National Transportation Safety Board
Aviation Accident Final Report

Location:	CHESAPEAKE, VA	**Accident Number:**	NYC99FA074
Date & Time:	03/16/1999, 0950 EST	**Registration:**	N13DT
Aircraft:	Cessna 340A	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

After takeoff, the airplane returned to the departure airport for an emergency landing. The aircraft was observed in the vicinity of the runway threshold, about 500 feet above the ground, with it's left propeller feathered, when it entered a left bank which increased to about 90 degrees. The airplane then entered a spin, descended, and impacted the ground. Examination of wreckage revealed the camshaft of the left engine had failed as a result of a fatigue crack. No other abnormalities were observed of airframe or engine. The left engine had accumulated about 1,200 hours since overhaul. The pilot purchased the airplane about 1 month prior to the accident. At that time, he reported 700 hours of flight experience in multi-engine airplanes, of which, 10 hours were in the make and model of the accident airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain control of the airplane during a single engine emergency landing, after experiencing a failure of the left engine. A factor in this accident was the failure of the left engine's camshaft due to a fatigue crack.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CLIMB - TO CRUISE

Findings
1. 1 ENGINE
2. (F) ENGINE ASSEMBLY,CAMSHAFT - FAILURE,TOTAL

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
4. STALL/SPIN - INADVERTENT

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

Findings
5. TERRAIN CONDITION - GRASS

Factual Information

HISTORY OF FLIGHT

On March 16,1999, about 0950 eastern standard time, a Cessna 340A, N13DT, was destroyed when it impacted the ground during an emergency landing, shortly after takeoff from the Chesapeake Municipal Airport (CPK), Chesapeake, Virginia. The certificated commercial pilot and passenger were fatally injured. Visual meteorological conditions prevailed and no flight plan had been filed for the personal flight destined for the Flager County Airport, Bunnell, Florida. The flight was conducted under 14 CFR part 91.

In a telephone interview, a witness at the fixed base operator where the airplane was kept, stated she did not see or hear the airplane depart, but heard the pilot say over the unicom, "This is one three delta tango, making an emergency landing," and said the pilot sounded calm. Thirty to 45 seconds later, she heard the pilot say, "one three delta tango spiraling" or "spiral landing for runway five." Thirty to 45 seconds later, she heard someone say that the airplane had crashed.

A witness at the airport stated he observed the airplane lift off the ground about half-way down the 4,200-foot-long runway. About 3 to 5 minutes later, he heard a pulsating sound, like the throttle was being moved back and forth. He observed the airplane on the left side of the approach end to runway 5, about 500 feet above the ground. He then saw the airplane enter a 90-degree left bank, and said "I could see the entire bottom of the airplane." The flaps were extended and the gear was retracted. The airplane turned 180 degrees, maintaining altitude, and its nose dropped. The airplane then nosed up and entered a flat spin from about 200 feet above the ground.

Another witness stated he observed the airplane come over "the numbers," about 500 feet or less. The airplane then entered a left bank which increased to about a 90-degree bank angle. He noted that the airplane's left engine was feathered and that the landing gear was retracted. The airplane then entered a spin, descended, and impacted the ground.

The pilot's son also witnessed the accident. He observed the airplane slightly to the right of the runway, about 500 to 700 feet agl, as it approached the runway threshold at an angle. The airplane flew over the runway threshold, to the left of the runway. The airplane "kinda dipped up and down;" it then "nosed up a little and stalled to the left." The airplane entered a flat spin for about two revolutions and then impacted the ground.

The accident occurred during the hours of daylight approximately 36 degrees, 39 minutes north latitude, and 76 degrees, 19 minutes west longitude.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with ratings for single and multi engine land airplanes. He was also instrument rated.

The pilot reported 4,500 hours of total flight experience on his most recent application for a Federal Aviation Administration (FAA) second class medical certificate, which was issued on December 1, 1998.

The pilot had purchased the airplane about 1 month prior to the accident. On an application for aircraft insurance dated February 20, 1999, the pilot reported 4,800 hours of

total flight experience, 700 hours in multiengine aircraft, and 10 hours in the make and model of the accident airplane.

The pilot's son stated that the pilot owned a Piper Seneca prior to purchasing the accident airplane. He was not certain of how much flight experience the pilot had accumulated in a Cessna 340A.

A certified flight instructor (CFI) who had flown with the accident pilot in the accident airplane stated he was first contacted by the accident pilot in January 1998, and flew in the accident pilot's Piper Seneca on one occasion. In 1999, about one month prior to the accident he was again contacted by the pilot, who told him that he had purchased a Cessna 340A, and that he needed a CFI to fly with him in the airplane for insurance purposes. According the CFI's logbook, he flew with the accident pilot in N13DT on a cross-country flight to Ohio for 4.8 hours, and a local training flight for 1 hour. In addition, the CFI flew the accident airplane for about one hour, solo.

