Aviation Investigation Final Report

Location:	OSHKOSH, Wisconsin	**Accident Number:**	CHI98FA288
Date & Time:	August 2, 1998, 09:04 Local	**Registration:**	N2741P
Aircraft:	Hispano Aviacion A10B-37	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

A witness, who was flying in the traffic pattern, observed the jet cross the shoreline heading westbound at around 50 to 75 feet above the ground. The airplane then made an abrupt turn from west to north. The witness saw the jet descend into the trees and then he saw a fireball. Witnesses on the ground observed the airplane make a hard descending right turn, strike a power pole, and then impact the ground The pilot said that on the approach, the airplane 'developed a high sink rate of descent.' He felt that he did not get the throttles up fast enough to arrest the descent and that the right engine suffered a compressor stall. Examination of the left engine revealed foreign object damage while there was no foreign object damage to the right engine.

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 adequate altitude which resulted in in-flight collision with trees and subsequent compressor stall for undetermined reasons.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: APPROACH

Findings
1. (C) ALTITUDE - INADEQUATE - PILOT IN COMMAND

2. (C) OBJECT - TREE(S)
3. (F) COMPRESSOR ASSEMBLY - STALL
4. (C) REASON FOR OCCURRENCE UNDETERMINED
5. (F) OBJECT - UTILITY POLE
6. COMPRESSOR ASSEMBLY - FOREIGN MATERIAL/SUBSTANCE
7. EXHAUST SYSTEM,EXHAUST CONE/TAILPIPE (JET ENGINE) - FOREIGN MATERIAL/SUBSTANCE

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

Findings
8. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On August 2, 1998, at 0904 central daylight time (cdt), a Hispano Aviacion A10B-37, N2741P, operated by a commercial pilot, was destroyed when the airplane struck a tree on approach to Wittman Regional Airport, Oshkosh, Wisconsin. The airplane subsequently departed controlled flight and struck a power pole, and power lines, before impacting into the street of a residential area. A post-crash fire ensued. Visual meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under 14 CFR Part 91. An IFR flight plan was on file. The pilot sustained serious injuries. The passenger was fatally injured. The cross-country flight originated at West Lafayette, Indiana, at 0730 eastern standard time (est), and was en route to Oshkosh, Wisconsin.

The pilot said that he had been "run out to the east about 15 miles." He then made a 180 degree turn to return to the airport. The pilot said that there were a lot of aircraft that he had to pay attention to. On approach, the airplane "developed a high sink rate of descent." The pilot said that he did not get the throttles up fast enough to arrest the descent. The pilot said that after he crossed the shoreline, he struck a tree. He was surprised by the appearance of the tree. The pilot stated that he thought the right engine suffered a compressor stall. The airplane began a fall off to the right (to the north) after striking the tree. The pilot could not recall anything else regarding the flight after that point.

A witness, who was flying in the traffic pattern prior to the accident, said that he was directed by the Oshkosh Air Traffic Control Tower (ATCT) to hold at "Fisk" so that a Gulfstream airplane could land. The witness said that a "gaggle" stacked up. When arrivals resumed, there were a rush of aircraft trying to land. Numerous traffic conflicts ensued. As the witness was on base leg for runway 27, he observed a small jet "like a T-33, or something," flying low over the water to the east. The witness said that the jet appeared to be less than 200 feet above the water. The witness said that he did not hear any direct contact between the Oshkosh ATCT and the jet, but he did remember some comments made by the tower relative to the jet. The witness said that he observed the jet cross the shoreline heading westbound at around 50 to 75 feet above the ground. The airplane then made an abrupt turn from west to north. The witness saw the jet descend into the trees. He then saw a fireball.

A witness, whose residence is located just off of the Lake Winnebago shoreline, said that she first heard what she thought was a jet. She ran to her door just in time to see the airplane fly over. "The airplane was very low over the water and it appeared that it was going to hit my house. Suddenly, the plane pulled the nose up and passed over the house." The witness said she ran to the other side of her house and looked out the window. She saw leaves falling to the ground. She went outside and looked down the street. That's when she saw black smoke

billowing up.

