

Aviation Investigation Final Report

Location:	BROWNSVILLE, Ten	nessee	Accident Number:	MIA97FA239
Date & Time:	August 23, 1997, 00	:10 Local	Registration:	N5678K
Aircraft:	Beech	95-B55	Aircraft Damage:	Destroyed
Defining Event:			Injuries:	1 Fatal
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled			

Analysis

Two witnesses about 15 miles northeast of the crash site, reported they heard and saw an airplane at low altitude and low airspeed. The Civil Air Patrol (CAP) found Beech 95-B55, N5678K, in an open pasture on the following morning. No radio calls were recorded from the airplane before the accident. Examination of the fuel tanks revealed the right auxiliary tank contained about 1 guart of green fuel, and the left main and auxiliary tanks were found dry, as was the right main fuel tank. There was no fuel spillage observed at the crash site, either on the ground, or trees, and there were no breaches found throughout the fuel system. The fuel supply lines were found clear and unobstructed. Overall visual examination of the engine compartment and airframe did not reveal any evidence of fuel stains or fuel leakage. The pilot's son reported that company had a policy to 'top off' each aircraft with fuel after each flight. The load manifest for this flight indicated that there was '74 gallons' of fuel in the main tanks, and '60 gallons' of fuel in the auxiliary tanks. The 95-B55, had a total fuel capacity of 142 gallons, of which 136 gallons were usable fuel. However, no record was available to determine when the airplane was last refueled. A direct flight from the departure point to the crash site was 469 statute miles. Calculations showed the duration of flight would have been about 2.3 hours, and would have required about 57.5 gallons of fuel.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's inadequate preflight, and his improper in-flight planning/decision, which led to fuel exhaustion and a forced landing at night on unprepared terrain. Factors relating to the accident were: darkness, and the lack of a suitable area for an emergency landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL Phase of Operation: CRUISE

Findings

1. ALL ENGINES

2. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

3. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND

4. (C) FLUID, FUEL - EXHAUSTION

Occurrence #2: FORCED LANDING Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER Phase of Operation: EMERGENCY LANDING

Findings

5. (F) LIGHT CONDITION - DARK NIGHT

6. (F) TERRAIN CONDITION - NONE SUITABLE

7. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

HISTORY OF FLIGHT

On August 23, 1997, about 0010 central daylight time, a Beech 95-B55, N5678K, operated by Todd's Flying Service Inc., as a Title 14 CFR Part 135, on-demand air taxi flight, impacted the ground near Brownsville, Tennessee. Visual meteorological conditions prevailed, and no flight plan was filed. The airplane was destroyed. The commercial-rated pilot was fatally injured. The flight originated from Ankeny, Iowa, about 2150, August 22, 1997.

A witness who was located about 15 miles northeast of the crash site said that on Friday night, August 22, 1997, between the hours of 2315 and 2330, she heard an airplane "making a loud noise." She went to her back door to see what was happening and said she "saw the plane." The witness said, "...the noise the plane was making was similar to the sound a jet makes when taking off...the engine sounded like the plane was moving very fast, but it was going very slow. I watched it for about 10 minutes before it was out of my sight." The airplane came back in her sight and she said her husband commented, "...this plane is so low and going so slow it looks like it could fall anytime." In addition the witness said, "...there were no landing lights on, just the lights that are usually on when you see a plane at night. Nothing about it's appearance was different, just the sound of the engine, it's speed, and how low it was flying."

About 0200, the Civil Air Patrol (CAP), picked up an emergency locator transmitter (ELT), and at daylight started a search. The airplane was found in an open pasture about 1000. There were no radio calls from the airplane before the accident.

The accident occurred during the hours of darkness approximately 36 degrees, 36 minutes north, and 089 degrees, 16 minutes west.

PERSONNEL INFORMATION

Information on the pilot is contained in this report on page 3, under First Pilot Information. The pilot's personal logbook containing his flight hours was not found.

METEOROLOGICAL INFORMATION

Meteorological information is contained in this report on page 3, under Weather Information.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot, on August 25, 1997, at the Medical Examiner's Office, Memphis, Tennessee, by Dr. Thomas Deering.

Toxicological tests were conducted at the Federal Aviation Administration, Research Laboratory, Oklahoma City, Oklahoma, and revealed, "Ethanol," "...1.454 (ug/ml, ug/g) Chlorpheniramine detected in Liver Fluid...0.324 (ug/ml, ug/g) Chlorpheniramine detected in Kidney Fluid." According to the toxicological report, samples of the fluids were marked "Putrefied: Yes." (Note: See the attached Toxicology Report)

WRECKAGE AND IMPACT INFORMATION

Examination of the wreckage revealed that the electrical system was turned off, the landing gear and flaps were retracted. The airplane impacted in an open field with rolling, rough terrain, and came to rest on the south side of the field with the nose of the airplane heading 130 degrees. There were no ground scars observed and none of the trees around the field or in the vicinity of the wreckage displayed any damage. The ground where the airplane's nose came to rest was a slight uphill section of rolling terrain and the nose of the airplane impacted with the uphill portion of the terrain. The nose of the airplane and the forward portion of the belly were crushed. The roof of the airplane was cut aft of the fire wall to facilitate removal of the pilot.

Both wings were still attached to the airframe and both displayed very little impact damage. The left flap was found in the full up position. The right flap was found loose on the hinges, about 10 degree, in the down position. The flap handle was found in the up position. Continuity of the flight control systems was established. The landing gear were found retracted, and remained attached to their mounts.

