Aviation Investigation Final Report

Location:	Sinton, Texas	**Accident Number:**	FTW02FA071
Date & Time:	January 17, 2002, 21:14 Local	**Registration:**	N6622X
Aircraft:	Beech C23	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The single-engine airplane impacted trees and terrain during dark night instrument meteorological conditions with fog. The private pilot, sole occupant, was returning to the home base airport from a cross-country flight. The ATC controller issued the pilot the weather (wind 120 degrees at 9 knots, visibility 10, clouds 25,000 scattered, temperature 20 degrees Celsius, dew point 19 degrees Celsius, and the altimeter 30.02 inches Mercury) at the nearest airport (approximately 15 nautical miles from the destination airport) and told the pilot that fog was reported in the area. The pilot requested and was cleared for the non-precision approach VORDME 14 at the destination airport. Radar contact was lost with the aircraft at an altitude of 1,901 feet msl. Subsequently, the pilot transmitted in part "approach... can't find the airport." The controller instructed the pilot to execute the published missed approach instructions and asked the pilot for his next request. The pilot transmitted in part: "I've got it, I've got the strobe under me now sir." The controller requested if the airplane was landing and the pilot transmitted "affirmative sir I got the strobe." The controller asked the pilot if he was canceling IFR, and the pilot transmitted "no sir just a minute stay with me please sir." There were no further communications with the pilot. Witnesses near the airport reported hearing the airplane flying low, a loud boom, the sound of an explosion and fire. Local authorities, who responded to the accident site, reported "floating fog and mist in the vicinity of the airport." The pilot had accumulated 2,000 hours in the make and model of airplane. In 1996, the pilot had logged 122.8 hours of actual instrument flight time; however, neither the pilot's total or recency of IFR experience at the time of the accident could be verified. Flight control continuity was confirmed. Examination and teardown of the engine did not reveal any discrepancies that would preclude operation of the engine. The muffler was pressure tested in accordance with the manufacturer's heater muffler inspection procedures, and no leaks were detected. According to the NTSB metallurgist, the debris found on the carburetor inlet screen were deposits of the melted float assembly. No evidence of an in-flight mechanical and/or flight control malfunction was found that would have rendered the airplane uncontrollable prior to the impact.

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 clearance with trees while executing a missed approach procedure. Contributing factors were the prevailing fog and the dark night conditions.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: MISSED APPROACH (IFR)

Findings
1. OBJECT - TREE(S)
2. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - FOG
4. (F) LIGHT CONDITION - DARK NIGHT
5. AIRPORT FACILITIES,RUNWAY EDGE LIGHTS - INOPERATIVE
6. AIRPORT FACILITIES,RUNWAY END IDENT LIGHTS(REIL) - INOPERATIVE

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On January 17, 2002, at 2114 central standard time, a Beech C23 single-engine airplane, N6622X, impacted trees and terrain while executing the missed approach for the VORDME 14 approach at the Sinton/San Patricio County Airport (T69), near Sinton, Texas. The airplane was owned and operated by the pilot, under 14 Code of Federal Regulations Part 91. The private pilot, sole occupant of the airplane, received fatal injuries. The airplane was destroyed by a post impact fire. Dark night instrument meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed for the cross-country flight. The personal flight departed the Angelina County Airport (LFK), near Lufkin, Texas, approximately 1805.

The airplane was refueled with 15 gallons of aviation fuel, and one quart of oil was added to the engine, prior to the departure from LFK.

The air traffic control data and transcripts were reviewed by the NTSB investigator-in-charge (IIC) and all times were converted to central standard time unless otherwise noted.

At 1751, the pilot received a weather briefing from the Conroe AFSS and filed an IFR flight plan. At 1805, the pilot received the IFR clearance via "V407 to Daisetta, then as filed [Direct Shoales, V70, PSX, V13, CRP, Direct T69], climb and maintain 5,000." Subsequently, the assigned en route altitude was 8,000 feet msl. At 1816, Houston ATC established radar contact with the aircraft. At 2000, the airplane was cleared direct to the Corpus Christi (CRP) VORTAC and then direct T69. At 2025, the airplane was cleared to descend to 6,000 feet msl. At 2042, the pilot was instructed to contact the CRP approach controller who issued the pilot CRP weather: wind 120 degrees at 9 knots, visibility 10, clouds 25,000 scattered, temperature 20 degrees Celsius, dew point 19 degrees Celsius, and the altimeter 30.02 inches Mercury.

