were fatally injured. Visual meteorological conditions prevailed for the flight that departed the Linden Airport (LDJ) Linden, New Jersey, about 1324. No flight plan was filed for the local instructional flight conducted under 14 CFR Part 91. According to the operator of the flight school, the passengers booked the flight as a "discovery flight," which the school would advertise on the Internet at a discounted rate, to attract prospective flight students. Upon initial departure from LDJ, the flight instructor returned shortly thereafter, when one of the three female passengers felt ill and needed to disembark. He then had the airplane refueled, and a male passenger boarded. The airplane then departed towards Brooklyn, New York. Radar data provided by the Federal Aviation Administration (FAA) showed a radar target, correlated to be the accident airplane, near LDJ. The target climbed to an altitude of approximately 500 feet msl while proceeding toward Coney Island at an average ground speed of 108 nautical miles per hour (knots), and below the class "B" airspace veil surrounding John F. Kennedy International Airport. The target disappeared from radar at 13:31:40 at 300 feet and a ground speed of 60 knots. Approximately 42 witnesses were interviewed by the New York City Police Department, descriptions varied between witness statements as to the altitude, direction of flight, and velocity of the airplane; however, the preponderance of witness statements were that the airplane was maneuvering at low altitude along the beachfront at Coney Island. The airplane then banked to the left, descended in a nose down attitude, and impacted the ground. The accident occurred during the hours of daylight. The wreckage was located at 40 degrees, 34.338 minutes north latitude, 73 degrees, 58.867 minutes west longitude. PILOT INFORMATION According to Federal Aviation Administration (FAA) records, the flight instructor held a commercial pilot certificate with ratings including airplane single-engine-land, airplane-multiengine-land and instrument airplane.					
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His most recent FAA first-class medical certificate was issued January 31, 2005. Examination of his logbook revealed that he had accrued 1,932 total hours of flight experience.

AIRPLANE INFORMATION

The airplane was manufactured in 2001. The airplane's most recent annual inspection was completed on March 25, 2005. At the time of the inspection, the airplane had accrued 1,566 total hours of operation.

METEOROLOGICAL INFORMATION

A weather observation taken about 8 minutes after the accident, at the John F. Kennedy International Airport (JFK), New York, New York, located approximately 7 nautical miles north of the accident site, recorded the winds as 190 degrees at 12 knots, visibility 10 miles, ceiling broken at 5,500 feet, temperature 63 degrees Fahrenheit, dew point 46 degrees Fahrenheit, and an altimeter setting of 29.85 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The main wreckage came to rest on a beach approximately 150 feet south of the Coney Island boardwalk.

The wreckage was contained at the point of impact, and created a crater approximately 4 feet wide by 6 feet long. The depth of the crater varied between 6 to 18 inches with multiple small depressions.

All the major components of the airplane were accounted for at the accident site. The main wreckage was orientated on a heading of 150 degrees magnetic, was canted approximately 10 degrees to the left, and displayed varying degrees of impact damage. A crush line was visible on the right hand door, and was measured at a 50-degree angle, perpendicular to the longitudinal axis of the cabin. The left wing displayed impact and compression damage along the leading edge, and the right wing had separated from the fuselage at the attach fitting. The aft fuselage section exhibited compression damage aft of the cabin on the right side, and was displaced approximately 8 degrees to the right of the cabin area. All flight control surfaces displayed differing degrees of damage. The flap actuator correlated to a 30-degree flap position. The elevator trim correlated to approximately neutral. Flight control continuity was confirmed from the elevator and rudder panels to the cabin, left aileron to the inboard portion of the left wing and cabin, and from the right aileron to the separation in the right wing where the control cables displayed signatures consistent with tension overload.

Examination of the cockpit revealed that the throttle control was in the idle position, and bent at a 45-degree angle to the left. The mixture control was in the full rich position, and the flap switch lever was in the "FULL," or 30-degree position at the mechanical stop. The fuel selector was set to both, and all seat belt and shoulder harness assemblies were secured. Both cabin door latch assemblies were in the closed and locked position, and exhibited witness marks at the door latch pins.