Observation of the left engine revealed that the engine was still attached in the nacelle, and was canted downward about 10 degrees. The engine did not display any damage or leaks. The fuel flow divider was disassembled. The flow divider was intact, the spring and diaphragm were in place. There was no fuel in the flow divider and the screen was clean. The examination of the engine did not reveal any discrepancies.

Observation of the right engine revealed that the engine was still attached in the nacelle, and was canted downward. The engine did not display any damage or leaks. The fuel flow divider was disassembled. The flow divider was intact, the spring and diaphragm were in place. There was a trace of fuel found in the flow divider and the screen was clean. The examination of the engine did not reveal any discrepancies.

The left propeller was found still attached to the crankshaft flange. There was no evidence of damage found on either of the two blades.

The right propeller had sheared off of the engine shaft aft of the mounting bolts, and was found about 2 feet forward of the engine. There was no evidence of damage found on

either of the two blades.

Examination of the airplane's fuel tanks revealed the right auxiliary tank contained about 1 quart of green fuel. The left main and auxiliary tanks were found dry, as was the right main fuel tank. The fuel selector, for the left engine, was found selected to the "ON" position for the left auxiliary tank, and the fuel boost pump was found in the "OFF" position. The fuel selector, for the right engine, was found selected to the "ON" position for the right engine, was found in the "OFF" position. The fuel selector, for the right engine, was found selected to the "ON" position for the right engine observed at the fuel boost pump was found in the "OFF" position. There was no fuel spillage observed at the crash site, either on the ground, or trees, and there were no breaches found throughout the fuel system. Examination of the fuel selectors revealed that they were free to move through all positions. The fuel supply lines were found clear and unobstructed. Overall visual examination of the engine compartment and airframe did not reveal any evidence of fuel stains or fuel leakage.

ADDITIONAL INFORMATION

According to the Beechcraft, 95-B55, Operators Manual, Section III, Emergency Procedures, check list for engine failure, the following check list items were examined and their related position were recorded at the crash site:

* "Landing and Flaps-UP" [Both the flaps and landing gear were confirmed in the "UP" position] * "Throttle (inoperative engine)-CLOSED" [Left engine throttle "CLOSED"- Right engine throttle midrange] * "Propeller (inoperative engine)-FEATHER" [Both propeller levers in the full decrease position] * "Mixture Control- IDLE CUT-OFF" [Both mixture controls found in the midrange positions] * "Fuel Selector-OFF" [Left tank on-AUX- Right tank on-MAIN] * "Fuel Boost Pump-OFF" [Both fuel boost pumps confirmed in the "OFF" position] * "Magneto/Start Switch-OFF" [Both left and right engine magnetos were found in the "BOTH-ON" position] * "Generator/Alternator Switch-OFF" [Switches confirmed in the "OFF" position]

In a telephone conversation with the pilot's son at 1530, on August 26, 1997, the son told the NTSB investigator-in-charge that it was company policy to "top off" each aircraft with fuel after each flight. In referance to N5678K, the son said it was possible the airplane was "not topped off" on the last flight, because the "plane had not flown for a couple of weeks" before the accident flight, and "they did not keep refueling records, so it could not be proven." In addition, the son said, "[his] father pulled the aircraft out, and [he] did not know if anyone saw him put gas in it." The load manifest for this flight indicated that there were "74 gallons" of fuel in the main tanks, and "60 gallons" of fuel in the auxiliary tanks.

The fuel flow and fuel burn rates were calculated using Beechcraft's performance charts, and known information. The 95-B55, had a total fuel capacity of 142 gallons, of which 136 gallons were usable fuel. A direct flight from Ankeny, Iowa, to the crash site was 469 sm. One quart of fuel was drained from the right auxiliary fuel tank at the crash site. The flight from Iowa to Tennessee, was 2 hours 20 minutes (2.3) in duration. Using the formula, fuel rate [gals]= total gallons [134 per the manifest], divided by time [2.3], equals a fuel flow of 58.3

gallons per hour. The Beechcraft performance charts showed that fuel flow at full throttle is about 25 gallons per hour (GPH). At a fuel flow rate of 25 gallons per hour, the total fuel used for a 2-hour 20-minute flight should have been about 57.5 gallons.

The aircraft wreckage was released to Mr. Buford Mathias, the property owner, on behalf of the owner's insurance company, on August 24, 1997.

Pilot Information

Certificate:	Commercial	Age:	59,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	None	Last FAA Medical Exam:	
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	22500 hours (Total, all aircraft), 2000 days, all aircraft)) hours (Total, this make and model), 7	70 hours (Last 90

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N5678K
Model/Series:	95-B55 95-B55	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	TC-762
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	July 2, 1997 Annual	Certified Max Gross Wt.:	5100 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	5810 Hrs	Engine Manufacturer:	Continental
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	IO-470-L
Registered Owner:	TODDS FLYING SERVICE	Rated Power:	260 Horsepower
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	TDFA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night/dark
Observation Facility, Elevation:	MEM	Distance from Accident Site:	40 Nautical Miles
Observation Time:	11:50 Local	Direction from Accident Site:	180°
Lowest Cloud Condition:	Scattered / 7000 ft AGL	Visibility	20 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	20°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ANKENY (IKU)	Type of Flight Plan Filed:	None
Destination:	TUSCALOOSA (TCL)	Type of Clearance:	None
Departure Time:	21:50 Local	Type of Airspace:	Class D

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	35.589111,-89.250831(est)

Administrative Information

Investigator In Charge (IIC):	Yurman, Alan
Additional Participating Persons:	ROY C MENARD; MEMPHIS , TN
Original Publish Date:	June 26, 1998
Last Revision Date:	
Investigation Class:	<u>Class</u>
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=38152

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