



National Transportation Safety Board Aviation Accident Final Report

Location:	MARCO ISLAND, FL	Accident Number:	MIA01FA108
Date & Time:	03/31/2001, 1015 EST	Registration:	N900CE
Aircraft:	Piper PA-60-601P	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Witnesses watching N900CE's approach for landing to runway 17 at Marco Island Executive Airport stated the pilot appeared to have difficulty aligning the Machen modified Aerostrar with the runway centerline. They stated the aircraft appeared unstable about the yaw and roll axes, and appeared too fast. Winds were from the southwest at about 15 knots, gusting to about 20 knots. One pilot/witness close to the touchdown area saw the right wheel touch down instantly, and climb back up to about 50 feet, agl without the full addition of engine power. Most witnesses thought he was either performing a go-around or an extended touch down further down the runway. The airplane continued, "...more and more wobbly" until it entered a climbing attitude and sharp left bank and turn. About half way down the runway the left wing dropped until it contacted the terrain left of the runway, and the aircraft slid into mangrove trees and burned. During postcrash examination, flight control continuity from surface to cockpit floorboards was confirmed. No condition was found with either engine or propeller that would have precluded proper operation, precrash. A witness listening to the pilot's initial radio call up for approach and landing stated that no abnormality was reported by the pilot. Postmortem toxicology testing on specimens obtained from the pilot by the FAA Toxicology and Accident Research Laboratory and the Dade County Medical Examiner revealed quinine found in the blood and urine. The side effects of quinine can include disturbances of vision, hearing, and balance.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The failure of the pilot to maintain control of the aircraft during a rejected landing and the collision with the terrain and mangrove trees. A finding in the investigation was the presence of quinine in the blood and urine during postmortem toxicological testing of specimens from the pilot.

Findings

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

Findings

1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. USE OF INAPPROPRIATE MEDICATION/DRUG - PILOT IN COMMAND

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

Findings

3. TERRAIN CONDITION - SWAMPY
4. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On March 31, 2001, about 1015 eastern standard time, an Aerostar PA-60-601P, N900CE, registered to Crosco, Inc., operating as a Title 14 CFR Part 91 personal flight, crashed while attempting a landing at the Marco Island Executive Airport, Marco Island, Florida. Visual meteorological conditions prevailed and no flight plan was filed. The airplane was destroyed and the commercially-rated pilot, the sole occupant, received fatal injuries. The flight departed Venice Municipal Airport, Venice, Florida, about 30 minutes before the accident.

According to eyewitnesses, N900CE's approach to runway 17 appeared unstable. The winds were from the southwest at about 15 knots, gusting to about 20 knots, and the pilot appeared to have difficulty lining up with the runway centerline, as well as appearing excessively fast on approach. The pilot appeared to either attempt a go-around, climbing to about 50 feet agl, with little or no power advance, or attempt touching down further down the runway. At about 1/3 to 1/2 way down the runway, the aircraft entered a steep left bank and nose drop until the left wing tip contacted the terrain. The aircraft skidded sideways into mangrove tree growth and burned. All witnesses stated the aircraft was operating on both engines. One witness who was positioned near the FBO radio stated N900CE's pilot sounded "normal" and mentioned no abnormalities during his initial call up prior to his landing approach.

According to two passengers, an FAA-rated current pilot and his wife, who accompanied the pilot/owner the day before the accident during the flight leg from Akron, Ohio to Venice, the pilot/owner flew the aircraft on an instrument meteorological conditions, (IMC) flight plan while the passenger/pilot handled the radios. The flight, as well as the descent, approach, and landing at Venice was normal and unremarkable. The pilot/passenger stated that the pilot/owner tended to use differential engine power to maintain runway centerline tracking during crosswind landings. Thunderstorms in the southwestern Florida peninsular precluded the pilot/owner from continuing the flight to Marco Island that evening, and he overnighted with the couple near Venice. Following dinner that included two tall iced teas or diet cokes, and definitely no mixed drinks containing quinine water, the couple and the pilot/owner retired about 10 o'clock. The next morning the couple and the pilot/owner arose, had breakfast, drove the pilot/owner to the airport, and watched his uneventful departure at about 0930 to 0945.

