



National Transportation Safety Board Aviation Accident Final Report

Location:	ANDYTOWN, FL	Accident Number:	MIA93FA183
Date & Time:	08/25/1993, 0855 EDT	Registration:	N206RH
Aircraft:	CESSNA 402C	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious, 4 Minor

Flight Conducted Under: Part 135: Air Taxi & Commuter - Scheduled

Analysis

THE PILOT WAS DEVIATING AROUND WEATHER DURING DESCENT WHEN HE NOTED THE FUEL FLOW AND MANIFOLD PRESSURE ON THE LEFT ENGINE OSCILLATING. BECAUSE THE PROPELLER WAS STILL TURNING HE ELECTED NOT TO FEATHER THE LEFT PROPELLER. THE AIRPLANE WOULD NOT MAINTAIN ALTITUDE SO HE LOWERED THE LANDING GEAR AND DITCHED THE AIRPLANE IN A SWAMP. EXAMINATION OF THE LEFT FUEL TANK REVEALED THE FUEL FLOAT VALVE ACTUATORS AND FLOAT ARMS EXCESSIVELY WORN. THIS CONDITION WOULD ALLOW UNMETERED AIR INTO THE FUEL LINES. ALSO NOTED WAS THE CONDITION OF ONE OF THE LEFT FUEL VALVES THAT COULD JAM OPEN ALLOWING THE FUEL PICKUP TO UNPORT AND INDUCE EXCESSIVE AIR INTO THE FUEL LINES.

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 FEATHER THE PROPELLER WHEN THE ENGINE LOST POWER, AND HIS FAILURE TO FOLLOW THE EMERGENCY PROCEDURE CHECKLIST. CONTRIBUTING TO THE ACCIDENT WAS THE INADEQUATE DESIGN OF THE FUEL TANK FLOAT VALVES WHICH ALLOWED FOR EXCESSIVE WEAR AND SUBSEQUENT INDUCTION OF UNMETERED AIR INTO THE FUEL LINES.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: DESCENT - NORMAL

Findings

1. (F) FUEL SYSTEM,TANK - FAILURE,PARTIAL
2. (F) ACFT/EQUIP,INADEQUATE AIRCRAFT COMPONENT - MANUFACTURER

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY LANDING

Findings

3. (C) PROPELLER FEATHERING - NOT PERFORMED - PILOT IN COMMAND
4. (C) EMERGENCY PROCEDURE - NOT PERFORMED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On August 25, 1993, about 0855 eastern daylight time N206RH, a Cessna 402C, operated by Air Sunshine Inc. ditched in the Everglades near Andytown, Florida, while on a 14 CFR Part 135 commuter, scheduled, domestic, passenger flight. Visual meteorological conditions prevailed at the time and a VFR flight plan was filed. The airplane was substantially damaged and the pilot and three passengers received minor injuries, and one passenger received serious injuries. The flight was operating as flight No. 1721 and originated from Sarasota, Florida, about 35 minutes earlier.

The pilot stated that he lost power on the left engine and did not feather the propeller because he thought the engine was still producing partial power. The airplane was not able to maintain altitude, so he lowered the landing gear and ditched the airplane in swampy water. The pilot stated later that he remembered the manifold pressure on the left engine was about 15 inHg and the fuel pressure was oscillating before and during the loss of power.

PERSONNEL INFORMATION

Pilot information is located in the crew information section of this report.

AIRCRAFT INFORMATION

Historical airplane and engine information is located in this report and attachments.

WRECKAGE AND IMPACT INFORMATION

The wreckage was documented on scene and the wreckage was removed from the swamp and subsequently examined at multiple locations. The fuel float valves in both the left and right wing tanks were marked and removed. All the floats were found not damaged but the plunger actuators were found excessively worn and would stick in the open position. The valves were forwarded to the FAA EMDO in Wichita, Kansas, for further examination. Both the left and right engines were dried out and water was drained from the engine interiors. Both engines were mounted on a test stand with run up "club" propellers. Both engines started and ran to full power with no other discrepancies noted.

TESTS AND RESEARCH

The fuel valves were examined and tested both in a laboratory and on a static wing at various fuel quantities and various bank angles. At the lower fuel quantities and higher bank angles it was determined that air could enter the fuel lines and be pumped to the engines. This would give a leaner than scheduled air/fuel flow to the engines and could produce a partial loss of power. The fact that some of the actuators could jam open was also noted. In flight this could in combination with turbulence cause an unported fuel line pumping unscheduled air to an engine.

ADDITIONAL INFORMATION

The wreckage of N206RH was released to Mr. Richard Deickhoff, of Air Claims, representing the owner, on September 1, 1993, and the six floats were released to Mr. Richard Deickhoff on November 2, 1994.

Pilot Information

Certificate:	Airline Transport	Age:	25, Male
Airplane Rating(s):	Multi-engine Land; 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:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	02/01/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	3000 hours (Total, all aircraft), 2400 hours (Total, this make and model), 2800 hours (Pilot In Command, all aircraft), 110 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N206RH
Model/Series:	402C 402C	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	0206
Landing Gear Type:	Retractable - Tricycle	Seats:	10
Date/Type of Last Inspection:	08/06/1993, AAIP	Certified Max Gross Wt.:	6850 lbs
Time Since Last Inspection:	31 Hours	Engines:	2 Reciprocating
Airframe Total Time:	12918 Hours	Engine Manufacturer:	CONTINENTAL
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	TSIO-520VB
Registered Owner:	AIR SUNSHINE INC.	Rated Power:	325 hp
Operator:	AIR SUNSHINE INC.	Operating Certificate(s) Held:	Commuter Air Carrier (135)
Operator Does Business As:		Operator Designator Code:	RSHA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MIA, 9 ft msl	Distance from Accident Site:	21 Nautical Miles
Observation Time:	0855 EDT	Direction from Accident Site:	140°
Lowest Cloud Condition:	Scattered / 2000 ft agl	Visibility	7 Miles
Lowest Ceiling:	Broken / 30000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	28° C / 24° C
Precipitation and Obscuration:			
Departure Point:	SARASOTA, FL (SRQ)	Type of Flight Plan Filed:	VFR
Destination:	FORT LAUDERDALE, FL (FLL)	Type of Clearance:	VFR
Departure Time:	0825 EDT	Type of Airspace:	Class E

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious, 3 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 4 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	ANDREW A ALSTON	Report Date:	12/19/1994
Additional Participating Persons:	MARY HIRSH; FORT LAUDEDALE, FL DALE CARTER; MOBILE, AL BRIAN FINNEGAN; WITCHITA, KS		
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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