



National Transportation Safety Board Aviation Accident Final Report

Location:	San Antonio, TX	Accident Number:	FTW00FA070
Date & Time:	01/22/2000, 1432 CST	Registration:	N386TM
Aircraft:	Mitsubishi MU-2B-26A	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Witnesses reported that during the airplane's takeoff roll they heard a series of repeated sounds, which they described as similar to a "backfire" or "compressor stall." Several witnesses reported seeing the airplane's right propeller "stopped." One witness reported that as the airplane lifted off the ground, he heard "a loud cracking sound followed by an immediate prop wind down into feather." He continued to watch the airplane, as the gear was retracted and the airplane entered a climb and right turn. Subsequently, the airplane pitched up, entered a "V_{mc} roll-over," followed by a 360-degree turn, and then impacted the ground. Radar data indicated the airplane took off and climbed on runway heading to a maximum altitude of about 200 feet agl. The airplane then entered a right turn and began to lose altitude. A radar study revealed that the airplane's calibrated airspeed was 97 knots when the last radar return was recorded. According to the flight manual, minimum controllable airspeed (V_{mc}) was 93 knots. Examination of the accident site revealed that the airplane impacted the ground in a near vertical attitude. A post-crash fire erupted, which destroyed all cockpit instruments and switches. Examination of the propellers revealed that neither of the propellers were in the feathered position at the time of impact. Examination of the left engine revealed signatures consistent with operation at the time of impact. Examination of the right engine revealed that the second stage impeller shroud exhibited static witness marks indicating that the engine was not operating at the time of impact. However, rotational scoring was also observed through the entire circumference of the impeller shroud. The static witness marks were on top of the rotational marks. Examination of the right engine revealed no anomalies that would have precluded normal operation. The left seat pilot had accumulated a total flight time of about 950 hours of which 16.9 hours were in an MU-2 flight simulator and 4.5 hours were in the accident airplane. Although he had started an MU-2 Pilot-Initial training course, he did not complete the course. The right seat pilot had accumulated a total flight time of about 2,000 hours of which 20.0 hours were in an MU-2 flight simulator and 20.6 hours were in the accident airplane. He had successfully completed an MU-2 Pilot-Initial training course one month prior to the accident.

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 the minimum controllable airspeed following a loss of engine power during the initial takeoff climb. Contributing factors to the accident were both pilot's lack of total experience in the make and model of the accident airplane and the loss of right engine power for an undetermined reason.

Findings

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

Findings

1. 1 ENGINE
2. (F) REASON FOR OCCURRENCE UNDETERMINED

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

Findings

3. (C) AIRSPEED(VMC) - NOT MAINTAINED - PILOT IN COMMAND
4. (F) LACK OF TOTAL EXPERIENCE IN KIND OF AIRCRAFT - FLIGHTCREW

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. TERRAIN CONDITION - RESIDENTIAL AREA

Factual Information

HISTORY OF FLIGHT

On January 22, 2000, at 1432 central standard time, a Mitsubishi MU-2B-26A twin-engine airplane, N386TM, was destroyed when it collided with terrain following a loss of control during the initial takeoff climb from the San Antonio International Airport, San Antonio, Texas. The airplane was registered to and operated by BTC Saratoga Inc., of Saratoga, California. The two occupants, a private pilot and a commercial pilot, sustained fatal injuries. Visual meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed for the 14 Code of Federal Regulations Part 91 personal flight. The cross-country flight was originating at the time of the accident and was destined for the San Jose International Airport, San Jose, California, with an intermediate fuel stop at the Tucson International Airport, Tucson, Arizona.

According to the San Angelo Flight Service Station, at 1338, the commercial pilot of N386TM received a standard weather briefing and filed two IFR flight plans. The first flight plan was for a flight from San Antonio to Tucson and the second was for a flight from Tucson to San Jose.

