



# National Transportation Safety Board Aviation Accident Final Report

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|-------------------------|----------------------|-------------------------|------------|
| <b>Location:</b>        | Greenacres City, FL  | <b>Accident Number:</b> | MIA04FA037 |
| <b>Date &amp; Time:</b> | 12/30/2003, 1115 EST | <b>Registration:</b>    | N111RC     |
| <b>Aircraft:</b>        | Cessna 441           | <b>Aircraft Damage:</b> | Destroyed  |
| <b>Defining Event:</b>  |                      | <b>Injuries:</b>        | 1 Fatal    |

**Flight Conducted Under:** Part 91: General Aviation - Personal

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## Analysis

The airplane, flown by an airline transport pilot, departed in day visual meteorological conditions for an 18-nautical mile flight from the home base airport to another airport where the pilot planned to conduct a practice instrument approach. The pilot contacted approach control and requested a practice ILS approach. The controller instructed the pilot to proceed northwest bound and maintain 2,500 feet msl. Radar indicated the airplane tracked a northerly heading instead of a northwesterly heading as instructed. The airplane continued on a northerly heading until 1113:48 when it was about 5 miles southwest of the destination airport at 1,900 feet msl with a ground speed of 172 knots. At this point, the controller instructed the pilot to turn southbound and remain clear of Class C airspace. Radar coverage for the next 50 seconds was intermittent. At 1114:29, radar picked up the airplane about 4 miles southwest of the destination airport at 1,800 feet msl, a ground speed of 106 knots, and a heading of 101 degrees. The airplane continued heading east-southeast for about 30 seconds and its ground speed continued to decay. At 1114:58, it entered an abrupt descent, going from 1700 feet to 200 feet in 15 seconds. The last radar return was recorded at 1115:13 and showed the airplane at 200 feet msl, a ground speed of 64 knots, and a heading of 093 degrees. Several witnesses observed the airplane descend in a "flat spin" and impact a shallow canal in a residential area. Examination of the accident site revealed that the airplane impacted the canal in a nearly flat and level attitude. No evidence of any pre-impact mechanical discrepancies with the airframe or engines was found that would have prevented normal operation. Testing of the electronic engine controls revealed that both units were functional, but under some conditions would trip to manual mode. Further investigation determined that the units tripping to manual mode was due to an electrical overstress that failed the same thermistor within each unit. The reason for the electrical overstress or when it occurred could not be determined; however, it is probable it occurred at impact when the units were submerged in water. Even if the units tripped to manual mode in flight, this would only result in the loss of the torque and temperature limiting and propeller synchrophaser systems, meaning the pilot would have to manually adjust the power levers as required to maintain the proper torque and exhaust gas temperature. Post accident toxicology testing of the pilot's blood revealed chlorpheniramine, an over-the-counter sedating antihistamine, at more than ten times higher than the level expected with a typical maximum over-the-counter dose. It is probable that the

pilot's performance and judgment were substantially impaired by his very high blood level of chlorpheniramine.

## 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 aircraft control, which resulted in an inadvertent stall/spin and subsequent uncontrolled descent into a canal. A factor was the pilot's impairment by the drug chlorpheniramine.

### Findings

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

#### Findings

1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (F) IMPAIRMENT(DRUGS) - PILOT IN COMMAND
3. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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

#### Findings

4. TERRAIN CONDITION - WATER

## Factual Information

### HISTORY OF FLIGHT

On December 30, 2003, about 1115 eastern standard time, a Cessna 441, N111RC, registered to N L Five, Inc., and operated by the pilot, entered an uncontrolled descent from cruise flight and impacted a shallow canal in a residential area in Greenacres City, Florida. The airplane was destroyed, and the airline transport pilot, the sole occupant, incurred fatal injuries. Visual meteorological conditions prevailed, and no flight plan was filed. The personal flight was conducted under 14 CFR Part 91. The flight originated about 1108 from Boca Raton Airport in Boca Raton, Florida, where the airplane was based, and the destination was Palm Beach International Airport in West Palm Beach, Florida, located 18 nautical miles to the north.

FAA radar data and transcripts indicated that at 1110:58, the pilot contacted Palm Beach approach control when the airplane was about 8 miles north of Boca Raton Airport at 2,000 feet msl with a ground speed of 240 knots. The pilot requested a practice instrument landing system (ILS) approach to runway 09 Left at Palm Beach International Airport. The controller instructed the pilot to proceed northwest bound and maintain 2,500 feet msl. Radar indicated the airplane tracked a northerly heading instead of a northwesterly heading as instructed. The airplane continued on a northerly heading until 1113:48 when it was about 5 miles southwest of Palm Beach International Airport at 1,900 feet msl with a ground speed of 172 knots. At this point, the controller instructed the pilot to turn southbound and to remain clear of the Palm Beach Class C airspace. The last transmission recorded from the pilot was at 1114:50, when he stated, "we're going south romeo charlie."