Subsequently, the pilot requested and received a clearance direct to T69. The airplane was cleared to descend at pilot's discretion, maintain 2,000 feet msl, and the pilot was told there was fog reported about 5 miles north of CRP. The pilot requested the VOR 14 approach to T69 and received vectors for the approach. When the airplane was 5 1/2 miles from the initial approach fix (PANTH), the pilot received the approach clearance: turn left heading 165 degrees, maintain 2,000 feet msl until the airplane is established on the final approach course, cleared for the VORDME runway 14 approach Sinton/San Patricio County Airport (T69).

At 2106:59, radar service was terminated and the pilot was cleared to change to the airport advisory frequency. At 2107:45, radar contact was lost with the aircraft at an altitude of 1,901 feet msl. At 2112:51, the pilot transmitted "Corpus approach sundowner 6622 x-ray can't find the airport." The controller instructed the pilot to execute the published missed approach

instructions maintain 2,000 feet msl and continue the transponder squawk 4601, and asked the pilot for his next request.

At 2113:11, the pilot transmitted "I've got it, I've got the strobe under me now sir." The controller requested if the airplane was landing and the pilot transmitted "affirmative sir I got the strobe."

At 2113:24, the controller asked the pilot if he was canceling IFR. At 2113:28, the pilot transmitted "no sir just a minute stay with me please sir." There were no further communications with the pilot of N6622X.

Witnesses near the airport reported hearing the airplane "flying extremely low and making a very loud whirling sound." Further, within a few minutes witnesses reported hearing a "loud boom", the sound of an "explosion", and "fire." Approximately 2117, one witness, traveling in a her vehicle on the road adjacent to the airport, called 911 and reported an airplane on fire at the airport.

PERSONNEL INFORMATION

According to the FAA records, reviewed by the NTSB IIC, the pilot held an FAA private pilot certificate with the airplane single-engine land and an instrument rating. He was issued a third class medical certificate on October 22, 1999 (expired the last day of October 2001), with the limitation to wear corrective lenses for near and distant vision while acting as a pilot. On the medical application, the pilot's total flight time was shown as 2,500 hours with 120 hours in the previous 6 months.

The private pilot's logbook dated August 19, 1993, indicated that the pilot's instrument rating was issued on October 11, 1993. The accumulated flight time logged through December 6, 1996, was 1,889.9 hours in the accident airplane. On October 27, 2001, the biennial flight review entry in another logbook stated in part: review "OK".

According to acquaintances, the pilot had additional flight time per the aircraft inspection log and a calendar which the pilot utilized for his flight time and the aircraft 's 100-hour inspections. A review of these documents by the NTSB IIC revealed that the pilot had accumulated 2,707.4 hours No additional information of the pilot's flight time could be obtained during the investigation.

AIRCRAFT INFORMATION

The aircraft (serial number M-2383) was issued a FAA standard airworthiness certificate on June 14, 1983. Maintenance records indicated that in June 1994 the tachometer (3,572.81 hours) was removed and replaced. Registration to the current owner was dated July 22, 1994. The last annual inspection was performed on November 2, 2001, at accumulated aircraft time of 5,378.4 hours. The factory overhaul on the Lycoming engine model O-360-A4K (serial

number RL-29992-36A) was performed in January 1997, and the last 100-hour inspection for the engine was performed on November 2, 2001, at accumulated tachometer time of 1,805.6 hours.

In February 1997, (TTAF 4,265.0 TACH 692.2) the factory overhauled Lycoming engine (model 0-360-A4K, serial number RL29992-36A) was installed on the airframe. A new Sensenich propeller (part number 76EM8S5-0-60, serial number 31306K) was installed with new mount hardware. In August 2000, the overhauled engine was removed, disassembled and repaired due to a worn camshaft and lifter. During the repair, the crankshaft was found M005 under and the front crankshaft bearing was standard.

METEOROLOGICAL INFORMATION

At 2051, the weather observation facility at CRP reported wind from 120 degrees at 11 knots, visibility 10 statute miles, few clouds at 500 feet, clouds 25,000 broken, temperature 19 degrees Celsius, dew point 19 degrees Celsius, altimeter 30.02 inches of Mercury.

At 2251, the weather observation facility at CRP reported wind from 120 degrees, visibility unrestricted, 500 scattered, 25,000 scattered, temperature 19 degrees Celsius, dew point 19 degrees Celsius, altimeter 30.03 inches Mercury.

Local authorities, who responded to the accident site, reported the winds were from the south/southeast at 6 knots, with "floating fog and mist in the vicinity of the airport."

