



National Transportation Safety Board Aviation Accident Final Report

Location:	Palm Bay, FL	Accident Number:	MIA02FA079
Date & Time:	04/02/2002, 0826 EST	Registration:	N91FK
Aircraft:	Piper PA-23-250	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal

Flight Conducted Under: Part 91: General Aviation - Personal

Analysis

The flight departed from Pompano Beach Airpark and flew to Okeechobee County Airport where approximately 79 gallons of fuel were added to the fuel tanks; no reports of fuel problems were reported by pilots who were later contacted and whom had fueled from the same source either the day before, or the day of. The flight departed reportedly en route to Ormond Beach and after takeoff, climbed to a maximum altitude of 4,400 feet while flying on a northerly heading. The airplane remained on a northerly heading but began descending at an average rate of 200 feet per minute, with several times remaining at the previous altitude. The flight continued north and descended to 2,600 feet and began a right turn. Review of radar data indicates that between the last two radar targets, the airplane lost 1,000 feet of altitude in 12 seconds while turning to the right; the airplane at that time was on top of a layer of fog that extended up to 1,240 feet. A witness reported hearing the sound of an impact and drove to near the accident site but did not observe the wreckage; he did not notify law enforcement. The airplane impacted into a marsh resulting in destruction of the airplane which was located 2 days after the accident. The engines were located but could not be recovered. The fuselage and wings were fragmented. Examination of the airplane revealed no evidence of an in-flight break-up or of a fire. The stabilator trim was found full nose-down, but the cables were fractured. No autopilot system components were recovered. The autopsy report indicates the loss of most of the brain and heart.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The in-flight loss of control for undetermined reasons resulting in the in-flight collision with terrain.

Findings

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

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED

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

Findings

2. TERRAIN CONDITION - WATER

Factual Information

HISTORY OF FLIGHT

On April 2, 2002, about 0826 eastern standard time, a Piper PA-23-250, N91FK, registered to Aquarius Group Ltd., crashed in a marsh near Palm Bay, Florida. Instrument meteorological conditions prevailed in the area at the time due to fog and no flight plan was filed for the 14 CFR Part 91 personal flight. The airplane was destroyed and the commercial-rated pilot, the sole occupant, was fatally injured. The flight originated about 0720 hours, from the Pompano Beach Airpark Airport, Pompano Beach, Florida.

The pilot's wife reported to Brevard County Sheriff Department personnel that she saw her husband last at 0630, on April 2nd, and he intended on flying from Pompano Beach, to Ormond Beach, Florida, for the purpose of having work performed on the autopilot system of the accident airplane. The pilot intended on flying to Macon, Georgia, after work was done to the airplane in Ormond Beach, Florida. He was scheduled to return to Florida from Georgia, on April 3rd. She also reported that her husband typically fueled at the Okeechobee County Airport, Okeechobee, Florida. The pilot's wife did not report her husband's overdue flight to either the FAA or any law enforcement agency.

According to National Transportation Safety Board (NTSB) Air Traffic Control Radar Study (Radar Study), the presumed flight path of the accident airplane was traced backwards from near the accident site area to near the Okeechobee County Airport, then from there to near the Pompano Beach Airpark Airport. It was later determined that the air traffic control tower was not in operation at the Pompano Beach Airpark Airport at the presumed time of departure, and there were no known witnesses who saw the flight depart. The Radar Study indicates that at approximately 0810, a radar target presumed to be from the accident airplane was located north-northeast of the Okeechobee County Airport. The flight track from the presumed accident airplane continued in a northerly direction until 0824:54, when the radar data indicates a right descending turn. The last recorded radar target from the presumed accident airplane was at 0825:53; the reported altitude at that time was 1,600 feet. The crash site was located approximately .3 nautical mile and 120 degrees from the last radar target (a copy of the NTSB Radar Study is an attachment to this report).

A witness who was located approximately 1.6 nautical miles southeast of the crash site reported that on the day of the accident, between 0800 and 0830, he heard a sound that he thought was either an airplane or an airboat. He reported hearing a sound from the engine(s), then heard an impact followed by the sound of birds "screaming." He drove from the location where he heard the sound to near where he thought the noise came from but did not observe the airplane. He did not report the sound to any law enforcement agency. A copy of the NTSB Record of Visit is an attachment to this report.