PERSONAL INFORMATION

The pilot, age 77, held a commercial pilot certificate with ratings for airplane single-engine land, airplane multiengine land, and instrument-airplane. He held a flight instructor certificate with ratings for airplane single-engine and multiengine land, and instrument. His most recent Federal Aviation Administration, (FAA) second class medical certificate was issued on March 16, 2000, with the limitation: "Holder shall possess glasses that correct for near and intermediate vision." The pilot had completed a biennial flight review on March 21, 2000, in the Cessna 210 type aircraft.

According to the pilot's family, the aircraft and pilot's personal logbooks were kept in the aircraft cockpit in a flight kit with the navigational and approach charts, and were consumed by fire. At the time of the pilot's application for his second class medical on March

16, 2000, he listed his total flight time as 11,976 hours, and his last 6 month's flight time as 106 hours. The Canton-Venice flight of March 30, was the first time the pilot had flown the AeroStar in 2001.

AIRCRAFT INFORMATION

N900CE had undergone the Superstar 650 modification in stages between 1989 and 1996, by Machen, Inc., per STC's SA 1658NM and SA 2143 NM, which increased engine power output to 350 hp by the addition of an induction air intercooler and smaller diameter Hartzell propellers. Other features of the modification included an additional fuselage fuel tank and improvements to the brakes, exhaust system, turbocharger, stall improvement kit, and pressurization system. The configuration of N900CE at the time of the crash was four-place, two pilot's seats and two seats abutting the cabin aft bulkhead. The middle two seats had been removed.

Although the maintenance logbooks were burned, the family provided stored computer data reflecting inspection records for the aircraft. Those records, updated to February, 2001, when the aircraft underwent an annual inspection, revealed the aircraft total time was 3,632.7 hours. The left engine had a total time of 2,141.7 hours with 337.4 hours since overhaul. The right engine had a total time of 3,704.8 hours with 337.4 hours since overhaul. The left and right propellers both had a time since overhaul of 175.4 hours. Aircraft Inspection records stated that all components were inspected and determined to be in an airworthy condition as a result of the February 2001, annual inspection.

METEOROLOGICAL INFORMATION

The en route weather for the flight from Venice to Marco Island, (MKY) was VMC, and a pilot report of the conditions at MKY about 5 minutes before the accident were: 1,200 feet agl, broken to overcast cloud cover, visibility 10 statute miles, and winds from about 230 degrees at 12 knots, gusting to 18 knots.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located abeam the mid-length point of Marco Island's single runway, 17-35, about 270 feet east of the east edge of the 5,000- by 100-foot runway, upright, heading about 10 degrees, magnetic. Plow marks in the sandy, occasionally muddy, mangrove root-studded terrain revealed that the left wing impacted first, followed by a simultaneous impact of the right main landing gear, collapse of the nose landing gear, and ground impact of the lower nose section. What followed next was a right wing-first sideward slide into the mangrove trees, collapsing the right main landing gear inward and causing right wing fuel tank breaching and fuel fed post crash fire. The wreckage path measured about 80 feet in length from first wing/ground strike to the burn site, and was oriented about 140 degrees, magnetic. The right aileron remained attached to the trailing edge except for the outer hinge point. Rather than cartwheel the aircraft, the left wing fractured its spar attach fittings and came to rest vertically against the left side fuselage with the left main landing gear extended and intact. The left aileron had separated and was found adjacent to the wreckage bent in a "v" shape. The left and right flaps remained attached to their respective wing trailing edges and were found in a slightly extended position. The left wing fuel tank was also breached in the collision sequence, and leaked fuel onto the fuselage. Fire had consumed both outer wing panels, the fuselage from the nose to the interior hat rack behind the rear seats, and the upper portions of both engines and engine cowls. The forward instrument panel and center console, as well as all instruments,

