Aviation Investigation Final Report

Location:	St Cloud, Minnesota	**Accident Number:**	CHI01FA139
Date & Time:	May 17, 2001, 11:48 Local	**Registration:**	N633K
Aircraft:	Beech 95-C55	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was destroyed on impact with trees and terrain following an in-flight loss of right engine power on initial climb out. The pilot sustained serious injuries. In an interview, a witness stated that on takeoff the airplane, "all of a sudden began to bank, like it was going to make a turn and head north. The plane then inverted and then the right wing began to dip under. The plane then went straight down into the wooded area next to the runway." The pilot said, "Starboard engine failed on takeoff (downwind engine) with gear [and] flaps down. At an altitude of 100-200 ft engine failed. As pressure to port rudder was applied and attempting to place fuel selector switch in ALT fuel position, A/C violently departed to the right. (rolled)" The pilot said, "I tried to re-start the right engine but had no time." The airplane's flight manual states: " Where practicable, the emergencies requiring immediate corrective action are treated in check list form for easy reference and familiarization. ... ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT An immediate landing is advisable regardless of take-off weight. ... Continued flight requires immediate pilot response to the following procedures. 1. Landing Gear and Flaps - UP 2. Throttle (inoperative engine) - CLOSED 3. Propeller (inoperative engine) - FEATHER 4. Power (operative engine) - AS REQUIRED 5. Airspeed - MAINTAIN SPEED AT ENGINE FAILURE (99 KTS (114 MPH) MAX.) UNTIL OBSTACLES ARE CLEARED After positive control of the airplane is established: 6. Secure inoperative engine: ... NOTE The most important aspect of engine failure is the necessity to maintain lateral and directional control. If airspeed is below 80 kts (92 mph), reduce power on the operative engine as required to maintain control. ... CAUTION The pilot should determine the reason for engine failure before attempting an air start." An on-scene investigation was conducted. No anomalies were found. The right engine produced full power during a test run.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot not maintaining aircraft control during the loss of right engine power during initial climb. Factors were the loss of right engine power for an undetermined reason, the pilot not complying with flight manual emergency procedures, and the trees.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (F) PROCEDURES/DIRECTIVES - NOT COMPLIED WITH - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. (F) OBJECT - TREE(S)

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On May 17, 2001, about 1148 central daylight time, a Beech 95-C55, N633K, piloted by an airline transport pilot, was destroyed on impact with trees and terrain following an in-flight loss of engine power on initial climb out from runway 31 (5,200 feet by 100 feet, dry, asphalt) at the St. Cloud Regional Airport (STC), near St. Cloud, Minnesota. The personal flight was operating under 14 CFR Part 91. Visual meteorological conditions prevailed at the time of the accident. No flight plan was on file. The pilot sustained serious injuries. The flight was originating at the time of the accident and was destined for Winsted Municipal Airport, near Winsted, Minnesota.

The St. Cloud Police interviewed a witness. The police report interview stated, "He [the witness] was taxiing on the runway with a student of his, ... That he observed the plane taking off going to an estimated height of about 200 feet. [The witness] stated the plane all of a sudden began to bank, like it was going to make a turn and head north. The plane then inverted and then the right wing began to dip under. The plane then went straight down into the wooded area next to the runway."

During an interview with a Federal Aviation Administration (FAA) inspector, the pilot stated, "I was about 150' altitude and the right engine 'rolled back on power', ... I tried to re-start the right engine but had no time." The pilot stated that "when the engine rolled back that the aircraft yawed and the nose started to drop."

The pilots written statement stated, "Starboard engine failed on takeoff (downwind engine) with gear [and] flaps down. At an altitude of 100-200 ft engine failed. As pressure to port rudder was applied and attempting to place fuel selector switch in ALT fuel position, A/C violently departed to the right. (rolled) Terrain: Level/lightly wooded."

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with an airplane multiengine land rating. He held a third class medical certificate with a limitation for corrective lenses. He stated that he had 11,377.9 hours of total flight time, 331.4 hours total time in this make and model, and 3.9 hours of flight time in this make and model in the last 30 days. He stated that he accomplished his last flight review on July 26, 1999.

AIRCRAFT INFORMATION

The airplane was a Beech 95-C55, serial number TE-198. The airplane's standard airworthiness certificate was issued on August 24, 1966.

Airplane logbooks showed the date of the last annual inspection was November 9, 2000 and that the Hobbs meter read 3664.0 hours at the time of that inspection. The pilot stated that the total time on each engine was 2,019 hours and 319 hours since each engine's overhaul.

The airplane was fueled on May 2, 2001 with "55.3 gallons of 100LL."

The airplane's flight manual stated:

Air Minimum Control Speed(VMCA) 80 kts/92 mph ...