Line service employees reported that the airplane's fuel tanks were topped off before the airplane departed from the San Antonio International Airport. One employee stated that he observed the right engine start first. The right engine operated for 10 minutes, and then the left engine was started. He then observed the airplane taxi toward the departure area of the ramp and stop. With both engines operating, he observed a person exit the airplane, "check [the] nose gear," and re-board. The airplane then taxied to the runway.

According to air traffic control (ATC) transcripts, at 1411, N386TM requested and received an IFR clearance to Tucson. At 1419, N386TM contacted San Antonio ground control and stated that the airplane was ready to taxi, and the controller instructed the flight to taxi to runway 30L (8,502 feet long). At 1420, N386TM advised the ground controller that the flight had a "minor delay," and that they would be stopped on the ramp for a couple of minutes; subsequently, at 1423, N386TM stated they were moving again. At 1430, N386TM contacted the tower controller and advised that the flight was ready for takeoff and, subsequently, the flight was cleared for takeoff. At 1431, the tower controller advised N386TM of an MD-80 on a 3.5 mile final and requested that the airplane depart with no delay. N386TM acknowledged. No further communications, or distress calls, were received from N386TM.

According to witnesses located on airport property, they observed the airplane initiate the takeoff roll and become airborne. Two witnesses reported that during the takeoff roll they heard a series of repeated sounds, which they described as similar to a "backfire" or "compressor stall." One of the two witnesses stated that as the airplane was climbing out and had reached the departure end of the runway, "the right propeller quit." The second witness reported the following events; as the airplane lifted off the ground, he heard "a loud cracking sound followed by an immediate prop wind down into feather." The gear was retracted and the airplane entered a climb and right turn. The airplane then entered a left bank and started a descent. Subsequently, the airplane pitched up, entered a "Vmc roll-over," followed by a 360-degree turn, and impacted the ground.

Two additional witnesses, who were also on airport property, observed the airplane after it became airborne. One witness stated that he observed the right engine's propeller stop turning

during the climb. He added that the airplane entered a right bank and he then saw the right propeller turn, "like it wanted to start," and then the propeller stopped again. The other witness stated that "the right engine was slowly shutting down," and added that he saw a "puff of smoke come out of the right engine;" however he did not see any fire.

According to a witness, who was in a vehicle and stopped at a traffic light, he observed "a small plane with two propellers, but only one was working." He stated that the right propeller was not turning and he did not see any smoke.

Radar data provided by the FAA depicted the airplane beginning its takeoff roll between 1431:25 and 1431:30. At 1432:02, the airplane's Mode C altitude changed from 800 to 900 feet msl. At 1432:11, the airplane's Mode C altitude changed from 900 to 1,000 feet msl (approximately 200 feet agl) and remained there until it decreased to 900 feet msl at 1432:30, when the last radar return was recorded. Between 1432:11 and 1432:30, the airplane turned right from runway heading to a north heading. According to a radar study provided by Mitsubishi, the airplane became airborne after a ground roll of approximately 3,000 feet at a calibrated airspeed of 89 knots. The airplane's calibrated airspeed continued to increase until it reached a maximum of 132 knots at 1432:07, and then it began to decrease reaching 97 knots at 1432:30.

PERSONNEL INFORMATION

On December 14, 1998, the left seat pilot was issued a private pilot certificate. He held single and multi-engine land ratings in addition to an instrument-airplane rating. According to a Client Information Sheet, provided by Flight Safety International Inc., Flushing, New York, on December 13, 1999, he enrolled in the "MU-2 Pilot-Initial" course in Houston, Texas. The sheet indicated that he had accumulated a total of 950 flight hours. Additional documents provided by Flight Safety International revealed that during the MU-2 course, the pilot accumulated a total of 20.0 hours in an MU-2 flight simulator; however, he did not complete the MU-2 Pilot-Initial course. He was issued his most recent FAA third class medical certificate, with no limitations or waivers, on September 11, 1998.

