



National Transportation Safety Board Aviation Accident Factual Report

Location:	Marathon, FL	Accident Number:	MIA01GA070
Date & Time:	02/01/2001, 1951 EST	Registration:	N99WD
Aircraft:	Piper PA-32-300	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Public Aircraft		

HISTORY OF FLIGHT

On February 1, 2001, at about 1951 eastern standard time, a Piper PA-32-300, N99WD, registered to Aerolease Of America Inc., crashed into the Florida Bay, about 12.7 nautical miles northeast of Marathon, Florida. The flight was operating as a 14 CFR Part 91 public use intercept training flight with a Coast Guard HU-25, tail number 2135. Visual meteorological conditions prevailed and no flight plan was filed. The airplane was destroyed. The United States Coast Guard Auxiliary private pilot and aerial observer were fatally injured. The flight originated from Opa Locka, Florida, as Coast Guard Aux 113, about 1 hour 22 minutes before the accident. The United States Coast Guard located the wreckage on February 2, 2001.

The aircraft commander of Coast Guard 2135 stated they were conducting air intercept training with Coast Guard Auxiliary aircraft N99WD. N99WD was initially flying north and south in the vicinity of the Dade-Collier Airport acting as a target aircraft. They moved to another area due to traffic. They moved further south over the Everglades. N99WD was at 1,500 feet and they were at 1,000 feet in a 1/2-mile trail position. As they were approaching the Flamingo ranger station N99WD was asked if he was comfortable continuing for an additional 2 to 3 miles so they could stabilize there position. N99WD stated there was no problem, and that he had a visual on the Marathon Airport located about 25 miles to the south. About 1-1 1/2 minutes later, N99WD stated it was getting a bit hazy. He informed N99WD and the crew of 2135, that they would be breaking off and turning to the north to get separation for another intercept. They accelerated to 230 knots and asked N99WD to proceed north at a slower speed to allow separation. N99WD responded, "I'm IMC maintain 180 degrees." He informed N99WD that they were well to the north and that there was no conflict with their aircraft. Multiple calls were made on the primary, emergency and the Marathon UNICOM frequency with negative response from N99WD. They contacted the Operations Duty Officer in Miami and asked them to initiate lost communications procedures and to launch a helicopter to begin a search. In addition, they returned to the Flamingo ranger station and began a track line search monitoring the primary and emergency radio procedures. After the Coast Guard helicopter arrived they departed back to Miami to refuel and to get night vision goggles to assist in the search.

Review of NTAP radar data reveals that Coast Guard 2135 started a right turn to the north at 00:47:32 (19:47:32 EST) and was at an altitude of 1,000 feet. At 00:47:20, N99WD is southbound at 1,600 feet. At 00:47:56, N99WD is observed on radar at 1,600 feet in a slight left turn southbound and then starts a turn back to the right at 00:48:08. The airplane is observed to make another left and right turn maintaining 1,600 feet. At 00:49:47, N99WD starts a left turn and stops the turn on a north east heading at 1,500 feet. At 00:50:47, N99WD starts a right turn. The last recorded radar hit is at 00:51:08, at 1,500 feet.

PERSONNEL INFORMATION

Review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was issued a temporary private pilot airman certificate on December 23, 2000, with ratings for airplane single engine land, instrument airplane. Review of the pilot's logbook revealed he had recorded as logged 1,586 total hours of which 1,414 were as pilot-in-command (PIC). He recorded 1,375 hours in the PA-32-300, all of which were as PIC. He had recorded 149 night hours of which 123.2 were as PIC. He had recorded 24.6 hours instrument, 11.6 were as PIC. He had recorded 28 hours simulated instrument, of which 16.8 were as PIC. The pilot had flown two instrument flights for .8 hours since obtaining his instrument rating on December 23, 2000. The pilot held a third class medical certificate issued on February 16, 2000, with the following restrictions: "Must wear lenses for distant vision and must possess glasses for near vision. Valid for 12 months following the month examined." At the time of the medical examination the pilot recorded that he had accumulated 1,050 total flight hours.

Review of records on file with the U.S. Coast Guard Auxiliary revealed that the pilot was initially interviewed as a prospective member of the U.S. Coast Guard Auxiliary on November 20, 1998. He completed an enrollment application and was issued an ID card as a basically qualified member on November 27, 1998, and was subsequently designated as an Auxiliary Air Observer on January 28, 1999. On February 23, 1999, he successfully met the qualification requirements and was designated as a first pilot in the U.S. Coast Guard Auxiliary. On December 26, 2000, he was designated as an aircraft commander. He was designated as an auxiliary Aviation Coordinator-Miami, on January 31, 2000. Review of U.S. Coast Guard Auxiliary Pilot Qualifications Checklist dated December 27, 2000, the pilot recorded that he had accumulated 1,563 total flight hours of which 1,372 were as pilot-in-command. In addition, he indicated he had 65 hours of instrument time and 140 hours of night time. All currency requirements required by the Commandant's Instruction (COMDINST M16798.3D) had been recorded as completed.