The wreckage of N91FK was initially located by a St. Johns River Water Management District Employee about 0950 hours, on April 4, 2002.

PERSONNEL INFORMATION

The pilot was the holder of a commercial pilot certificate with ratings airplane single and multiengine land, instrument airplane. The date of issuance was September 23, 1972. He was issued a second class medical certificate on August 24, 2001, with the limitation, "Must wear corrective lenses for near and far vision." The pilot indicated on the application for that

medical certificate that his total pilot time was 14,000 hours and he had accumulated 100 hours in the last 6 months, and he denied having heart or vascular trouble. The pilot indicated on an application for a medical certificate approximately 1 year earlier that his total pilot time was 9,000 hours and he had accumulated 100 hours in the last 6 months.

A review of his pilot logbook that ends with an entry dated March 28, 2002, revealed that he received a biennial flight review on August 25, 2001. He logged a total time of 11,163 hours, of which; approximately, 3,503 hours were in multi-engine aircraft. Excerpts from his pilot logbook are an attachment to this report.

AIRCRAFT INFORMATION

The airplane was a Piper PA-23-250, N91FK, serial number 27-4311, manufactured on June 26, 1969, and was equipped with a Piper Altimatic IIIB auto-pilot system with automatic trim and autoflight. Two Lycoming IO-540-C4B5 engines, and two Hartzell HC-E2YR-2RBSF propellers were installed. The left engine was last overhauled on July 22, 1994, and was installed in the airplane on August 4, 1994. The right engine was last overhauled on December 8, 1993, and installed in the airplane on December 20, 1993. The left and right propellers were overhauled last on October 28, 1999, and both were installed in the airplane on November 1, 1999.

The airplane was last inspected in accordance with an annual inspection on January 2, 2002. At that time, the airplane total time was recorded to be 4,711.9 hours, and the left and right engines had accumulated approximately 742 hours and 828 hours respectively, since major overhaul. The propellers had accumulated approximately 240 hours since major overhaul at the time of the last annual inspection. Excerpts from the maintenance records and an invoice from the last annual inspection are an attachment to this report.

According to the owner of the facility where the last annual inspection was performed, the airplane owner advised him prior to starting the inspection that the electric pitch trim switch was inoperative. The owner of the facility reported that he checked the electric pitch trim and it operationally checked good before he sprayed contact cleaner on it; he did not disassemble the switch. The initial corrective action for the discrepancy related to the electric pitch trim was "checked OK." Following the annual inspection, the airplane owner test flew the airplane around the traffic pattern and reported after landing that the electric pitch trim was either inoperative or intermittent. The corrective action for the electric pitch trim was changed from "checked OK" to "trim in-op/ need to go to radio shop - noted." The pilot was reportedly advised to have a radio shop repair the electric pitch trim. The airplane owner also advised him approximately 2-3 weeks before the accident that one of the spark plugs was intermittent as evidenced by a 75 rpm magneto drop greater than normal. The airplane owner advised him that he would come by in a couple of days but he did not. The owner of the facility also reported that he was not aware of any problem with the autopilot system and that his company does not perform autopilot repairs. A copy of the NTSB Record of Conversations with the owner of the facility are an attachment to this report.

A review of the maintenance records revealed no record of the electric pitch trim being repaired following the annual inspection.

METEOROLOGICAL INFORMATION

According to NTSB Meteorological Factual Report, the area from Lake Okeechobee to Palm Bay, Florida, indicated visual flight rules (VFR) to marginal visual flight rules (MVFR)