From 1113:44 to 1114:29, radar coverage became intermittent. At 1114:29, the radar picked up the airplane about 4 miles southwest of Palm Beach International Airport at 1,800 feet msl, a ground speed of 106 knots, and a heading of 101 degrees. The remaining nine radar returns were:

Time, Mode C Altitude, Heading, Ground Speed

1114:34, 1800 feet, 104 degrees, 101 knots

1114:38, 1800 feet, 111 degrees, 97 knots

1114:43, 1800 feet, 114 degrees, 95 knots

1114:48, 1800 feet, 112 degrees, 91 knots

1114:53, 1800 feet, 114 degrees, 88 knots

1114:58, 1700 feet, 125 degrees, 85 knots

1115:03, 1500 feet, 122 degrees, 80 knots

1115:08, 1000 feet, 108 degrees, 74 knots

1115:13, 200 feet, 093 degrees, 64 knots

The final radar return placed the airplane about 3 miles southwest of Palm Beach International Airport and in the immediate vicinity of the accident site.

Several witnesses saw the airplane descend and impact the canal. One witness stated that when he saw the airplane, "it was about two to three hundred feet off the ground coming

straight down in a flat spin." Another witness stated that he caught sight of the airplane when it was "between a 1000 and 800 feet off the ground. It had about a 30 degree nose down angle, little or no forward velocity." The witness further stated that the airplane "made three to four revolutions in the spin" before he lost sight of it. A third witness commented that the airplane "looked like it was circling, but he wasn't really turning normal. I mean it was a flat spin turn, and at the same time the motors are racing and racing and racing." Another witness reported that he "heard the engines of a plane," looked up, and saw the airplane "making a right turn like, and he was circling around. He was flat, and he was coming around, and he was like spun around and he was starting to go down."

#### PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with an airplane multi-engine land rating. He held commercial privileges in single engine land and single-engine sea airplanes. His most recent second class medical certificate was issued on May 23, 2003, with the limitation that he must have available glasses for near vision. On the application for this medical certificate, the pilot reported that he had accumulated 5,832 hours total flight time. The pilot's personal flight logbooks were not examined during the investigation.

#### AIRCRAFT INFORMATION

Examination of the airplane's maintenance records revealed that the 1981 model Cessna Conquest II received its most recent inspection in accordance with the manufacturer's approved inspection program on June 13, 2003, at a total airframe time of 3,999.1 hours. At this time, Cessna Phase 2, Phase 3, and Phase D airframe inspections and Honeywell 100, 150, 155, and 300 hour engine inspections were performed. When the accident occurred, the airplane had been flown about 36.6 hours since this inspection.

The airplane was equipped with two Garrett TPE331-10N-512S turbo propeller engines, left S/N P-77385 and right S/N P-77384, and two McCauley 4HFR34C661-AC/90LNA-2 4-bladed propellers, left S/N 940595 and right S/N 940596. These engines and propellers were installed by West Star Aviation, Inc., on September 23, 1994, in accordance with West Star's Supplemental Type Certificate SA5682NM.

#### METEOROLOGICAL INFORMATION

At 1137, the reported weather conditions at Palm Beach International Airport were wind 150 degrees at 10 knots, visibility 10 statute miles, few clouds at 3,500 feet, temperature 27 degrees C, dew point 11 degrees C, and altimeter setting 30.20 inches.

#### WRECKAGE AND IMPACT INFORMATION

According to a report prepared by the Palm Beach County Sheriff's Office, the airplane came to rest upright with the fuselage partially submerged in about 4 feet of water about 8 feet from the shore of a canal. The left wing was entirely submerged, and a portion of the right wing was lying on the shore of the canal. The top of the fuselage was broken open just aft of the pilots' seats. The tail section was severed from the fuselage at the aft pressure bulkhead and lying 8 to 10 feet behind the fuselage. There was debris from the airplane strewn about the area and floating in the canal. There was a large amount of jet fuel both in the canal and on the surrounding canal bank.