AERODROME/AIDS TO NAVIGATION INFORMATION

The Sinton/San Patricio County Airport (T69), located approximately 2 miles west of Sinton, is owned and operated by San Patricio County, Texas. The T69 airport, located latitude 28 degrees 02 minutes North; longitude 097 degrees 32 minutes West, is a non towered airport with runway 14/32 and runway 03/21. The airport elevation is 49 feet, and runway 14 elevation is 46.2 feet. The hard surface (asphalt) runway 14/32 is 4,323 feet long and 55 feet wide. Runway 14 has a 250-foot displaced threshold. Runway 14 is equipped with a 3-degree visual glide path angle 2-light PAPI, runway end identifier lights, and medium intensity runway edge lights. The approach lights are pilot activated on the Common Traffic Advisory Frequency (CTAF) 122.8 Megahertz. A timer operates the runway lights and the taxiway lights; however, the intensity of the runway lights may be changed when the pilot keys the airplane microphone over the CTAF.

Runway 14 is serviced by a VOR/DME non-precision instrument approach procedure with the approach control facility as Corpus Christi Approach on frequency 120.9 Megahertz. The approach navaid is the Corpus Christi VORTAC (CRP) located latitude 27 degrees 54 minutes North; 097 degrees 26 minutes West with the initial approach fix (IAF) as PANTH (318 degree radial of CRP at 15 DME). The minimum approach visibility is 1 statute mile with a final approach course of 138 degrees, a crossing altitude at PANTH of 1,700 feet msl, and a

minimum decision altitude (MDA) of 640 feet msl (592 feet agl. The missed approach procedure is a climbing right turn to 1,700 feet msl via the CRP 305 degree radial to the SINTO Intersection. SINTO intersection is 16 DME on the 305 degree radial from the CRP VORTAC and the 036 degree radial from the Alice VORTAC (114.5 Megahertz).

Following the accident, the airport operations manager issued a NOTAM for the VORDME Runway 14 approach out of service pending an FAA flight check of the approach. On January 19, 2002, the VOR/DME runway 14 final approach and missed approach segments were flight checked by the FAA, all components were found to be operating within prescribed tolerances, and the NOTAM was cancelled.

On the morning of January 18th, the NTSB IIC and the aircraft manufacturer's representative performed a visual inspection of runway 14/32. One runway end identifier light and several runway edge lights were found inoperative on runway 14. Approximately 2100, on May 2, 2002 the NTSB IIC performed a night visual inspection of runway 14/32. Several runway edge lights were found inoperative on runway 14. The San Patricio County Airport Authority has the responsibility for runway lights, REIL, PAPI, rotating beacon, and pilot controlled lighting.

WRECKAGE AND IMPACT INFORMATION

The accident site (latitude 28 degrees 02.07 minutes North; longitude 097 degrees 32.76 minutes West) was along a fence bordering the west side of the airport and adjacent cow pasture. The terrain at the accident site (elevation 54 feet) was level and consisted of hard, dry dirt, with sparse vegetation. The airplane came to rest on a measured magnetic heading of 284 degrees. The wreckage distribution path was along a measured magnetic heading of 162 degrees for a distance of 169 feet from a grove of trees at the initial impact point. The left horizontal stabilizer exhibited deformation consistent with the diameter of the trunk of a tree. The left horizontal stabilizer and the nose landing gear were found near the base of two trees, and the left wing tip with the red navigation light was found approximately 20 feet agl in another tree. A portion of the left wing tip was found on the ground near the base of the trees. The trunks of three trees were found broken approximately 20-25 feet agl with numerous branches scattered along the wreckage distribution path. One branch of a tree found along the wreckage distribution path exhibited a slash mark consistent with a propeller strike. The right horizontal stabilizer was found along the wreckage distribution path approximately 81 feet beyond the initial impact point. The left cockpit door was found 55 feet west of the main wreckage. Sooting was found at the latches and the seal of the left cockpit door. The right wing tip and the landing light lens were found in and along a ground scar parallel to the fence line running north from the outboard right wing, which remained attached to the main wreckage. The right wing tip was crushed inboard and aft at approximately 45 degree angle. The right wing tip ground scar measured approximately 24 inches long, 8 inches wide, and 5 inches deep.

The left half of the stabilizer trim tab remained attached to the main wreckage. Several areas of chordwise crushing consistent with tree deformation were found along the leading edge of

the left wing. The right wing was found attached to the airframe; however, from the fuel cell inboard to the cabin the wing was found destroyed by the thermal deformation. The rudder and vertical stabilizer were intact. The cockpit and fuselage were destroyed.
Flight control continuity was confirmed. The protruding of the cockpit door latch pins was consistent with the door secured prior to ground impact. The manual flap extension handle was found in the "UP" position. The left seat buckle was found latched and the shoulder harness attachment hardware was found near the lap belt buckle. The fuel selector valve was found in the "OFF" position.