On April 6, 1980, the right seat pilot was issued a commercial pilot certificate. He held single and multi-engine land ratings in addition to an instrument-airplane rating. According to a Client Information Sheet, provided by Flight Safety International Inc., Flushing, New York, on December 13, 1999, the pilot enrolled in the "MU-2 Pilot-Initial" course in Houston, Texas. The sheet indicated that he had accumulated a total of 2,000 flight hours. On December 22, 1999, he successfully completed the MU-2 Pilot-Initial Course. Additional documents from Flight Safety International revealed that during the MU-2 course, the pilot accumulated a total of 20.0 hours in an MU-2 flight simulator and 16.9 hours in the accident airplane. He was issued his most recent FAA second class medical certificate on June 22, 1999. The medical certificate stipulated that the pilot wear lenses that correct for distant vision and possess glasses that correct for near vision.

On January 5th and 6th, 2000, a flight instructor flew 4.5 hours with the private pilot and 3.7 hours with the commercial pilot in the accident airplane. The purpose of the flights was for the pilots to "build time to meet insurance requirements." Both pilots performed flight maneuvers including "high speed and slow flight, turns (high and low speed), and stalls in all configurations with recoveries." The instructor pilot "pulled one engine back to idle," and he

reported that the commercial pilot "displayed satisfactory performance in recognizing and simulating shutdown and controlling the aircraft." On January 7, 2000, the airplane was flown by the instructor and the private pilot to Intercontinental Jet Corporation (IJC), a maintenance facility located in Tulsa, Oklahoma, where it underwent maintenance.

AIRCRAFT INFORMATION

The 1978 model Mitsubishi MU-2B-26A (serial number 386SA) airplane was powered by two 665-horsepower Honeywell TPE331-5-252M turboprop engines (serial numbers P-30003C and P-30012C). The airplane was equipped with two 4-bladed, Hartzell HC-B4TN-5GL constant speed, manual feathering propellers. The airplane was outfitted with flight controls for the left and right seats.

Prior to 1999, the airplane was operated outside of the United States for an undetermined time period. In April of 1999, the airplane was purchased by Turbine Aircraft Services Inc., of Addison, Texas, and imported to the United States.

On April 15, 1999, maintenance commenced at IJC. The airframe underwent 100-hour, 500-hour, 1,000-hour, 1,500-hour and 2,000-hour inspections. At the time of the inspections, the airframe had accumulated a total of 3,717.7 hours. The left engine underwent a 100-hour inspection and had accumulated a total of 3,717.7 hours and 3,534 cycles. The right engine underwent a 100-hour inspection and had accumulated a total of 3,717.7 hours and 3,529 cycles. According to a logbook entry, the right engine was disassembled to "investigate low power." The diffuser assembly was overhauled, and the compressor housing, the support assembly, the seal assembly, and the plug seal were replaced. The engine's airworthiness directives and service bulletin compliance record was also updated. Following reassembly of the right engine, the airplane was test flown and found to meet the manufacturer's specifications. During the test flight, a negative torque sensing (NTS) system check was performed and no discrepancies were noted. The left and right propeller assemblies underwent 100-hour inspections, and had accumulated a total of 121.7 hours since overhaul. On August 19, 1999, the maintenance was completed.

On August 20, 1999, the FAA issued the airplane a standard airworthiness certificate.

On November 5, 1999, the airplane underwent maintenance at IJC. According to a work order, the maintenance consisted of correction of "misc. airframe discrepancies, LH engine misc. discrepancies, RH engine misc. discrepancies, and misc. nav/comm. Pulse or radar discrepancies." According to a discrepancy report sheet a 6-8% torque split was reported and the following action was recorded: "checked torque per DSC, lower R/H torque 6%, set L/H torque downlock."

On November 16, 1999, the airplane underwent maintenance at IJC. According to a work order, the maintenance consisted of correction of "misc. nav/comm., pulse or radar discrepancies." Additionally, an oil and filter analysis was performed on the left and right engines by Skywatch Inc., of Norcross, Georgia. The results were "normal" for both engines.