Several witnesses in the vicinity of Doty Street, observed the airplane make a hard descending right turn, strike a power pole with its left wing, and then strike the ground. One witness said that after the airplane struck the ground, it bounced and cartwheeled across the street, where it stopped. Another witness said that the airplane cartwheeled and slid across the street. All of the witnesses said that a fire ensued almost immediately after the airplane struck the ground.

PERSONNEL INFORMATION

The pilot held a Commercial Pilot certificate with airplane single-engine land, airplane multi-engine land, and instrument airplane ratings. The pilot said that he had approximately 1,700 hours total flight time, of which approximately 60 hours were in the accident airplane. The pilot further stated that he had flown 30 hours in the previous 90 days.

The pilot said that he received his training in the airplane approximately one year ago. The pilot also stated that he completed an instrument check in the airplane in March 1998.

The instructor pilot, who gave the pilot instruction in the accident airplane, said that he "put the pilot through 50 to 60 hours of ground school," and that the pilot received "10 hours of one-on-one [flight] instruction in the airplane." The instructor assisted the pilot with the purchase and ferrying of the airplane, and his Federal Aviation Administration (FAA) certification. Approximately 60 days after the FAA issued the pilot his initial certification in the airplane, the pilot received additional training for his instrument certification.

AIRCRAFT INFORMATION

The airplane was operated by the pilot and used for pleasure. A registration certificate listing the pilot, and Allen Engineering and Service, as the owners, was issued on March 16, 1998.

The airplane was a twin turbojet-powered, two-place, tandem-seat, jet airplane, produced for the Spanish Air Force, for use as a primary jet pilot trainer. The airplane was issued a special airworthiness certificate, experimental category for exhibition purposes, on June 12, 1985. It was registered under the number N2741P.

The airplane had an annual condition inspection performed on February 24, 1998.

A letter of authorization sent to the pilot from the FAA Flight Standards District Office, Indianapolis, Indiana, dated March 18, 1998, prohibiting the performance of formation flight, supersonic flight, or aerobatic maneuvers in the airplane, refers to the airplane as a Casa Saeta HA-200B.

WRECKAGE AND IMPACT INFORMATION

The NTSB on site investigation began on August 2, 1998, at 1000 cdt.

The accident site was confined to two locations. Both locations were approximately 1 mile west of Wittman Regional Airport.

The first area was located approximately 100 yards west of the east bank of Lake Winnebago. The top branches of an oak tree, approximately 120 feet in height, were sheared off. The tree was located in the front yard of a lake shore residence, at 2324 South Main Street. Numerous branches, ranging in diameter from 1 to 4 inches, and in lengths from 3 to 28 inches, fanned outward from the base of the tree in a northwesterly direction for approximately 252 feet, falling on an adjacent railroad track and on Main Street. Pieces of reflective material were found resting on Main Street, approximately 120 feet from the base of the oak tree on a 315 degree magnetic heading.

The second area, considered the accident site and containing the aircraft wreckage, was located in the 2100 block of Doty Street, a residential area located one mile east and slightly north of the approach end to runway 27 at Wittman Regional Airport.

The accident site began at a 33 foot high power pole, approximately 65 feet north of the road intersection where 22nd Street crosses Doty Street. The power pole was on the east side of Doty Street. The top 5 feet of the power pole was sheared off in a northerly direction. Power lines were found laid out along the street.

Approximately 99 feet north of the power pole, just inside of the left street curb, was a 7 foot, 5 inch long, north-running ground scar. The scar was 4 feet, 6 inches at it's widest point, and 6 inches deep. A piece of the airplane's nose stringer, a hydraulic transmitter, and several 1-inch diameter pieces of oak branches were found in the south end of the ground scar. A charred area, 79 feet long, fanned outward in a 30 degree arc from the north end of the ground scar, on a 347 degree magnetic heading. Jet fuel stains were observed fanning out diagonally on a 015 degree magnetic heading, from the ground scar, onto and across Doty Street, for approximately 114 feet. The smell of jet fuel was prevalent at the accident site.