avionics, and systems controls and indicators were consumed by fire. The pilot's seatbelt buckle was found unfastened and the shoulder harness or harness buckle could not be located. The cockpit floorboards and seat frames, portions of the inner wing panels, the wing flaps and ailerons, both engines, and both main landing gear had sustained some fire damage, but remained generally intact. The burn pattern of the mangrove trees confirmed the reported wind direction and speed. The right pilot's seat frame was reclined rearward about 30 degrees. The aft fuselage, including the empennage, escaped the fire. The fuselage fuel tanks survived the fire and contained fuel. A clothing bag was found in the baggage compartment and returned to the family. Both engines were still attached to their respective mounts and firewalls, and both propellers and spinners were intact and still attached.

No evidence of fuel was found anywhere in the engine fuel systems, and fire suppressant foam spilled from the wings, floorboards, and engines when moved. Flight control surface movement was confirmed for all three axes from the flight surface only to a point under the cockpit floorboards due to fire consumption. The rudder trim was close to neutral and the elevator trim was also neutral. Aileron trim could not be determined due to damage to the left wing trailing edge. The left engine throttle control was found at about the 3/4 open position at the fuel servo. The right engine throttle control was found at the full open position at the fuel servo. Both mixtures were found in the full rich position, at the fuel servo. Both inlet filter screens of the fuel servos were clean, although fire damaged.

Examination of both propellers revealed all blades were at their low pitch stops, confirmed by positioning of both propeller governor linkages. All blades revealed chord wise markings from the terrain or the mangrove trees. Other than scorching of blade surface and spinner and burning of the rubber deicing boots, the right propeller was minimally deformed. There was slight bending of one blade and no heavy scarring. The left propeller had one blade loose in its hub, and all blades exhibited "S" bending and twisting of the outer 2/3 span. One blade's tip and 6 inches of leading edge had melted.

The internal components of both engines and drive trains were examined, but most externally mounted components, such as magnetos, ignition leads, fuel lines, vacuum pumps, alternators, starters, intercoolers, turbochargers and their respective air boxes exhibited extensive fire damage. The engines were rotated by their respective propellers, and continuity of all rocker arms, pushrod and valve action (except No. 5 cylinder, right engine), and aft mounted accessory gears were confirmed. Additionally, good compression was confirmed, (except No. 5 cylinder, right engine), and no discrepancies were found using a lighted borescope. Spark plugs were removed and revealed normal coloration per Champion Spark Plugs Check-A-Plug chart AV-27.

The No. 5, right engine cylinder was removed for further inspection. Both intake and exhaust valves were found open and their respective valve springs exhibited little spring action and appeared to have lost their temper. By hand holding the valve pushrods against their respective hydraulic tappets and rotating the crankshaft, lifting pressure could be felt on the pushrods, effectively confirming correct valve action. Fire damage at the wreckage site confirmed that the outboard, aft portion of the right engine appeared to have been the location of the hottest fire.

MEDICAL AND PATHOLOGICAL INFORMATION

According to the pilot's Aviation Medical Examiner, the pilot wore a hearing aid.

Remnants of earphone headset frames were found in the wreckage. According to two ophthalmologists in the Canton-Akron area who treated the pilot, he suffered low tension glaucoma and cataracts in both eyes. The pilot had successful cataract surgery on his left eye in November 1999. Additionally, he suffered mild dry macular degeneration, a condition where sharpness of central vision becomes reduced. After seeing an ophthalmologist for that condition on August 8, 2000, about 8 months before the accident, the pilot was fitted with eyeglass lenses that brought his vision to a reported maximum best vision of, 20/30 right eye and 20/40 left eye. The ophthalmologist stated he thought the extent of the loss of visual acuity could not have been a direct cause of the accident.