On December 18, 1999, the airplane underwent maintenance at IJC. According to a work order, the maintenance consisted of "misc avionics install."

On January 3, 2000, the airplane was registered to BTC Saratoga, Inc.

On January 10, 2000, the airplane underwent maintenance at IJC. According to work orders, the maintenance consisted of correction of "misc. airframe discrepancies and misc. nav/comm., pulse or radar discrepancies."

On January 20, 2000, the airplane underwent its most recent maintenance at IJC. The maintenance consisted of installing new pitch, roll, and yaw servos, and correcting "nav/com, pulse or radar discrepancies." A pilot from IJC flew the airplane to test the avionics system and the autopilot. He reported that the flight was "normal and all systems performed properly."

On January 21, 2000, a pilot from IJC flew the airplane from Tulsa to San Antonio, at the request of the owner. He reported that the 1.9-hour flight was normal and all systems performed properly. At that time, the airframe and engines had accumulated approximately 3,767.2 hours.

According to the airplane's flight manual, with one engine operating and 20 degrees of flaps extended, the minimum control speed (V_{mc}) is 93 KCAS (knots calibrated airspeed).

The flight manual's emergency procedure for an engine failure during takeoff prior to liftoff is:

1. Power Levers- Ground Idle
2. Brakes- As Necessary
3. Reverse Thrust- As Necessary

The flight manual's emergency procedure for an engine failure during the takeoff climb (gear down or in transit to up) is:

1. Landing Gear- Down
2. Operating Engine- Power as Required
3. Flaps- Leave in Takeoff Position
4. Land straight ahead using airspeed appropriate for the airplane weight, but not less than 100 KCAS.

A warning following this procedure in the flight manual states: "If flaps 20 degrees takeoff is selected and engine failure occurs after liftoff, continued climb performance is not assured unless the landing gear has completely retracted, the gear doors are closed, and the flaps are at 5 degrees or less."

At the request of the NTSB Investigator-In-Charge (IIC), Mitsubishi calculated the airplane's takeoff weight and center of gravity as 9,972.8 pounds and 157.76 inches, respectively. The airplane's maximum takeoff weight was 10,470 pounds and the center of gravity limits were 153.7 to 161.6 inches. The airplane's total takeoff distance over a 50-foot obstacle, with the flaps extended 20 degrees, at the gross weight calculated, under the reported weather conditions, was determined to be 3,610 feet.

METEOROLOGICAL INFORMATION

At 1438, the weather observation facility at the San Antonio International Airport reported the following weather conditions: overcast skies at 25,000 feet, visibility 10 miles, wind from 220 degrees at 8 knots, temperature 69 degrees Fahrenheit, dew point 57 degrees Fahrenheit, and an altimeter setting of 29.83 inches of Mercury.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest in a vacant, dirt lot in a residential area approximately 1 mile north of the airport. A global positioning system (GPS) receiver recorded the location at north 029 degrees 33.135 minutes latitude and west 098 degrees 28.983 minutes longitude. The energy path, from the initial impact point to the main wreckage, encompassed an area 175 feet in length and 150 feet in width. The linear energy path was oriented on a measured magnetic heading of 030 degrees, and the fuselage came to rest on a measured magnetic heading of 220 degrees. The initial impact point was a crater consistent with the dimensions of a wing-tip fuel tank. The pitot tube, which was mounted on the right side of the airplane's nose, and a counterweight from the right propeller were located adjacent to the initial impact point. A propeller blade from the left propeller assembly was located 26 feet from the initial impact point. A crater, consistent with the dimensions of an engine, and the strake from the left wing-tip fuel tank were located aft of the left propeller blade. The left propeller hub assembly (three blades remained attached) was located 63 feet from the initial impact point. The right wing-tip fuel tank was located 70 feet beyond the initial impact point, and the right engine and propeller hub assembly (two blades remained attached) were located at 123 feet. The left engine was located 136 feet beyond the initial impact point, and the main wreckage came to rest at 155 feet. The two remaining propeller blades from the right engine were located at 10 and 20 feet north of the main wreckage. The final piece of wreckage located along the linear path was the left wing-tip fuel tank, located 175 feet from the initial impact point.

