



National Transportation Safety Board Aviation Accident Final Report

Location:	MOORINGSPORT, LA	Accident Number:	FTW93FA117
Date & Time:	04/06/1993, 0150 CDT	Registration:	N492DM
Aircraft:	BEECH C-45H	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal

Flight Conducted Under: Part 135: Air Taxi & Commuter - Non-scheduled

Analysis

RADAR DATA SHOWED THE AIRPLANE TRACKING NORTH OF THE PLANNED ROUTE. IT MADE SEVERAL HEADING CHANGES, AND DESCENDED TO 500 FT MSL. THE PILOT ADVISED ATC THAT HE WAS LANDING AT SHREVEPORT, AND WAS ASSIGNED A TRANSPONDER CODE. NO FURTHER TRANSMISSIONS WERE RECEIVED BY ATC. THE AIRPLANE IMPACTED TRANSMISSION LINES, POLES, AND TREES APPROX 19 MI NW OF THE AIRPORT. EXAMINATION OF THE PROPELLERS REVEALED THAT THE RIGHT SPINNER DOME MARKS EQUATED TO 74 DEG; THE OPERATING RANGE IS 17-35 DEG. THE 3 BLADES OF THE LEFT PROPELLER SHOWED ONLY LEADING EDGE DAMAGE AT THE TIPS. EXAMINATION OF THE RIGHT ENGINE REVEALED THE FOLLOWING: CARBON BUILDUP IN THE EXHAUST AND INTAKE MANIFOLDS, EXHAUST VALVES PITTED AND SCORED, VALVE SEATS WORN AND PITTED, SPARK PLUGS WORN, COMPRESSION BELOW 60 ON 4 CYLINDERS, AND A SEPARATED MAGNETO BLOCK WITH PITTING AND FRETTING. TIME SINCE LAST ANNUAL INSPECTION BY OPERATOR MAINTENANCE PERSONNEL WAS 78 HRS. THE LEFT ENGINE AND ACCESSORIES WERE EXTENSIVELY DAMAGED BY FIRE.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A TOTAL LOSS OF RIGHT ENGINE POWER, AND A PARTIAL LOSS OF LEFT ENGINE POWER, FOR UNDETERMINED REASONS.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: MANEUVERING

Findings

1. 1 ENGINE - LOSS,TOTAL
 2. (C) REASON FOR OCCURRENCE UNDETERMINED
 3. 1 ENGINE - LOSS,PARTIAL
 4. (C) REASON FOR OCCURRENCE UNDETERMINED
 5. IGNITION SYSTEM,MAGNETO - SEPARATION
 6. IGNITION SYSTEM,SPARK PLUG - WORN
 7. ENGINE ASSEMBLY,VALVE,EXHAUST - BLOCKED(PARTIAL)
 8. ENGINE ASSEMBLY,VALVE,INTAKE - LEAK
 9. ENGINE ASSEMBLY,CYLINDER - LOW COMPRESSION
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Occurrence #2: FORCED LANDING

Phase of Operation: MANEUVERING

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: MANEUVERING

Findings

10. OBJECT - WIRE,TRANSMISSION
11. OBJECT - UTILITY POLE
12. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT:

On April 6, 1993, at approximately 0150 central daylight time, during descent to Shreveport, International Airport, Shreveport, Louisiana, a Beech C-45H, N492DM, was destroyed following impact with electrical powerlines, poles, terrain, and a resultant post crash fire. The operator of the airplane was Eagle Airways, Inc., of Pine Bluff, Arkansas, a certificated Title 49 Code of Federal Regulations Part 135 on demand operator. Fatal injuries were sustained by the airline transport rated pilot. Visual meteorological conditions prevailed for the business cross country cargo flight.

During interviews with the owner, conducted by the investigator in charge, the following information was revealed. The airplane departed Pine Bluff, Arkansas, at approximately 0050 enroute to Laredo, Texas. The pilot was on a company visual flight rules flight plan. Takeoff weight was 9,865 pounds with a maximum allowable gross weight of 10,200 pounds. Cargo was 13,165 baby chickens being carried in 127 boxes with each box weighing 10 pounds. All fuel tanks were topped with fuel, prior to the departure, for total capacity of 297 gallons with 285 gallons usable. The airplane operated with a mixture of automotive fuel, per authorization, and aviation fuel. Fuel burn was approximately 40 gallons per hour.