On March 11, 1999, the pilot satisfactorily completed a 4-day Cessna 340A initial training course taught by SimCom Training Centers, Orlando, Florida.

AIRCRAFT INFORMATION

Review of the airplane's maintenance records revealed it had received an annual inspection on February 18, 1999. At that time, the airplane's total airframe time was 3,563.8 hours. Additionally, at the time of the annual inspection, the left engine had accumulated 1,187.4 total hours, and the right engine had accumulated 1,176.0 total hours, since overhaul.

METEOROLOGICAL INFORMATION

A weather observation taken at CPK at 1500 reported: winds from 360 degrees at 3 knots; visibility 10 statue Miles; scattered Clouds at 8,000 and 10,000 feet; temperature 45 degrees F; dewpoint 27 degrees F; altimeter 30.14.

WRECKAGE INFORMATION

On-scene examination of the wreckage revealed that the airplane impacted a grass area about 1,000 feet northwest from the approach end of runway 5, and came to rest upright, on a magnetic course of 250 degrees. All major components of the airplane were accounted for at the scene. The main wreckage which included the cabin, both wings, and both engines, was consumed by a post crash fire. The forward portion of the airplane's nose, and the tail section aft of the airplane's rear bulkhead were not fire-damaged. The underside portions of the wreckage that were not fire-damaged revealed crushing and compression wrinkles in a vertical plane.

Flight control continuity was confirmed from the forward cockpit area to all primary control surfaces. Examination of the airplane's landing gear box indicated that the landing gear was in the retracted position.

Initial examination of the airplane's engines was conducted at the accident site. Both engines were damaged by fire. Both engines were rotated about 30 degrees using a socket inserted into an accessory drive gear, and crankshaft continuity was noted. The top spark plugs were removed from both engines. The spark plug electrodes were intact and exhibited uneven wear. The left engine propeller blades were found at or near the feathered position. The right engine propeller contained a blade with "s" bending, and a blade which was bent

about 90 degrees outboard. Both engines were retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on the pilot and passenger by the Office of the Chief Medical Examiner, Norfolk, Virginia.

Toxicological testing was conducted by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma.

TESTS AND RESEARCH

Engine Examinations

On May 12, 1999, the airplane's left and right engines were examined at Teledyne Continental Motors, Mobile, Alabama, under the supervision of a Safety Board Investigator. Both engines exhibited extensive fire and impact damage.

Disassembly of the airplane's right engine did not reveal any pre-impact mechanical malfunctions.

Disassembly of the left engine revealed that the camshaft was fractured in the vicinity of the rear oil distribution groove. The camshaft and drive gear were removed and forwarded to the Safety Board Materials Laboratory, Washington, DC, for further examination.

Camshaft Examination

Examination of the camshaft by a Safety Board metallurgist revealed that the camshaft separated through three of the four oil holes located in the end of the shaft adjacent to the drive gear. Examination of the fracture faces revealed features that were consistent with fatigue cracking over much of the fracture surface.

ADDITIONAL INFORMATION

Further review of the airplane's maintenance records revealed that the airplane's engines were last remanufactured to new parts limits by RAM Aircraft Corporation, Waco, Texas. At that time, work was performed on the engines which included the installation of a "RAM economy camshaft p/n 1058-3RS."

The left and right engines were remanufactured on March 14, 1991, and May 6, 1991, respectively.

Refueling

Refueling records indicated that the airplane was last fueled on March 12, 1999, when it was "topped off" with 147.5 gallons of 100LL aviation gasoline.

Wreckage Release

The airplane wreckage was released on March 19, 1999, to a representative of the owners insurance company.

Pilot Information

Certificate:	Commercial	**Age:**	70, 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:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	12/01/1998
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	4500 hours (Total, all aircraft), 10 hours (Total, this make and model), 10 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N13DT
Model/Series:	340A 340A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	340A0063
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	02/16/1999, Annual	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	3575 Hours	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520
Registered Owner:	JAMES R. BROWNING	**Rated Power:**	310 hp
Operator:	JAMES R. BROWNING	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	CPK, 20 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	0940 EST	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Scattered / 10000 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	None / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	7°C / -2°C
Precipitation and Obscuration:			
Departure Point:	(CPK)	**Type of Flight Plan Filed:**	None
Destination:	BUNNELL, FL (X47)	**Type of Clearance:**	None
Departure Time:	0945 EST	**Type of Airspace:**	Class E

Airport Information

Airport:	CHESAPEAKE MUNI (CPK)	**Runway Surface Type:**	Asphalt
Airport Elevation:	20 ft	**Runway Surface Condition:**	Dry
Runway Used:	5	**IFR Approach:**	None
Runway Length/Width:	4200 ft / 100 ft	**VFR Approach/Landing:**	Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	LUKE SCHIADA	**Report Date:**	06/23/2000
Additional Participating Persons:	JOHN WAGER; RICHMOND, VA ANDREW L HALL; WICHITA, KS SCOTT BOYLE; ARVADA, CO		
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/.		