The main wreckage consisted of the cockpit, fuselage, both wings, and the tail section. The fuselage came to rest on its left side. The main wreckage was heavily damaged by fire. The wing center section was twisted, separated from the fuselage, and came to rest inverted across the cockpit. Both outboard wing sections were separated from the wing structure. The left horizontal stabilizer was folded beneath the tail section, and the right horizontal stabilizer was oriented in a vertical position. No cockpit instrument readings or switch positions could be verified as a result of the fire damage.

The flaps were found extended 20 degrees (normal takeoff position). The landing gear was in the retracted position. The power lever for the right engine was at the flight idle position, and the condition lever for the right engine was at the takeoff/land position. The power lever for the left engine was in the full forward position, and the condition lever was at the takeoff/land position. Additionally, the left and right engine firewall fuel shutoff valves were both found in the open position.

Flight control continuity for the rudder, rudder trim, elevator, and elevator trim was confirmed from the flight control surfaces to the cockpit area where the cables were destroyed by impact forces and fire. The establishment of control cable continuity between the spoilers and flaps and their respective cockpit controls could not be determined due to the damage.

The left propeller assembly separated from the engine shaft. Three propeller blades remained attached to the hub and one blade separated at the blade root. The blades displayed leading edge gouges and chordwise scratches. One of the blades displayed "S" type bending, and the tip of this blade was separated. The left engine's propeller shaft and power turbine shaft could not be rotated at the accident site.

The right propeller assembly remained attached to the engine shaft. Two propeller blades remained attached to the propeller hub, and two blades separated at the blade root. The first

two blades were bent forward between 10 and 20 degrees, were sooted, and were free of leading edge gouges. The third blade was bent aft 45 degrees and contained one gouge in its leading edge. The fourth blade was bent forward, twisted, and was free of leading edge gouges. The engine propeller shaft and the power turbine shaft could not be rotated at the accident site.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on both pilots by the Bexar County Forensic Science Center, San Antonio, Texas. The cause of death for both pilots was determined to be "multiple severe traumatic injuries" received in an airplane accident. The autopsy report for the left seat pilot noted that a piece of metal was found embedded in his right hip. The piece of metal contained the following words: "Autopilot Trim: Spoiler/Rudder." According to Mitsubishi, a single placard with that wording would have been located in the accident airplane's cockpit. The placard would have been mounted on the lower left corner of the forward face of the center control pedestal.

Toxicological tests performed on both pilots by the Bexar County Forensic Science Center were negative for alcohol and drugs. Toxicological tests performed on the right seat pilot by the FAA's Civil Aeromedical Institute, Oklahoma City, Oklahoma, were negative for carbon monoxide, cyanide, ethanol, and drugs.

TESTS AND RESEARCH

A fuel sample secured from the fuel truck that fueled the accident airplane was tested by Petroleum Services Laboratory of Floresville, Texas. Fuel test results revealed that the sample met "the Specifications for Aviation Turbine Fuel in accordance with ASTM D1655."

On February 8th and 9th, 2000, both engine and propeller assemblies were examined and disassembled under the supervision of the NTSB IIC, at the facilities of Honeywell, Phoenix, Arizona.

The left engine's (serial number P3003C) exterior exhibited signatures consistent with exposure to a fire, which included soot deposits on the engine accessories. The compressor section exhibited rotational scoring on the first and second stage impellers and their respective shrouds. The combustor section exhibited dirt adhering to its inner surface. The turbine section exhibited rotational scoring on the first stage blade tip shroud with corresponding scoring on the blade tips. The second and third stage turbine blade tips exhibited rotational scoring. Metal deposits were observed adhering to the suction side of the blades in the first stage turbine rotor and the second and third stage turbine stators and rotors. Additionally, the torsion shaft was sheared.