The outboard 3 feet of the right wing, to include the aft half of the right wing tip fuel tank, was located 28 feet northwest of the ground scar on a 345 degree magnetic heading. The top skin of the wing section showed a 12 inch wide "C"-shaped dent running along a 38 degree angle from the longitudinal line, beginning at the leading edge and extending outward to the aileron spar. Dull white paint smears were found embedded throughout the length of the dent. The tip tank was broken open in the middle at a pivot point where the tip tank attached to the wing. The forward portion of the tank had separated. Jet fuel was found in the bottom portion of the remaining tip tank section.

The forward half of the right tip tank was located 33 feet from the ground scar on a 295 degree magnetic heading. The fuel tank section was bent, twisted, and compressed to an approximate length of 28 inches. Dull white paint smears were found embedded through the

entire length on the tank section.

A 2 foot long piece of the airplane's nose air intake was located in the front yard of a house, 25 feet from the ground scar on a 255 degree magnetic heading. The intake section was crushed inward and showed dull-white paint scrapes running longitudinally along the outer skin. A circular fuel tank rib was located next to the intake section.

The airplane's right aileron and aileron trim tab were found in the front yard of the neighboring house, 35 feet from the ground scar on a 305 degree magnetic heading. The aileron was broken off at the hinges. The outboard 12 inches of the aileron was broken off. The outboard piece of the aileron was located 33 feet from the ground scar on a 303 degree magnetic heading. A fuel boost pump rested next to the aileron piece.

A debris field, following a 357 degree heading, fanned outward and diagonally across Doty Street, beginning 60 feet from the ground scar and ending 140 feet from the ground scar. Numerous small pieces of the airplane's nose structure, forward cockpit windscreen, wood shards, power line insulators, and tree debris were found in this area. The airplane's left engine, and majority of the airplane's nose structure to include the forward (nose) landing gear, nose gear bulkhead and wheel well structure, nose gear doors, intake structure, engine mounts, and starter generator, rested on the left side of Doty Street next to the curb, approximately 93 feet from the ground scar on a 352 degree magnetic heading. The engine was crushed inward at the compressor inlet and showed heat damage. The nose structures were bent and charred.

The airplane's right engine rested on the right curb of Doty Street, 129 feet from the ground scar on a 011 degree magnetic heading. The compressor inlet was crushed inward. The engine was bent upward, aft of the compressor section. The entire engine showed heat damage. The forward portion of the airplane's left wing tip fuel tank rested in the street, 130 feet from the ground scar on a 006 degree magnetic heading. It was broken laterally at the pivot point where the tip tank attached to the wing.

A 5 foot, 4 inch section of the airplane's right wing rested in the front yard of a residence, 120 feet northwest of the ground scar on a 321 degree magnetic heading.

A 5 foot, 5 inch long section of a dull-white colored power pole rested in the street near the left curb, approximately 207 feet from the ground scar on a 347 degree magnetic heading. The power pole was sheared laterally and showed numerous wood shards at the break. Silver-gray paint scratches were found embedded in one side of the pole, beginning near the break and fanning upward along the pole section.

Silver-gray paint scrapes embedded in the concrete, small pieces of airplane skin, and jet fuel stains formed a line which continued diagonally across the Doty Street on a 005 degree heading, until reaching the southwest curb at the corner of Doty Street and 21st Street, 238 feet from the ground scar.