Examination of the propeller revealed that the propeller had remained attached to portions of the aft propeller bulkhead, and spacer; however, the crankshaft flange that the propeller assembly was attached to, was broken, exhibited a 45-degree shear lip along the fractured surface, and was separated from the engine. One propeller blade exhibited s-bending and leading edge gouging. The other blade was curled approximately 50 degrees in a rearward direction, with visible burnishing and chordwise scratching of the blade face.

Examination of the engine revealed impact damage to the fuel servo-mounting flange, fuel pump, left and right magneto-mounting flanges, the oil filter adapter and the nose portion of the crankcase. Continuity of the intake system, exhaust system, valve train, and crankshaft were confirmed. All spark plugs were removed for inspection, their electrodes were intact and light gray in color. All four cylinders were examined internally with a lighted borescope, and no anomalies were observed. The crankshaft was rotated through an accessory drive, and compression was noted on all four cylinders. The valve covers were removed, and oil was noted in all rocker boxes.

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The oil filter was examined, and no contamination was observed. Both magnetos were removed and rotated by hand, and spark was produced at all terminal leads.

An examination of the fuel system from the firewall forward was conducted. The fuel pump showed impact damage, but exhibited no preimpact failures. The fuel strainer bowl was broken, but the strainer screen was intact and showed no discoloration or debris on its face. The fuel servo throttle valve was nearly closed, and all fuel nozzles were free of debris. Fuel samples from the fuel servo and flow divider were examined. The samples were bright, clear, and absent of debris. The samples were consistent in color and smell with 100 low lead aviation gasoline, and when tested with water-finding paste, no water was detected.

MEDICAL AND PATHOLOGICAL INFORMATION

An Autopsy was performed on the pilot by the Office of the Chief Medical Examiner, City of New York.

Toxicological testing of the pilot was conducted at the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma.

WEIGHT AND BALANCE INFORMATION

A review of the fuel provider's records revealed that the aircraft was filled with 32.8 gallons of fuel, prior to the accident flight. According to the fueler, the only fuel orders he had ever received from the flight school's pilots was to "top it off."

Using actual occupant weights provided by the Office of the Chief Medical Examiner, City of New York, the weight of a full fuel load, and the airplane empty weight as published in the aircraft delivery documents, the airplane's center of gravity was calculated to be 43.8 inches aft of the datum on the center of gravity moment envelope chart and the take off weight of the airplane was calculated to have been 2,689 pounds.

The maximum certificated takeoff weight of the aircraft was 2,550 pounds.

TESTS AND RESEARCH

According to the Cessna 172S information manual, at the maximum certificated takeoff weight of 2,550 pounds the stall characteristics of the airplane were "conventional," and "altitude loss during a stall recovery may be as much as 230 feet." At the 30-degree wing flap position, published stall speeds for the airplane ranged from 40 knots indicated airspeed (KIAS) at 0 degrees of bank to 57 KIAS at 60 degrees of bank.

The airplane was also equipped with a pneumatic type stall warning system, which consisted of an inlet in the leading edge of the left wing, an air-operated horn near the upper left corner of the windshield, and associated plumbing. As the airplane approached a stall, the low pressure on the upper surface of the wings would move forward around the leading edge of the wings. This low pressure would create a differential pressure in the stall warning system, which would draw air through the warning horn, and would result in an audible warning at 5 to 10 knots above stall, in all flight conditions.

ADDITIONAL INFORMATION

Corrective Actions

As a result of this accident, the operator modified their advertising material, removing the portion that offered to carry additional persons and re-enforced the policy that "discovery" flights will go only to the designated practice area with only one potential student onboard. The potential student would only be instructed in the basic fundamentals of flight and no passengers would be allowed to ride in the back seat.

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A memorandum to all of the operator's flight instructors was also distributed requiring that a weight and balance worksheet be completed prior to each departure.

WRECKAGE RELEASE

The wreckage was released to a representative of the owner's insurance company on May 22, 2005.