Review of records on file with the U.S. Coast Guard Auxiliary revealed the observer completed an application for enrollment in the U.S. Coast Guard Auxiliary on March 20, 1995, and the Director, Coast Guard Auxiliary on April 12, 1995, approved his application. He completed the Auxiliary Administrative Procedures Course, Courtesy Examiner Course, Communications Specialist Course, Auxiliary Instructor Course, Marine Dealer Visitor Course, Aerial Observers Course, Patrol Course, and Seamanship Course. All currency requirements required by the Commandant's Instruction (COMDINST M16798.3D) had been recorded as being completed.

AIRCRAFT INFORMATION

Review of maintenance records revealed the aircraft engine was remanufactured by Textron Lycoming on June 19, 2000, at Williamsport Pennsylvania, and was installed on N99WD on August 7, 2000. The last recorded annual inspection was conducted on August 7, 2000 at Hobbs time 3309.1 The last recorded maintenance performed on the airplane was on December 14, 2000, at Hobbs time 1471.3. The Hobbs meter was not recovered. The altimeter system, static pressure system, and transponder were inspected on August 8, 2000. According to the son of the deceased pilot the airplane was topped off with fuel on February 1, 2000, from his or her own fuel tank prior to the pilot departing Lantana, Florida, for Opa Locka, Florida.

METEOROLOGICAL INFORMATION

The nearest weather reporting facility at the time of the accident was Marathon Airport, Marathon, Florida. The 1953 surface weather observation was: clear, visibility 9 miles, temperature 72 degrees Fahrenheit, dew point temperature 70 degrees Fahrenheit, wind 110 degrees at 5 knots, and altimeter 30.13. Visual meteorological conditions prevailed at the time of the accident.

Review of sun and moon data obtained from the U.S. Naval Observatory Astronomical Application Department for Marathon, Monroe County, Florida, on February 1, 2001, revealed the sunset at 1810, end of civil twilight was at 1834, and its phase was awaiting crescent with only 46 percent illumination.

WRECKAGE AND IMPACT INFORMATION

The wreckage of N99WD was located submerged in about 6 feet of water, 12.7 nautical miles north east of Marathon, Florida, in the Florida Bay. The airplane was recovered and transported to Fort Lauderdale Executive Airport, Fort Lauderdale, Florida, for examination.

Examination of the crash site revealed the airplane collided with the Florida Bay in a descending attitude, right wing low on a heading of 290 degrees magnetic. The right wing separated at the wing root, and bent aft. Two feet of the upper leading edge skin sustained accordion crush, and was compressed 2 feet in height. The remainder of the upper and lower wing skin separated from the forward, main, and aft spar, and was not recovered. The wing spar is "s" shaped upward and aft. The right auxiliary fuel tank and the main fuel tank were ruptured. The aft section of the main fuel tank and fragments of the auxiliary fuel tank were recovered. The right main landing gear trunnion remained attached to the main spar. The right flap was separated 29 inches outboard of the wing root. The right aileron assembly was not recovered. The left wing was separated at the wing root and was accelerated forward. A

semicircular indentation was present on the main spar 16 inches outboard of the wing root. Seventy inches of the leading edge skin was separated aft to the main spar. The main fuel tank was separated and ruptured. Fragments of the separated auxiliary fuel tank were recovered. The left aileron balance weight separated from the aileron, and the left flap assembly separated from the wing. The left main landing gear trunnion was attached to the spar. The landing gear wheel separated from the trunnion. The engine assembly separated from the engine mount and the firewall, and a small section of the upper engine cowling was recovered. The nose gear separated from the airframe, and the nose wheel was not recovered. The lower forward cockpit floor (main spar forward) was not recovered. The upper forward cabin roof was separated forward of the cabin door, and the remaining 66 inches of the cabin roof was separated and sustained accordion crush, inward and downward. The pilot and observer seatbelts and shoulder harness were in the buckled position, and both inboard attachment points were pulled and separated from the structure. The empennage separated aft of the baggage compartment. The empennage was buckled 40 inches aft of the aft baggage compartment. The left stabilator was accelerated forward. The stabilator tip separated and was not recovered. The right stabilator was bent upward and aft, and the right stabilator tip had separated. The upper 16 inches of the vertical stabilizer leading edge was bent to the left and the rudder balance weight was missing.