Postmortem examination of the pilot was performed by Manfred C. Borges, Jr., M.D., Deputy Chief Medical Examiner for Florida's District 20, Naples, Florida, on April 1, 2001. The cause of death was reported as smoke inhalation and fire. Additional findings were marked arteriosclerosis and stenosis of the anterior descending branch of the left coronary artery, (approximately 80 percent narrowing) and arteriosclerosis of the kidney.

Postmortem toxicology testing on specimens obtained from the pilot were performed by Dennis V. Canfield, Ph.D., Manager, FAA Toxicology and Accident Research Laboratory, Oklahoma City, Oklahoma. Tests were positive for carbon monoxide in the blood and quinine in the blood and urine. Tests were negative for cyanide, ethanol, and other basic, acidic, and neutral drugs.

Quinine is found in tonic water, and is used to treat severe malaria. It is also commonly used to reduce the frequency of nocturnal leg cramps, (a condition which may cause painful leg muscle spasm at night) and was available over the counter for this purpose until 1995. The side effects of quinine can include disturbances of vision, hearing, and balance. Family members knew of no condition the pilot suffered that would require use of medicinal quinine, and the couple who spent the evening previous to the accident with the pilot stated that he did not consume quinine water in their presence.

TESTS AND RESEARCH

The aircraft overnighed and was fuelled with 123.7 gallons of 100LL octane aviation fuel on the evening of March 30, at Huffman Aviation/ Venice Flying Service of Venice Municipal Airport. Fuel contamination checks of the fuel farm and the fuel truck used for N900CE's refueling revealed that fuel samples were clear and bright.

No flight plan was filed for the Venice to Marco Island leg, and the FAA radar facility at Fort Myers reported they received no request for flight following nor had any other radio contact with N900CE during the flight. Using reported winds and normal cruise power settings for the Aerostar, the enroute time for a direct flight would have been about 24 minutes.

ADDITIONAL INFORMATION

The wreckage was released to a representative of the owner/operator and the NTSB form 6120.15, Release of Wreckage, was signed on April 2, 2001.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	77, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/16/2000
Occupational Pilot:		Last Flight Review or Equivalent:	03/21/2000
Flight Time:	12980 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N900CE
Model/Series:	PA-60-601P	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	61P-0555-239
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	02/01/2001, Annual	Certified Max Gross Wt.:	6000 lbs
Time Since Last Inspection:	5 Hours	Engines:	2 Reciprocating
Airframe Total Time:	3633 Hours as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-540-S1A5
Registered Owner:	Crosco, Inc.	Rated Power:	290 hp
Operator:	Crosco, Inc.	Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	APF, 9 ft msl	Distance from Accident Site:	12 Nautical Miles
Observation Time:	1046 EST	Direction from Accident Site:	327°
Lowest Cloud Condition:	Clear	Visibility	6 Miles
Lowest Ceiling:	Broken / 1000 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	14 knots / 20 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	210°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.94 inches Hg	Temperature/Dew Point:	26 °C / 23 °C
Precipitation and Obscuration:			
Departure Point:	Venice, FL (VNC)	Type of Flight Plan Filed:	None
Destination:	Marco Island, FL (MKY)	Type of Clearance:	None
Departure Time:	0930 EST	Type of Airspace:	Class E

Airport Information

Airport:	Marco Island Executive (MKY)	Runway Surface Type:	Asphalt
Airport Elevation:	6 ft	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	Unknown
Runway Length/Width:	5000 ft / 100 ft	VFR Approach/Landing:	Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	25.995000, -81.676389

Administrative Information

Investigator In Charge (IIC):	Alan C Stone	Report Date:	10/23/2001
Additional Participating Persons:	Allen J Schneider; FAA; Miami, FL Gregory Erickson; Textron Lycoming; Williamsport, PA Paul Lehman; Piper Aircraft; Vero Beach, 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](#).