The following information is presented to enable the pilot to form, in advance, a definite plan of
action for coping with the most probable emergency situations which could occur in the operation of the airplane. Where practicable, the emergencies requiring immediate corrective action are treated in check list form for easy reference and familiarization. Other situations, in which more time is usually permitted to decide on and execute a plan of action, are discussed at some length. ...

ENGINE FAILURE AFTER LIFT-OFF AND IN FLIGHT

An immediate landing is advisable regardless of take-off weight. ... Continued flight requires immediate pilot response to the following procedures.

1. Landing Gear and Flaps - UP
2. Throttle (inoperative engine) - CLOSED
3. Propeller (inoperative engine) - FEATHER
4. Power (operative engine) - AS REQUIRED
5. Airspeed - MAINTAIN SPEED AT ENGINE FAILURE (99 KTS (114 MPH) MAX.) UNTIL OBSTACLES ARE CLEARED

After positive control of the airplane is established:

6. Secure inoperative engine: ...

NOTE
The most important aspect of engine failure is the necessity to maintain lateral and directional
control. If airspeed is below 80 kts (92 mph), reduce power on the operative engine as required to maintain control. ...

CAUTION

The pilot should determine the reason for engine failure before attempting an air start.

METEOROLOGICAL INFORMATION

At 1153, the STC weather was: Wind 260 degrees at 20 knots gusting to 24 knots; visibility 10 statute miles; sky condition clear; temperature 22 degrees C; dew point 4 degrees C; altimeter 29.81 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

An on-scene investigation was conducted. A ground scar was found 33 feet long and with about a 55 degree heading to the airplane's resting position. Red translucent media was found in the ground scar. The airplane came to rest at latitude 45 degrees 32.765 minutes N and longitude 94 degrees 03.176 minutes W. The right wing's trailing edge was found with a tear from about one foot inboard of its tip inward to about the right wings filler cap. A tree trunk, approximately 12 inches in diameter, was found in that tear in the area of the filler cap. The right propeller was found attached to its engine. The left propeller was found detached and resting between the left engine cowl and the fuselage. The empennage was found twisted with its left elevator resting on tree branches and its right elevator on the ground. The forward fuselage, aft of the nose cone, was found crushed rearward and twisted toward the right side of the airplane. The cabin roof was crushed downward. The left wing was found with three feet of its outboard section separated. That separated section was found resting about four feet behind the inboard wing's trailing edge.

Continuity was established to all flight control surfaces. Control continuity was established to both engines. Both engines produced a thumb compression at all cylinders. A blue colored fluid was found in all fuel bladders, in fuel lines to the engine driven fuel pumps, and in fuel lines to the manifold/distributor valve. The fuel selectors were found selecting the main tanks. Both electric fuel pumps pumped a liquid when electric current was applied. Fuel screens were examined and found clean. The Hobbs meter reading on-scene was 3743.0 hours. (See appended photographs)

TESTS AND RESEARCH

The right engine was removed and shipped to Teledyne Continental Motors for an engine run. The right engine, a IO-520-C, serial number 267520-R, was test run on August 22, 2001. The engine produced full power during its test run. (See attached aircraft engine test log)

ADDITIONAL INFORMATION

The parties to the investigation included the FAA, Raytheon Aircraft Company, and Teledyne

Continental Motors.

The aircraft wreckage was released to a representative of A.I.G. Aviation, Inc.

Pilot Information

Certificate:	Airline transport	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 30, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 26, 1999
Flight Time:	11378 hours (Total, all aircraft), 331 hours (Total, this make and model), 9661 hours (Pilot In Command, all aircraft), 19 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N633K
Model/Series:	95-C55	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	TE-198
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	November 9, 2000 Annual	**Certified Max Gross Wt.:**	5324 lbs
Time Since Last Inspection:	79 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	3743 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-520-C
Registered Owner:	Fleming Aircraft Sales	**Rated Power:**	285 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	STC,1024 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	20 knots / 24 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.8 inches Hg	**Temperature/Dew Point:**	22°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	St Cloud, MN (STC)	**Type of Flight Plan Filed:**	None
Destination:	WINSTED, MN (10D)	**Type of Clearance:**	None
Departure Time:	11:48 UTC	**Type of Airspace:**	Class G

Airport Information

Airport:	ST CLOUD MUNI STC	**Runway Surface Type:**	Asphalt
Airport Elevation:	1024 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	31	**IFR Approach:**	None
Runway Length/Width:	5200 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	45.529758,-94.059059(est)

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	William Johnson; Federal Aviation Administration; Minneapolis, MN Brian D Cassidy; Raytheon Aircraft Company; Wichita, KS Robert S Boyle; Teledyne Continental Motors; Arvada, CO
Original Publish Date:	June 18, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=52330