The wreckage was recovered from the accident site and transported to a salvage yard where it was examined on December 31, 2003, by the NTSB investigator-in-charge and representatives

of Cessna Aircraft Company, Honeywell, and the FAA. During the recovery process, the nose section had been separated at the forward pressure bulkhead, the cockpit had been separated just aft of the pilots' seats, and the fuselage had been separated from the wing attach points. The cabin environment was completely compromised; there was extensive vertical compression of the lower fuselage. The landing gear and the flaps were in the retracted position. The aileron, rudder and elevator trim actuators were set near their neutral positions. All control surfaces were accounted for during the examination. The left aileron and the left outboard flap separated from the wing. All control cables were traced and were either intact or exhibited evidence of tensile overload or being cut by recovery personnel.

The compressor blades of both engines displayed impact damage. Both propellers and shafts could be rotated by hand. The fuel filters on both engines contained fuel and were free of debris. The propellers, which remained attached to the engines, had bent and twisted blades. The engines, propellers, and electronic engine control units were retained for testing.

## TESTS AND RESEARCH

The engines were torn down and inspected under the supervision of an NTSB investigator at the Honeywell Product Integrity Teardown Facility in Phoenix, Arizona on February 11 and 12, 2004. A report of the teardown prepared by Honeywell stated the following conclusions:

1. The teardown and examination of both engines disclosed that the type and degree of damage was indicative of engine rotation and operation at the time of impact with the ground.
2. No pre-existing conditions were found on either engine that would have interfered with normal operation.

The electronic engine control units were tested at Honeywell's facility in Tucson, Arizona on March 18, 2004. The testing revealed that both units were functional, but under some conditions would trip to manual mode. Further investigation determined that the units tripping to manual mode was due to an open thermistor on the A9 board within each unit. Examination of the thermistors determined that both had failed open due to an electrical overstress. The reason for the electrical overstress or when it occurred could not be determined.

Review of the Cessna 441 Information Manual section on Manual Mode Operating Procedures indicated that when the engines are operating in the manual mode, torque and temperature limiting and propeller synchrophaser systems are inoperative. In manual mode, the pilot must monitor outside air temperature and airspeed and manually adjust the power levers as required to maintain the proper exhaust gas temperature or torque values.

The propellers were examined under the supervision of an FAA inspector, by representatives of McCauley Propeller Systems, at the facilities of Aircraft Propeller of Ohio on November 29, 2004. A report of the examination prepared by McCauley Propeller Systems stated the following conclusions:

1. Propeller damage was a result of impact. There were no indications of any type of propeller failure prior to impact.
2. Both propellers were rotating at impact. Neither propeller was at or near the feather position at impact.
3. Both propellers were being operated under conditions of high power at impact. The exact

amount of power was not determined.

4. Blade angles at impact were not determined.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed by the Office of the District Medical Examiner, District 15, West Palm Beach, Florida. The following information was extracted from the report of autopsy. The cause of death was noted as "multiple blunt force injuries due to airplane crash." Additional anatomic diagnoses noted were "atherosclerotic cardiovascular disease with severe coronary and aortic atherosclerosis" and "nephrosclerosis, severe."

Toxicological tests were conducted by the FAA's Toxicology and Accident Research Laboratory. The test results were negative for ethanol. The following drugs were detected: 0.1 ug/ml chlorpheniramine in blood, chlorpheniramine present in urine, and metoprolol detected in blood and urine. Chlorpheniramine is an over-the-counter sedating antihistamine commonly used for cold and allergy symptoms. Metoprolol, trade name Toprol, is a prescription blood pressure medication.

The following information was extracted from medical records maintained on the pilot by the FAA Aerospace Medical Certification Division. A letter dated May 2, 2003, from the pilot's physician accompanying his most recent application for a medical certificate on May 23, 2003, noted, "I have examined [the pilot] and found him to be in stable health condition. He has well controlled hypertension, peripheral vascular disease, ... osteoarthritis, and a previous cerebrovascular accident with no residuals. It is my opinion that he is safe to fly an airplane." The pilot's application for a medical certificate dated May 23, 2003, noted the following medications: Toprol [metoprolol], Zocor [simvastatin], Pletal [cilostazol], and baby aspirin.

#### ADDITIONAL INFORMATION

The wreckage, with the exception of the engines, propellers and electronic engine control units, was released to a representative of the owner on December 31, 2003. The propellers were released on January 5, 2005, and the engines and engine control units were released on January 6, 2005.