conditions with fog. Fog and stratus clouds began approximately 17 miles north-northeast from the Okeechobee County Airport, and extended approximately 15 miles north of the Melbourne International Airport, Melbourne, Florida. Based on an upper air observation from a facility located approximately 30 miles northeast of the accident site, the fog top was at approximately 1,240 feet. The report also indicates there were no low-level wind shears or precipitation echoes within 120 miles of the accident site. A special observation (SPECI) from the Melbourne International Airport, Melbourne, Florida (KMLB), at 0825, indicates that the wind was from 240 degrees at 5 knots, the visibility was 4 miles in mist, scattered clouds existed at 100 feet, the temperature and dew point were each 21 degrees C, and the altimeter setting was 30.03 inHg. Another SPECI from KMLB at 0818, indicates that the wind from 250 degrees at 5 knots, the visibility was 2 miles in mist, an overcast ceiling existed at 100 feet, the temperature and dew point were each 21 degrees C, and the altimeter setting was 30.03 inHg. A copy of the NTSB Meteorological Factual Report is an attachment to this report.

There was no record of the pilot obtaining a preflight weather briefing with the Miami or St. Petersburg Automated Flight Service Stations. Additionally, there was no record of the pilot obtaining a preflight weather briefing for the flight from any of the two DUAT vendors. A copy of a statement from one of the two DUAT vendors, and a NTSB Record of Conversation with personnel from the other DUAT vendor are an attachment to this report.

COMMUNICATIONS

There were no recorded communications with the pilot and any FAA air traffic facility.

WRECKAGE AND IMPACT INFORMATION

The airplane crashed in a marsh located at 27 degrees 54.097 minutes North latitude and 080 degrees 44.995 minutes West longitude. That location; when plotted, was located approximately .32 nautical mile from the last radar return.

Initial examination of the accident site 3 days after the accident revealed a light sheen associated with fuel on the surface of the water. The aft portion of the empennage was out of the water, and was oriented on a magnetic heading of 208 degrees (See photographs 1 and 2). Several small components of the airplane were recovered on the third day after the accident and were observed by the NTSB (see photographs 3, 4, and 5). Located wreckage pieces were later recovered for further examination; the engines were located but could not be recovered.

Examination of the recovered wreckage revealed no evidence of in-flight fire. Both wings and the fuselage were fragmented (see photographs 6 and 7). The main spar section of both wings with the attached tie down rings was accounted for. The left stabilator and trim tab remained structurally attached. The right stabilator was structurally separated approximately 8 inches outboard from the root; the remaining sections of the forward and aft spars were bent aft approximately 90 degrees. Full length of the rear spar and the upper and lower skins of the right stabilator were accounted for. The vertical stabilizer was partially attached to the structure; the rudder and rudder trim tab remained secured. The rudder counterweight was structurally separated but was recovered. The nose and left main landing gears were recovered; the left main landing gear exhibited evidence of being retracted at the time of the accident. The majority of the aileron flight control cables were not located; however, the full spans of both ailerons were accounted for. Examination of the recovered stabilator and rudder flight control cables revealed no evidence of preimpact failure or malfunction. The rudder trim tab actuator was found positioned to neutral, and the stabilator trim actuator was found

positioned to the full nose down setting; the cables were fractured. Six seats were recovered. No autopilot servos or system components were recovered. The forward half of a propeller hub associated with the right propeller was recovered.

Examination of the forward propeller hub half revealed a deep gouge in the outer blade retention bearing race area of one of the blades and to the corners of the outer blade retention bearing race area for the other blade (see photographs 8 and 9). The pitch change rod was in place but fractured; two gouges from the pitch change fork were noted on the inside surface of the hub (see photograph 10). No fretting was noted on the parting surface of the hub; silicone material was noted on areas of the parting surface of the hub.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was performed by Sajid S. Qaiser, M.D., Office of the Medical Examiner, District 18, Brevard County. The cause of death was listed as multiple blunt force injuries. The autopsy findings indicate in part loss of the brain and heart.

Toxicological analysis of specimens was performed by FAA Toxicology and Accident Research Laboratory, Oklahoma City, Oklahoma. The results of analysis was negative for carbon monoxide, cyanide, and drugs. Ethanol, acetaldehyde, n-butanol, methanol, and isobutanol was detected in muscle and kidney. The report indicated putrefaction was present.

