National Transportation Safety Board
Aviation Accident Final Report

Location:	MIAMI, FL	**Accident Number:**	MIA95FA155
Date & Time:	06/23/1995, 1054 EDT	**Registration:**	N7884J
Aircraft:	CESSNA 402A	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

Witnesses stated they observed the airplane descending to the right of the final approach path with the landing gear down and an engine was heard sputtering. The wings of the airplane were observed to be rocking back and forth. The airplane rolled right 90 degrees. The nose pitched up, rolled inverted, collided with a parking lot and slid in between a front end loader and a dump truck.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot-in-command's failure to maintain airspeed (VMC) after loss of power of one engine while on final approach, resulting in an in-flight loss of control and subsequent in-flight collision with terrain. Contributing to the accident was a total loss of engine power of the right engine due to fuel exhaustion.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
1. 1 ENGINE
2. (F) FLUID,FUEL - EXHAUSTION
3. (F) REFUELING - NOT PERFORMED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
4. (C) AIRSPEED(VLOF) - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On June 23, 1995, about 1054 eastern daylight time, a Cessna 402A, N7884J, registered to Air Florida Express Inc., operating as a 14 CFR Part 91 positioning flight, crashed on a visual approach to runway 09 left at Miami International Airport, Miami, Florida. Visual meteorological conditions prevailed and an IFR flight plan was filed. The airplane was destroyed. The airline transport pilot sustained serious injuries. The flight originated from Marsh Harbor, Bahamas, about 1 hour 14 minutes before the accident.

Witnesses stated they observed the airplane descending to the right of the final approach path for runway 09 left with the landing gear down and an engine was heard sputtering. The wings of the airplane were observed to be rocking back and forth. The airplane rolled right 90 degrees. The nose pitched up, the airplane rolled over inverted, the nose pitched down, the airplane collided with a parking lot and slid in between a front end loader and a dump truck coming to a complete stop.

Transcripts of recorded transmissions between Miami Air Traffic Control Tower (ATCT), N7884J, and review of Miami ATCT continuous data recording radar revealed there were no airplanes in the vicinity of N7884J at the time of the accident. (See FAA transcripts of communication and radar data attached).

PERSONNEL INFORMATION

Information pertaining to the pilot, is contained in NTSB Form 6120.4.

AIRCRAFT INFORMATION

The pilot stated the airplane logbooks were in the airplane at the time of the accident. No logbooks were found at the crash site. Records on file with the FAA Miami Flight Standards District Office, revealed on June 5, 1995, a ramp inspection was conducted on N7884J. Numerous discrepancies were noted, and an aircraft condition notice was placed on the airplane. The condition notice indicated the airplane was considered to be an imminent hazard to safety, and operation of the airplane before correction will be contrary to pertinent Federal Aviation Regulations. In addition a letter was hand delivered to the registered owner by the FAA Principal Maintenance Inspector, requiring written corrective action to be taken within 3 working days. No written corrective action was received by the FAA.

METEOROLOGICAL INFORMATION

Visual meteorological conditions prevailed at the time of the accident. Review of weather information for Miami International Airport, for the time of the accident, revealed no recorded record of turbulence, downdrafts, gusts, or windshear. (For additional information see NTSB Form 6120.4).

WRECKAGE AND IMPACT INFORMATION

The wreckage of N7884J was located about 1/2 mile west of runway 09 left adjacent to N.W. 67th avenue and N.W. 26th street in the parking lot at the Department of Agriculture Fumigation Site.

Examination of the crash site revealed the right main fuel tank and right wing collided with the asphalt parking lot. The right main fuel tank was ruptured, and a small stain was present

on the parking lot. The airplane came to rest on a heading of 089 degrees. The right engine separated from the right wing, and an on-ground fire ensued in the vicinity of the right engine compartment. The left main fuel tank, left and right auxiliary fuel tanks were empty and not ruptured. The left propeller separated from the propeller flange. Three propeller slashes from the right propeller were located on the parking lot measuring 26 inches and 41 inches apart. Five propeller slashes from the left propeller were located on the parking lot measuring 11 inches, 12 inches, 15 inches, and 20 inches apart.

Examination of the airframe and flight control assembly revealed no evidence of a precrash mechanical failure or malfunction.

The left and right engine assembly and accessories were transported to an authorized repair facility in Miami, Florida, for an engine test run. Both engines started, ran, and developed power.

Examination of the left propeller assembly and accessories revealed no evidence of a precrash failure or malfunction. Torsional twisting, blade bending, and excessive leading edge scoring was present on the propeller blades. The bearing races were fractured and the blade assemblies were unseated. All attachment studs and dowels were pulled out of the hub mounting surface. The pitch change piston rod was bent on the aft end. A measurement of the bend indicates the mechanism was positioned at a blade angle of about 16 degrees. At 85 knots forward speed at impact, the estimated propeller rpm was 1720 rpm based on propeller slashes located at the crash site. (For additional information see McCauley Teardown Inspection of Propellers From Cessna 402A, N7884J).