Examination of the airframe, and flight controls revealed no evidence of a precrash mechanical failure or malfunction. All components necessary for flight were present at the crash site. Continuity of the flight control system was confirmed for pitch, roll, and yaw.

Examination of the engine assembly revealed the engine separated from the airframe and sustained impact damage. The exhaust system was separated from the cylinder port attachment flanges and was not recovered. The engine induction air box assembly separated and was crushed; the air filter element was located within the airbox. The left magneto separated from the engine case and was not recovered. The right magneto drive and drive gears were intact, the unit rotated freely, and no spark was produced. The propeller assembly was attached to the crankshaft flange. The spinner and spinner bulkhead was not recovered. The starter ring gear support was fractured, and the ring gear was displaced and distorted. The propeller governor separated and was not recovered. All spark plugs were removed and were approved for use. The spark plugs were contaminated by salt-water intrusion. The combustion chambers of all six cylinders were inspected with a bore scope and revealed no evidence of internal anomalies. The engine was rotated and continuity of the crankshaft, camshaft, valve train, and accessory drives was established. Each cylinder produced compression while the engine was rotated. The fuel servo and engine-driven fuel pump separated from the mount flanges. The throttle cable remained connected; the mixture cable was broken off from the unit. Residual blue fuel was found in the servo. The flow divider was opened and the diaphragm was intact. Salt water was present and an odor of fuel was present. The fuel pump rotated freely by hand, the fuel hoses were broken and no fuel was present in the fuel pump. One propeller blade had evidence of forward bending about 7.5 inches from the propeller blade tip, and aft bending was present. Leading and trailing edge damage was present on the propeller blade. The remaining propeller blade was bent aft and displayed torsional twisting, and sustained damage on the leading and trailing edges of the propeller blade. The internal pitch change mechanism on both propeller blades was broken inside the propeller hub.

Examination of the airborne vacuum pump revealed the shaft would freely turn when rotated by hand. The drive section of the vacuum pump remained attached to the engine assembly, the pump body was fractured, and the internal rotor and vanes were not recovered.

Examination of the turn and slip coordinator revealed no evidence of a precrash mechanical failure or malfunction. The data plate was missing, and the factory seal was present. The bezel separated from the case housing. The pivot point had separated from the rotor assembly and was not recovered. No scoring was present on the rotor assembly.

Examination of the United Industries Inc., vertical speed indicator (VSI), serial number 65117 revealed no evidence of a precrash mechanical failure or malfunction. The factory seal was installed. The front 1/3 of the bezel face sustained impact damage and was missing. Disassembly of the VSI revealed the pointer was not broken. The sector pivot was not broken. The sector fan came loose (impact damage) and the sector balance weight had separated. No tension was present on the hairspring. The hand staff was in place and no damage was on the top plate. The diaphragm was attached to the base and was not damaged.

Examination of the EDO-Aire attitude indicator, serial number X92301F revealed no evidence of a precrash mechanical failure or malfunction. The yoke assembly was broken in half. No rotational scarring was present on the rotor, or gyro housing.

Examination of the United Instruments Inc., altimeter, serial number 4012558, revealed no evidence of a precrash mechanical failure or malfunction. A factory seal was present. The sector pivots were not broken and the balance assembly had not separated from the sector assembly. No tension was present on the hairspring to the sector and sector pointer (impact damage). The sector was disengaged from the hairspring wheel, and the pivots were not broken on the hairspring. The diaphragm was separated from the base and sustained impact damage. Play was present on the top of the plate bridge, and no scarring was present on the top plate gears. The hand staff and jewels were not damaged.

A functional manometer test of the United Industries Inc., airspeed indicator, serial number 41078 could not be conducted due to submersion in water at the crash site. A factory seal was present. The airspeed pointer was broken. The sector pivots were not broken, and the diaphragm was not damaged. Tension was present on the hairspring and the hand staff was not damaged.

MEDICAL AND PATHOLOGICAL INFORMATION

Dr. Zhiming Li, Associate Medical Examiner, Monroe County Medical Examiners Office, District 16, Marathon, Florida conducted postmortem examination of the pilot, on February 3,

2001. The cause of death was massive head and body traumatic injuries. Postmortem toxicology of specimens from the pilot was performed by the Forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma. Carbon monoxide specimens were unsuitable for analysis, and no cyanide was detected in the blood. Ethanol that was detected is from postmortem ethanol formation.