TESTS AND RESEARCH

The radar data contained in the NTSB Radar Study was reviewed which revealed that after takeoff, the airplane turned to a nearly due north direction and remained on that same approximate heading between 0811:54, and 0825:06. The airplane climbed to a maximum pressure altitude of 4,400 feet which occurred at 0819:18, and remained there for the next radar target 12 seconds later. Between 0819:30, and 0824:54, the airplane descended from 4,400 feet to 3,300 feet at a calculated average rate of approximately 200 feet-per-minute (there were 16 radar targets between these times when there was no change in altitude from the previous radar target). Between 0811:54, and 0824:54, when reviewed in 1-minute increments, the average groundspeed was calculated to be approximately 150 knots. Between 0824:54, and 0825:06, the heading was 001 degrees, the airplane traveled .5 nautical mile, and the airplane descended from 3,300 to 2,900 feet. Between 0825:06, and 0825:18, the airplane heading was 009 degrees, the airplane traveled .53 nautical mile, and the airplane remained at 2,900 feet. Between 0825:18, and 0825:30, the heading changed to 025 degrees, the airplane traveled .46 nautical mile, and the airplane descended to 2,800 feet. Between 0825:30, and 0825:42, the heading changed to 050 degrees, the airplane traveled .53 nautical mile, and the airplane descended from 2,800 to 2,600 feet. Between 0825:42, and the last radar target at 0825:53, the heading changed to 076 degrees, the airplane traveled .56 nautical mile, and the airplane descended from 2,600 to 1,600 feet.

According to fueling records from a fixed-base operator on the Okeechobee County Airport, on the day of the accident at approximately 0752 hours, payment was made in the name of the accident pilot for 79.33 gallons of fuel.

Testing of fuel from the facility that fueled the airplane last was not possible due to the facility being serviced with fuel before NTSB was notified of the accident. A check of the owners/operators of two airplanes refueled before and after the accident airplane revealed no evidence of fuel contamination in their airplanes. Copies of statements from the owners/operators and from an individual of the facility where the airplane was fueled are

attachments to this report.

A retired airline pilot who was a friend of the pilot for over 20 years reported that he last flew in the accident airplane a little more than 5 months before the accident. He reported that the autopilot would, "[wander] or oscillate several degrees left and right of heading continuously. It was not a safety issue or anything that would preclude use of the autopilot other than as described." He also reported that the problem with the autopilot has been a problem to his knowledge since December 2000. A copy of a record of conversation with him and his statement are attachments to this report.

ADDITIONAL DATA/INFORMATION

The retained maintenance records and the wreckage were released to Charles "Red" Maynard, of Sample International Aviation, Inc., on July 23, 2002.

Pilot Information

Certificate:	Commercial	Age:	67, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	08/24/2001
Occupational Pilot:		Last Flight Review or Equivalent:	08/25/2001
Flight Time:	11163 hours (Total, all aircraft), 27 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N91FK
Model/Series:	PA-23-250	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	27-4311
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	01/01/2002, Annual	Certified Max Gross Wt.:	5200 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	4712 Hours as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed	Engine Model/Series:	IO-540-C4B5
Registered Owner:	Aquarius Group Ltd.	Rated Power:	250 hp
Operator:	George J. Apostle	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KMLB, 33 ft msl	Distance from Accident Site:	13 Nautical Miles
Observation Time:	0825 EST	Direction from Accident Site:	21°
Lowest Cloud Condition:	Scattered / 100 ft agl	Visibility	4 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	240°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.03 inches Hg	Temperature/Dew Point:	21° C / 21° C
Precipitation and Obscuration:			
Departure Point:	Okeechobee, FL (KOBE)	Type of Flight Plan Filed:	None
Destination:	Ormond Beach, FL (KOMN)	Type of Clearance:	None
Departure Time:	0810 EST	Type of Airspace:	Class G

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:	27.901667, -80.749722

Administrative Information

Investigator In Charge (IIC): Timothy W Monville **Report Date:** 12/06/2002

Additional Participating Persons: Paul Lehman; The New Piper Aircraft, Inc.; Vero Beach, FL
Edward Rogalski; Textron Lycoming; Belleview, FL
Bob Cunningham; FAA FSDO; Orlando, FL

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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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](#).