## Pilot Information

|                                  |  |  |                            |
|----------------------------------|--|--|----------------------------|
| <b>Certificate:</b>              | Airline Transport  | <b>Age:</b>                              | 77, Male                   |
| <b>Airplane Rating(s):</b>       | Multi-engine Land; Single-engine Land; Single-engine Sea | <b>Seat Occupied:</b>                    | Left                       |
| <b>Other Aircraft Rating(s):</b> | None   | <b>Restraint Used:</b>                   | Seatbelt, Shoulder harness |
| <b>Instrument Rating(s):</b>     | Airplane   | <b>Second Pilot Present:</b>             | No                         |
| <b>Instructor Rating(s):</b>     | None   | <b>Toxicology Performed:</b>             | Yes                        |
| <b>Medical Certification:</b>    | Class 2 Valid Medical--w/ waivers/lim.                   | <b>Last FAA Medical Exam:</b>            | 05/23/2003                 |
| <b>Occupational Pilot:</b>       |  | <b>Last Flight Review or Equivalent:</b> |                            |
| <b>Flight Time:</b>              | 5832 hours (Total, all aircraft)                         |  |                            |

## Aircraft and Owner/Operator Information

|                                      |                                |                                       |              |
|--------------------------------------|--------------------------------|---------------------------------------|--------------|
| <b>Aircraft Make:</b>                | Cessna                         | <b>Registration:</b>                  | N111RC       |
| <b>Model/Series:</b>                 | 441                            | <b>Aircraft Category:</b>             | Airplane     |
| <b>Year of Manufacture:</b>          |                                | <b>Amateur Built:</b>                 | No           |
| <b>Airworthiness Certificate:</b>    | Normal                         | <b>Serial Number:</b>                 | 441-0188     |
| <b>Landing Gear Type:</b>            | Retractable - Tricycle         | <b>Seats:</b>                         | 8            |
| <b>Date/Type of Last Inspection:</b> | 06/13/2003, AAIP               | <b>Certified Max Gross Wt.:</b>       | 9850 lbs     |
| <b>Time Since Last Inspection:</b>   | 37 Hours                       | <b>Engines:</b>                       | 2 Turbo Prop |
| <b>Airframe Total Time:</b>          | 4036 Hours at time of accident | <b>Engine Manufacturer:</b>           | Garrett      |
| <b>ELT:</b>                          | Installed, not activated       | <b>Engine Model/Series:</b>           | TPE331-10N   |
| <b>Registered Owner:</b>             | N L Five Inc.                  | <b>Rated Power:</b>                   | 715 hp       |
| <b>Operator:</b>                     | On file                        | <b>Operating Certificate(s) Held:</b> | None         |

## Meteorological Information and Flight Plan

|                                  |                           |   |                  |
|----------------------------------|---------------------------|---|------------------|
| Conditions at Accident Site:     | Visual Conditions         | Condition of Light:                     | Day              |
| Observation Facility, Elevation: | KPBI, 19 ft msl           | Distance from Accident Site:            | 3 Nautical Miles |
| Observation Time:                | 1137 EST                  | Direction from Accident Site:           | 45°              |
| Lowest Cloud Condition:          | Few / 3500 ft agl         | Visibility                              | 10 Miles         |
| Lowest Ceiling:                  | None                      | Visibility (RVR):                       |                  |
| Wind Speed/Gusts:                | 10 knots /                | Turbulence Type<br>Forecast/Actual:     | /                |
| Wind Direction:                  | 150°                      | Turbulence Severity<br>Forecast/Actual: | /                |
| Altimeter Setting:               | 30.2 inches Hg            | Temperature/Dew Point:                  | 27° C / 11° C    |
| Precipitation and Obscuration:   |                           |   |                  |
| Departure Point:                 | Boca Raton, FL (BCT)      | Type of Flight Plan Filed:              | None             |
| Destination:                     | West Palm Beach, FL (PBI) | Type of Clearance:                      | VFR              |
| Departure Time:                  | 1108 EST                  | Type of Airspace:                       | Class C          |

## Wreckage and Impact Information

|                     |         |                      |                       |
|---------------------|---------|----------------------|-----------------------|
| Crew Injuries:      | 1 Fatal | Aircraft Damage:     | Destroyed             |
| Passenger Injuries: | N/A     | Aircraft Fire:       | None                  |
| Ground Injuries:    | N/A     | Aircraft Explosion:  | None                  |
| Total Injuries:     | 1 Fatal | Latitude, Longitude: | 26.633333, -80.150000 |

## Administrative Information

|                                   |  |              |            |
|-----------------------------------|--|--------------|------------|
| Investigator In Charge (IIC):     | Alan J Yurman  | Report Date: | 07/07/2005 |
| Additional Participating Persons: | Frank Donovan; FAA, Fort Lauderdale FSDO; Fort Lauderdale, FL<br>Tom Moody; Cessna Aircraft Company; Wichita, KS<br>Jim Allen; Honeywell Product Integrity; Phoenix, AZ  |              |            |
| 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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> . |              |            |



The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).