Examination of the right propeller assembly and accessories revealed no evidence of a precrash mechanical failure or malfunction. The right propeller sustained minimal damage with blade assemblies remaining properly seated with no retention bearing damage. The pitch change mechanism sustained minimal damage. The studs and dowels of the hub attachment were not damaged, and the propeller assembly remained attached to the engine. The right propeller was being operated under low power conditions, and was probably windmilling on the low pitch stop (14.2 degrees) at impact. At 85 knots forward speed at impact, the estimated propeller rpm was 835 rpm based on propeller slashes located at the crash site. (For additional information see McCauley Teardown Inspection of Propellers From Cessna 402A, N7884J).

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot, sustained serious injuries. Toxicology studies of specimens from the pilot was performed by Jackson Memorial Hospital, in Miami. These studies were negative for neutral, acidic, and basic drugs.

TEST AND RESEARCH

Review of fuel slips obtained from Signature Flight Support, Miami International Airport, revealed N7884J main fuel tanks (50 gallons each), and auxiliary fuel tanks (20 gallons each), were topped off on June 18, 1995. The airplane was flown from Miami to Marsh Harbor, Bahamas, and back to Miami. The main fuel tanks were topped off by adding 51 gallons of fuel. The airplane was flown from Miami, to Nassau, and back to Miami. The airplane main fuel tanks were refueled on June 22, 1995, and the airplane was flown from Miami, to Nassau, and back to Miami. The airplanes main fuel tanks were topped off with 85 gallons of fuel. The pilot taxied out to go to Marsh Harbor, but returned to the ramp 45 minutes later. The airplane was not refueled. The airplane was flown from Miami, to Marsh Harbor, and back to Miami. The

airplane had about 86 gallons of fuel in the main fuel tanks when the airplane departed Miami. No fuel was purchased in Marsh Harbor before returning to Miami. Calculated fuel for straight and level flight was 83.14 gallons. (For additional information see Cessna Fuel Consumption Calculations attached to this report).

A review of FAA Advisory Circular 61-21A, Flight Training Handbook states on page 234, "Vmc can be defined as the minimum airspeed at which the airplane is controllable when the critical engine is suddenly made inoperative, and the remaining engine is producing takeoff power....The principle of Vmc is not at all mysterious. It is simply that at any airspeed less than Vmc air flowing along the rudder is such that application of rudder forces cannot overcome asymmetrical yawing forces caused by takeoff power on one engine and a powerless windmilling propeller on the other." The Owner's Manual for the Cessna 402 states the minimum control speed for single-engine operations is 95 mph.

ADDITIONAL INFORMATION

A certified letter requesting additional information and NTSB Form 6120.1/2 was mailed to the pilot on June 29, 1995. The form was completed; however, the additional information was not received.

The airplane wreckage was released to Mr. John Hamill, Assistant Director, Metro Dade Aviation Department, in Miami on June 27, 1995. The propeller system was released to Mr. Thomas M. Knopp, Senior Project Engineer, McCauley Accessory Division, Vandalia, Ohio, on August 15, 1995. The propeller governors were released to Mr. Julio Rodriquez, Signature Flight Support, in Miami on August 25, 1995.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	**Age:**	42, 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):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	02/15/1995
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	9800 hours (Total, all aircraft), 7800 hours (Total, this make and model), 8700 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N7884J
Model/Series:	402A 402A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	402A-0103
Landing Gear Type:	Retractable - Tricycle	**Seats:**	3
Date/Type of Last Inspection:	06/15/1995, AAIP	**Certified Max Gross Wt.:**	5200 lbs
Time Since Last Inspection:	20 Hours	**Engines:**	2 Reciprocating
Airframe Total Time:	4980 Hours	**Engine Manufacturer:**	CONTINENTAL
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-E
Registered Owner:	AIR FLORIDA EXPRESS INC	**Rated Power:**	300 hp
Operator:	AIR FLORIDA EXPRESS INC	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	AFBA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	MIA, 11 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	1050 EDT	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Unknown / 0 ft agl	**Visibility**	7 Miles
Lowest Ceiling:	Overcast / 1400 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	28°C / 24°C
Precipitation and Obscuration:			
Departure Point:	MARSH HARBOR, OF (MYAM)	**Type of Flight Plan Filed:**	IFR
Destination:	(MIA)	**Type of Clearance:**	VFR
Departure Time:	0940 EDT	**Type of Airspace:**	Class B

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	CARROL A SMITH	**Report Date:**	10/19/1995
Additional Participating Persons:	PHILLIPS MOORE; MIAMI, FL DALE CARTER; MOBILE, AL EMIL J LOHMAN; WICHITA, KS THOMAS M KNOPP; VANDALIA, OH		
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.ntsb.gov/pubdms/.		