The airplane's main wreckage rested in the west yard of a duplex apartment building on the northwest corner of Doty Street and 21st Street, approximately 268 feet from the ground scar on a 008 degree magnetic heading. The main wreckage consisted of the airplane's fuselage aft of the forward cockpit bulkhead, the cockpit area, the inboard third of the airplane's right wing, the airplane's left wing, the aft one-half of the left wing tip fuel tank, the left and right main landing gear, and the empennage. The airplane rested upright on a burned grass area, 36 feet wide and 36 feet long, and was oriented on a 195 degree magnetic heading. A stop sign, just right of the airplane, was bent over 40 degrees and charred.

The cockpit area and fuselage, beginning at the cockpit forward bulkhead and running aft to approximately 50 inches behind the rear cockpit seat, were charred and melted. Forward and rear cockpit instrument panels, seats, and interior structure were charred, melted and consumed. The right cockpit wall, and forward and aft cockpit canopies, were melted and consumed. The forward windscreen was broken out. The windscreen frame was bent inward and charred. The inboard 54 inches of the airplane's right wing, to include the right flap, was melted and consumed. The right main landing gear was twisted outboard and broken, and found resting beneath the right side of the fuselage. The right main gear was charred and melted. The bottom of the airplane, at the exhausts, was broken open and charred. The two body fuel tanks were broken open, melted and consumed. The bottom of the aft fuselage was charred. The empennage was intact and showed minor fire damage. The bottom part of the airplane's rudder was bent to the right approximately 20 degrees. The tail cone was bent up and to the right approximately 40 degrees. Flight control continuity to the elevator and rudder was confirmed.

The right cockpit wall and right fuselage skin, aft to approximately 48 inches behind the rear cockpit seat, was charred and melted. The inboard 73 inches of the top and bottom left wing skins were charred. The left flap was melted and consumed. The left aileron was charred. Flight control continuity to the left aileron was confirmed. The outboard 49 inches of the left wing's leading edge was crushed inward. The aft portion of the left wing tip fuel tank was broken laterally at the attach point. It was broken open along the bottom and bent forward 90 degrees. Jet fuel was found in the tank. The left main landing gear was intact and in the down and locked position. The landing gear and gear door were charred. A 5 foot 8 inch long, 40 inch wide section of the airplane's right wing rested on the ground under the leading edge of the airplane's left wing. The wing section was charred and melted.

Small pieces of charred debris fanned outward from the main wreckage, in a 45 degree arc to the west and south, for approximately 84 feet.

The airplane's engines were retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot was admitted to Mercy Medical Center, Oshkosh, Wisconsin, in serious condition, shortly after the accident, on August 2, 1998.

The passenger was pronounced deceased at the accident site by the Winnebago County, Wisconsin, Coroner, on August 2, 1998, at approximately 1000 cdt. An examination of the passenger was conducted by the Winnebago County Coroner on August 3, 1998, in Oshkosh, Wisconsin. A report of the examination was not ordered.

FIRE

Several witnesses in the vicinity of Doty Street observed the airplane catch fire almost immediately after its impact with the ground. One witness attempted in vain to fight the growing fire with water dispensed from a 2 inch diameter garden hose.

Several Oshkosh city police officers responded to the accident site at 0906 cdt. One officer described the entire cockpit area of the airplane being engulfed in flames. The flames were described as reaching as high as 30 to 40 feet into the air, and surrounding the airplane in a 20 foot circumference. Black smoke billowed 80 to 100 feet into the air.

The Oshkosh fire department arrived at the scene at approximately 0911 cdt. The fire was brought under control by Oshkosh city fire fighters, within minutes following their arrival.

The major fire area was confined to the west yard of the duplex apartment building in the immediate vicinity of the airplane's main wreckage, and to the adjacent east-west running street. There was fire damage to a small grassy area at the southwest curb at the intersection of Doty Street and 21st Street. Fire damage was also observed to the trunk and lower branches of a large oak tree located in the middle of the west yard of the duplex apartment building, and just behind the main wreckage.