A review of the air traffic control data by the investigator in charge revealed that the pilot had indicated a planned altitude of 6,500 feet MSL. Flight data for an airplane with a 1200 code squawk along the route indicated 4,500 feet MSL. The data further indicated the following radar track information. At 0127 the airplane was 4,500 feet MSL, tracking a magnetic heading of 221 degrees at a groundspeed of 155 knots. During the next 16 minutes the airplane was tracked along a route of flight that was north of the planned route. During that time the airplane made several heading changes, descended to 500 feet MSL, and at 0116:18 the pilot advised air traffic that he was landing at Shreveport, Louisiana. The pilot was assigned a transponder code; however, the pilot never responded.

Interviews with witnesses conducted by Federal Aviation Administration inspectors and the investigator in charge, revealed the following information. At approximately 0145 at a distance of approximately eight miles from the site, the airplane engine was heard making a popping sound alternating with a lugging sound. Approximately one mile from the site, the engine sound was described as running at high revolutions. Engine sounds were not heard by witnesses approximately 100 yards from the site.

Witnesses and local fire fighting agencies reported to the investigator in charge that the post crash fire erupted within minutes after the airplane struck the electrical cables and a powerline pole.

PERSONNEL INFORMATION:

A review of the operator records, pilot records, and Federal Aviation Administration records revealed the following information. During his flight career, the pilot accumulated approximately 10,000 hours of flight time with approximately 4,000 hours in the Beech C-45H airplane. Approximately 65 hours were accumulated during the previous 30 days. The pilot had obtained the airline transport pilot certificate on March 20, 1992, in a DC-3 airplane.

AIRCRAFT INFORMATION:

The airplane was originally manufactured in 1943 as an AT 11. The airplane was overhauled and modified by Beech to a C-45H in 1953 and given a new Beech serial number AF 804 (USAF serial number 52-10874). A review of the available maintenance records and interviews, conducted by the investigator in charge with the owner, revealed the following information. In 1962, the Volpar Mark IV tricycle landing gear was installed. In 1963, the Hartzell propeller unfeathering kit had been installed. During the history of the airplane from 1965 through 1967, numerous Dumod modifications had been accomplished. The modifications included a 75 inch fuselage extensions with accompanying changes to the airframe structure. An unfeathering modification included a Whitaker valve and an oil line from each propeller oil line to the opposite engine. Records did not indicate maintenance on the airplane from November, 1987, until April, 1991. On April 3, 1991, the airplane was weighed and indicated a maximum allowable gross weight of 10,200 pounds.

On May 15, 1992, Hartzell propeller number 745N was installed on the left engine and propeller number 404N was installed on the right engine. The number six cylinder on the right engine was replaced on January 6, 1993. The right propeller governor was replaced on the right engine on January 11, 1993. A February 14, 1993, check of all cylinders was recorded as 70 psi. The number eight cylinder was replaced on the left engine on March 1, 1993. The unfeathering crossfeed motor and valve was repaired on March 2, 1993.

METEOROLOGICAL INFORMATION:

National Weather Service maintains weather reporting at Shreveport, Louisiana, approximately 19 miles south of the site. The surface weather observation report at 0153 indicated a temperature and dewpoint of 42 degrees Fahrenheit with ground fog forming to the south. Local fire fighting and sheriff department personnel reported that ground fog was not forming in the area of the site at the time of the accident.

COMMUNICATIONS:

A review of the air traffic control data by the investigator in charge revealed the following summary of transmissions. All times have been converted to central daylight time.

0143:38 "Shreveport Tower four niner two delta mike will be landing at Shreveport"

0143:49 "Twin Beech two delta mike squawk zero four four two"

A response was never received from the pilot.

WRECKAGE AND IMPACT INFORMATION:

The airplane came to rest on an approximate magnetic heading of 165 degrees, against the base of a utility pole along the side of a highway. The right engine was located approximately 40 feet to the right of the main wreckage. Transmission cables were located about the airframe and engines. One utility pole located approximately 120 feet southwest of the main wreckage was broken with approximately 15 feet still erect. One piece of the right wing tip with the green navigation lens was located at the base of the pole. A piece of the telephone pole found on the ground had blue paint and rivets embedded in the wood. The upper branches of several trees in that area were broken. Pieces of the airplane skin were located among the tree branches. Navigation light bulb filaments were stretched. The cockpit, forward cargo compartment, right nacelle components, left engine accessories and portions of the wing were destroyed by fire. Flight control continuity was established. Integrity of three fuel tanks was compromised by impact and fire damage. Fuel samples were attained from the three other fuel tanks.