The carburetor exhibited thermal deformation internally and the floats were not found. The float clip and needle were found in the carburetor bowl. The carburetor heat valve was found in the closed position. Debris was found in the carburetor inlet fuel screen, and the screen was retained by the Board for further examination.

Portions of the exhaust were crushed and portions of the exhaust muffler and heat shroud exhibited a white residue consistent with sooting. The muffler was retained for pressure testing.

The propeller was found attached to the engine and the spinner attached to the propeller hub. One propeller blade was bent aft at midspan and one propeller blade was twisted approximately 6 inches inboard. Physical imprints of the heads of the propeller attachment bolts were found inside the propeller spinner. The accessories, propeller and spinner were removed from the engine.

Engine continuity was confirmed for the cylinders, pistons, and the accessory case. When the crankshaft was rotated, there was thumb compression at all cylinders. The vacuum pump exhibited thermal deformation and did not rotate. Teardown of the vacuum pump revealed the carbon vanes were intact and exhibited wear consistent with an extended service life. Examination and teardown of the engine did not reveal any discrepancies found that would preclude operation of the engine prior to the impact.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy conducted by the Nueces County, Texas, Medical Examiner determined that the cause of death for the pilot was conflagration, in other words, the combined effects of thermal burns, heat shock, and inhalation of superheated air and toxic gasses during the course of a fire associated with the airplane accident.

The FAA Civil Aeromedical Institute's (CAMI) Forensic Toxicological and Accident Research Center examined the specimens taken by the medical examiner. According to CAMI, the specimens showed no indication of alcohol or drugs.

TEST AND RESEARCH

On January 31, 2002, under the supervision of the NTSB, the engine cylinder and the exhaust system were examined. The muffler was pressure tested in accordance with the manufacturer's heater muffler inspection procedures, and no leaks were detected in the exhaust system muffler.

The carburetor inlet screen and debris were examined by the NTSB Metallurgist at the Materials Laboratory Division, Washington, DC. Several samples of the debris were examined with energy dispersive spectroscopy (EDS). EDS spectra from those areas of debris showed peaks of carbon, sulfur, chlorine, titanium., zinc, and in some instances copper.

EDS spectra from the fuel screen mesh showed major peaks of copper and zinc. EDS spectra from a lump at the base of the fuel inlet screen showed peaks for tin, lead, and in some instances also copper with a small peak of zinc. According to the metallurgists, the presence of lead and tin is consistent with residue from different kinds of solder materials. Solder materials composed of different portions of lead and tin melt in the range of 183 degrees to 244 degrees Celsius. Acetal (the plastic used in making the float assembly) has a melting point of 175 degrees Celsius.

No evidence of an in-flight mechanical and/or flight control malfunction was found that would have rendered the airplane uncontrollable prior to the impact.

ADDITIONAL INFORMATION

The airplane wreckage was released to the owner's representative.

Pilot Information

Certificate:	Private	**Age:**	59,Male
Airplane Rating(s):	Single-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:**	Yes
Medical Certification:	Class 3 Expired	**Last FAA Medical Exam:**	October 22, 1999
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 27, 2001
Flight Time:	2500 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N6622X
Model/Series:	C23	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	M-2383
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	November 2, 2001 Annual	**Certified Max Gross Wt.:**	2450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	5378.4 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	O-360-A1D
Registered Owner:	Alfred C. Thomas	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	CRP,44 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	21:51 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Scattered / 500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 25000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	19°C / 19°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	Lufkin, TX (LFK)	**Type of Flight Plan Filed:**	IFR
Destination:	Sinton, TX (T69)	**Type of Clearance:**	IFR
Departure Time:	18:05 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Sinton/San Patricio County T69	**Runway Surface Type:**	Asphalt
Airport Elevation:	49 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	14	**IFR Approach:**	VOR/DME
Runway Length/Width:	4323 ft / 55 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	28.035278,-97.54972

Administrative Information

Investigator In Charge (IIC):	Roach, Joyce
Additional Participating Persons:	Jesus M Cavazos; FAA FSDO; San Antonio, TX John B Butler; Textron Lycoming; Williamsport, PA Robert L Ramey; Raytheon; Wichita, KS
Original Publish Date:	March 30, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=54038