Dr. Zhiming Li, Associate Medical Examiner, Monroe County Medical Examiners Office, District 16, Marathon, Florida conducted postmortem examination of the observer, on February 2, 2001. The cause of death was massive head and body traumatic injuries. Postmortem toxicology of specimens from the observer was performed by Wuesthoff Reference Laboratory, Melbourne, Florida. The studies were negative for cannabinoids, cocaine metab, opiates, benzo, barbiturate and salicylate.

TEST AND RESEARCH

Advisory Circular 60-4 states in part, "The attitude of an aircraft is generally determined by reference to the natural horizon or other visual references with the surface. If neither horizon or surface reference exists, the attitude of an aircraft must be determined by artificial means from the flight instruments. Sight supported by other senses, allow the pilot to maintain orientation. However, during periods of low visibility, the supporting senses sometimes conflict with what is seen. When this happens, a pilot is particularly vulnerable to disorientation. The degree of orientation may vary considerably with individual pilots. Spatial disorientation to a pilot means simply the inability to tell which way is "up."...Surface references and the natural horizon may at times become obscured, although visibility may be above flight rule minimums. Lack of natural horizon or such reference is common on over water flights, at night, and specially at night in extremely sparsely populated areas, or in low visibility conditions....The disoriented pilot may place the aircraft in a dangerous attitude....Therefore, the use of flight instruments is essential to maintain proper attitude when encountering any of the elements which may result in spatial disorientation."

Auxiliary Aviation Standard Operating Procedures (AUXAIR-SOP) for the Seventh Coast Guard District states on page R-5-C-4 in paragraph 5 MISSIONS SCHEDULES AND CALL OUT (2) F., "only instrument-rated pilot may fly at night." Review of the pilot's logbook and U.S. Coast Guard Auxiliary Log revealed the pilot had flown 20 night missions for a total of 41.1 hours without an instrument rating. Paragraph 3. Communications a. states, "After becoming airborne, the pilot will notify the Coast Guard by radio that the patrol has commenced." The pilot made no radio call after departing Opa Locka Airport.

Review of the Commandant's Instruction M16798.3D, Auxiliary Operations Policy Manual states on page 6-3 F. Flight Plans, "A Coast Guard Auxiliary pilot must file a flight plan for each ordered flight." No flight plan was filed. It further states in G. Preflight Activities. 1. Weather Briefing, "The pilot of a Coast Guard Auxiliary aircraft on orders must get a weather briefing before every mission." It states on page 6-5 J. Position Reporting Requirements, "During all ordered missions, the pilot must establish a radio guard via direct contact with a Coast Guard or Auxiliary radio station." No radio guard was established by N99WD.

ADDITIONAL INFORMATION

The wreckage of N99WDF and aircraft instruments retained for further examination was released to Mr. Charles "Red" Maynard, Sample International Aviation, Inc, on February 8, 2001.

Pilot Information

Certificate:	Private	Age:	50, Male
Airplane Rating(s):	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:	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	02/16/2000
Occupational Pilot:		Last Flight Review or Equivalent:	12/23/2000
Flight Time:	1586 hours (Total, all aircraft), 1375 hours (Total, this make and model), 1414 hours (Pilot In Command, all aircraft), 166 hours (Last 90 days, all aircraft), 52 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Other Flight Crew Information

Certificate:	None	Age:	, Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N99WD
Model/Series:	PA-32-300	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	32-7540031
Landing Gear Type:	Tricycle	Seats:	6
Date/Type of Last Inspection:	08/07/2000, Annual	Certified Max Gross Wt.:	3400 lbs
Time Since Last Inspection:	338 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3648 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	IO-540-K1A5
Registered Owner:	Aerolease of America Inc.	Rated Power:	310 hp
Operator:	Casey A. Purvis	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	MTH, 7 ft msl	Distance from Accident Site:	13 Nautical Miles
Observation Time:	1953 EST	Direction from Accident Site:	212°
Lowest Cloud Condition:	Clear	Visibility	9 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	110°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.13 inches Hg	Temperature/Dew Point:	22° C / 21° C
Precipitation and Obscuration:			
Departure Point:	Opa Locka, FL (OPF)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1830 EST	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	24.902222, -80.934722

Administrative Information

Investigator In Charge (IIC):	Carrol A Smith
Additional Participating Persons:	John G Rivers; USCG; Opa Locka, FL Mark W Hemmerle; Miami FSDO; Miami, FL Paul Lehman; The New Piper Aircraft, Inc.; Vero Beach, FL Edward G Rogalski; Textron Lycoming; Belleview, FL
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/ .