MEDICAL AND PATHOLOGICAL INFORMATION:

Forensic Pathologists, Inc., of Bossier City, Louisiana, performed the autopsy.

TEST AND RESEARCH:

Fuel samples were forwarded to the National Institute for Petroleum and Energy Research for evaluation and their report is enclosed. The samples were evaluated by distillation for water and lead content. The lead content for the fuel samples was consistent with a mixture of motor fuel and 100 low lead aviation gasoline. Values for the water content of the three fuel samples were within the gasoline value standards at room temperature.

The engines and accessories not destroyed by the fire were examined on May 12, 1993. The group chairman's factual report is enclosed and revealed the information in this paragraph. Rocker arm adjusting screws had impacted the inside of the covers. The valve clearances varied from the manufacturer's specifications of .010 inch. All plugs were tested with 120 psi air pressure. The number 4 rear plug did not fire above 55 psi. The right magneto distributor block was found separated with evidence of rubbing in the rotor. During examination, the light from a flashlight could be seen between the valves and the valve seats. All interior walls on all exhaust stacks were coated with black soot. Compression on four cylinders was below 60. The socket end on the number 8 pushrod was found fractured and separated from the pushrod; however, no evidence of pounding or abnormal operation was found on the fractured surfaces. Continuity of the engine was established. The left engine sustained impact and fire damage. All engine accessories were destroyed by the fire. No evidence of mechanical distress was observed on the remaining components of the engine.

The Hartzell Propeller, Inc., representative, Beech Aircraft Corporation representative, and the investigator in charge examined the propellers on June 23, 1993. The right propeller examination revealed a lack of leading edge striations, lack of blade twisting, and lack of clamp pin or link arm damage. Blades exhibited fore and aft bending. A counterweight impact mark noted on the spinner dome approximated the angle of the piston interior wall mark equating to a blade angle of 74 degrees. This blade angle is outside the normal operating range. Feather is a blade angle of 88 degrees.

All three blade tips of the left propeller showed leading edge damage. Two of the blades had leading edge twisting deformation. One blade rotated in the clamp and displayed blade clamp pin and link arm damage.

The Hartzell Propeller, Inc., representative examined the propeller governors and they did not reveal any discrepancies that would have rendered them inoperable. The left propeller governor received substantial impact and fire damage.

ADDITIONAL DATA:

The airplane was released to the owner's representative following the investigation.

Pilot Information

Certificate:	Airline Transport	Age:	50, 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):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	04/02/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	10870 hours (Total, all aircraft), 4020 hours (Total, this make and model), 9470 hours (Pilot In Command, all aircraft), 142 hours (Last 90 days, all aircraft), 65 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	Registration:	N492DM
Model/Series:	C-45H C-45H	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	52-10874
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	02/14/1993, 100 Hour	Certified Max Gross Wt.:	10200 lbs
Time Since Last Inspection:	78 Hours	Engines:	2 Reciprocating
Airframe Total Time:	16268 Hours	Engine Manufacturer:	P&W
ELT:	Installed, not activated	Engine Model/Series:	R-985-AN1
Registered Owner:	DE MINT, THOMAS E.	Rated Power:	450 hp
Operator:	EAGLE AIRWAYS, INC.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	ENQA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Bright
Observation Facility, Elevation:	SHV, 586 ft msl	Distance from Accident Site:	19 Nautical Miles
Observation Time:	0153 CDT	Direction from Accident Site:	330°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	12 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	6° C / 6° C
Precipitation and Obscuration:			
Departure Point:	PINE BLUFF, AR (PBF)	Type of Flight Plan Filed:	Company VFR
Destination:	LAREDO, TX (LRD)	Type of Clearance:	None
Departure Time:	0050 CDT	Type of Airspace:	Class G

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	JOYCE M SMITH	Report Date:	08/26/1994
Additional Participating Persons:	JAMES R WATSON; BATON ROUGE, LA		
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 pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).