SURVIVAL ASPECTS

Several witnesses responded to the main wreckage almost immediately after it came to rest. One witness said that the pilot climbed out of the airplane onto the left wing, where he was grabbed and dragged to safety by responding residents. The witness said that the rear canopy was closed and that he could see the passenger in the rear seat moving. The witness said that the passenger lifted her hands a few times but the canopy stayed closed.

Another witness said that she ran to the airplane and observed a young woman make three to four attempts to exit the rear seat of the airplane without success. A person was observed to break the aft canopy with a baseball bat. Flames then entered the cockpit. The witness and other persons attempted to get the woman out of the airplane, but were forced away by the fire.

Both cockpits in the airplane were equipped with canopy close handles, canopy lock handles, and canopy jettison handles. The canopy jettison handles are linked mechanically into the normal canopy opening and closing system. The handles are safety wired to a

forward/safetied position. When either jettison handle is pulled aft, the safety wire is broken, the canopy mechanical lock and close handles open, and all of the canopy hinges are detached, freeing the canopies for removal. These handles were found in the forward position. The safety wires were melted. The airplane also has an exterior canopy unlock handle located on the left side of the airplane's fuselage. This handle is protected by a clear plexiglass window. Breaking the cover and pulling the handle unlocks the canopies which can then be opened with two exterior canopy close levers, also located on the airplane's left fuselage, just below each canopy.

TESTS AND RESEARCH

The airplane's engines were examined at Wittman Regional Airport, Oshkosh, Wisconsin, on August 27, 1998. The examination of the airplane's right engine revealed no evidence of rotation at the time of impact. The engine casing showed distortion due to the impact. The compressor section showed no rotational scoring inside the axial compressor casing. No foreign object damage to the inlet or axial compressor blades was observed. There was no torsional bending of the compressor blades. Plant matter, in the form of wood shards, leaves and bark, was observed at the inlet to the compressor section.

The examination of the airplane's left engine revealed rotational scoring of the inside of the axial compressor casing and torsional bending of the compressor blades. The compressor blades also showed evidence of damage due to the introduction of foreign objects. Plant matter, in the form of wood shards, leaves and bark, was observed in the inlet to the compressor section and in the tail pipe area, aft of the turbine. The engine casing showed distortion due to impact. The engine exhaust pipe showed heat damage and bending.

ADDITIONAL INFORMATION

A party to the investigation was the Federal Aviation Administration Flight Standards District Office, Milwaukee, Wisconsin.

All wreckage was released and returned to Myers Aviation, Incorporated, Oshkosh, Wisconsin.

Pilot Information

Certificate:	Commercial	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 20, 1997
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1700 hours (Total, all aircraft), 60 hours (Total, this make and model), 30 hours (Last 90 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hispano Aviacion	**Registration:**	N2741P
Model/Series:	A10B-37 A10B-37	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	20/43
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	February 24, 1998 Annual	**Certified Max Gross Wt.:**	7385 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo jet
Airframe Total Time:	877 Hrs	**Engine Manufacturer:**	Turbomeca
ELT:		**Engine Model/Series:**	MARBORE IIA
Registered Owner:	EDWARD A. SNYDER	**Rated Power:**	880 Lbs thrust
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	OSH ,808 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Unknown	**Visibility**	6 miles
Lowest Ceiling:	Broken / 6000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	23°C / 17°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:	LAFAYETTE (LAF)	**Type of Flight Plan Filed:**	IFR
Destination:	(OSH)	**Type of Clearance:**	
Departure Time:	07:30 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	WITTMAN REGIONAL AIRPORT OSH	**Runway Surface Type:**	Asphalt
Airport Elevation:	808 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	None
Runway Length/Width:	6180 ft / 150 ft	**VFR Approach/Landing:**	Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	44.060203,-88.54039(est)

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	MICHAEL J WHEELER; MILWAUKEE , WI EDWARD C STACONIS; MILWAUKEE , WI
Original Publish Date:	September 28, 1999
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=43587