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used NA	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown: Unknown					
VFR Approach/Landing: Unknown					
Aircraft Information					
Aircraft Manufacturer Cessna		Model/Series 172S		Serial Number 172S-8778	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Tricycle					
Amateur Built Acft? No	Number of Seats: 4	Certified Max Gross Wt.	2550 LBS	Number of Engines: 1	
Engine Type: Reciprocating	Engine Manufacturer: Textron Lycoming	Model/Series: IO-360-L2A	Rated Power: 180 HP		
- Aircraft Inspection Information					
Type of Last Inspection Annual	Date of Last Inspection 03/2005	Time Since Last Inspection 55.3 Hours	Airframe Total Time 1940.8 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type Yes /	ELT Operated? No	ELT Aided in Locating Accident Site? No			
Owner/Operator Information					
Registered Aircraft Owner RJ Ventures LLC.		Street Address			
		City Paramus	State NJ	Zip Code 07652	
Operator of Aircraft Air Fleet Training Systems Inc.		Street Address			
		City Teterboro	State NJ	Zip Code 07608	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Instructional					
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First Pilot Information																																																																																															
Name			City		State	Date of Birth	Age																																																																																								
On File			On File		On File	On File	34																																																																																								
Sex: M	Seat Occupied: Right		Occupational Pilot?			Certificate Number: On File																																																																																									
Certificate(s): Flight Instructor; Commercial																																																																																															
Airplane Rating(s): Multi-engine Land; Single-engine Land																																																																																															
Rotorcraft/Glider/LTA: None																																																																																															
Instrument Rating(s): Airplane																																																																																															
Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Instrument Airplane																																																																																															
Current Biennial Flight Review? 08/2004																																																																																															
Medical Cert.: Class 1		Medical Cert. Status: With Waivers/Limitations			Date of Last Medical Exam: 08/2004																																																																																										
<table border="1"> <thead> <tr> <th>- Flight Time Matrix</th> <th>All A/C</th> <th>This Make and Model</th> <th>Airplane Single Engine</th> <th>Airplane Multi-Engine</th> <th>Night</th> <th colspan="2">Instrument Actual Simulated</th> <th>Rotorcraft</th> <th>Glider</th> <th>Lighter Than Air</th> </tr> </thead> <tbody> <tr> <td>Total Time</td> <td>1932</td> <td>1030</td> <td>1162</td> <td>546</td> <td>210</td> <td>46</td> <td>78</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td>1609</td> <td>966</td> <td>1139</td> <td>470</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td>1240</td> <td>864</td> <td>907</td> <td>333</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instruction Received</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>39</td> <td>39</td> <td>39</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>34</td> <td>34</td> <td>34</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>2</td> <td>2</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument Actual Simulated		Rotorcraft	Glider	Lighter Than Air	Total Time	1932	1030	1162	546	210	46	78	1			Pilot In Command(PIC)	1609	966	1139	470							Instructor	1240	864	907	333							Instruction Received											Last 90 Days	39	39	39								Last 30 Days	34	34	34								Last 24 Hours	2	2	2							
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Seatbelt Used? Yes		Shoulder Harness Used? Yes			Toxicology Performed? Yes		Second Pilot? No																																																																																								
Flight Plan/Itinerary																																																																																															
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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
JFK	1340	EDT	13 Ft. MSL	12 NM	78 Deg. Mag.
Sky/Lowest Cloud Condition:				Ft. AGL	Condition of Light: Day
Lowest Ceiling: Broken			5500 Ft. AGL	Visibility: 10 SM	Altimeter: 29.85 "Hg
Temperature: 17 °C		Dew Point: 8 °C	Weather Conditions at Accident Site: Visual Conditions		
Wind Direction: 190		Wind Speed: 12		Wind Gusts:	
Visibility (RVR): Ft.		Visibility (RVV) SM			
Precip and/or Obscuration: No Obscuration; No Precipitation					

Accident Information					
Aircraft Damage: Substantial		Aircraft Fire: None		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers	3				3
- TOTAL ABOARD -	4				4
Other Ground					
- GRAND TOTAL -	4				4

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Administrative Information		
Investigator-In-Charge (IIC) Todd G. Gunther		
Additional Persons Participating in This Accident/Incident Investigation: Mario DeJesus FAA FSD0-15 Garden City, NY Steven M Miller Cessna Aircraft Corporation Wichita, KS Aaron L Spotts Textron Lycoming Williamsport, PA		
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