The right engine's (serial number P30012C) exterior exhibited signatures consistent with exposure to a fire, which included soot deposits on the engine accessories. The compressor section exhibited static witness marks on the first stage impeller shroud corresponding to the impeller blades. The second stage impeller shroud exhibited static witness marks consistent with impeller blades; however, rotational scoring was also observed through the entire circumference of the impeller shroud. The static witness marks were on top of the rotational marks. Furthermore, corresponding rotational scoring was noted on the impeller blades. The turbine section exhibited rotational scoring on the first stage blade tip shroud and corresponding scoring was noted on approximately 1/2 of the blade tips. Metal spray deposits were observed on the pressure side of the stator vanes and the suction side of the blades. The second and third stage turbine sections appeared undamaged and there was no evidence of

rotational scoring or metal spray deposits. The torsion shaft remained intact.

The left propeller assembly separated from the engine flange. Five of the eight mounting bolts contained stripped threads. The piston section had separated in three sections. Three impact marks were observed on the inside of the piston. The marks were 2 19/32nd inches, 3 13/32nd inches, and 3 27/32nd inches from the end of the piston. According to Hartzell, these marks correspond to blade angles of 32.5 degrees, 58.5 degrees, and 72.5 degrees.

The right propeller assembly remained attached to the engine flange. There was one impact mark observed on the inside of the piston 2 15/32nd inches from the end of the piston, which corresponds to a blade angle of 28.5 degrees. The propeller blades were labeled RA, RB, RC, and RD. Propeller blade RA was bent forward between 10 degrees and 20 degrees at mid-blade, appeared sooted, and lacked damage to the leading edge. Blade RB was bent forward at 1/3 the radius and was twisted toward low pitch. Blade RB also exhibited an impression stamp that transferred onto the hub arm. Alignment of these marks indicated a blade angle range between 12.0 degrees and 30.0 degrees. Blade RC exhibited an impression stamp that transferred onto the hub arm. Alignment of these marks indicated a blade angle of 27.5 degrees. Blade RD was bent forward between 10 degrees and 20 degrees at mid-blade. There were no signatures noted for blades RA and RD that enabled investigators to determine their angles at the time of the impact.

The fuel pumps and fuel bypass valves were functionally tested at Honeywell. The left engine's fuel pump and fuel bypass valve operated. The right engine's fuel pump operated; however, the fuel bypass valve was found to be inoperative. According to Honeywell, an inoperative fuel bypass valve would not affect normal engine operation, since its only function is to automatically limit maximum torque or temperature to a preset value.

On March 28, 2000, the fuel control assemblies (serial numbers 1297874 and 2194287) were examined, under supervision of an NTSB investigator, at Woodward Governor Company, Rockton, Illinois. There were no findings that would indicate that the controls were not operating properly prior to the accident.

On March 15, 2000, the NTSB IIC reexamined the wreckage of the airplane at the facilities of Air Salvage of Dallas in Lancaster, Texas. During the examination, oil residue was noted on and around the right torque transducer, which was mounted in the wing aft of the right engine. The "B" nut on one of the two oil lines attached to the transducer was found to be "finger tight." On May 16, 2000, Mitsubishi conducted an engine ground run with both "B" nuts on the right torque transducer of an exemplar airplane "finger tight." According to Mitsubishi's report, the right engine was started and operated in ground idle beta mode for approximately 2 minutes. The right propeller was then released from the start locks, and the power lever was advanced to the propeller governing mode and to approximately 40% torque. No torque fluctuations were observed. Oil pressure and temperature were stable at 80 psi and 90 degrees, respectively. The engine was shut down and the propeller put back on the start locks. A post-run inspection revealed no evidence of any oil leakage.

ADDITIONAL INFORMATION

The airplane was released to the owner's representative on February 23, 2001.

Pilot Information

Certificate:	Private	Age:	50, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	09/11/1998
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	950 hours (Total, all aircraft), 5 hours (Total, this make and model)		

Pilot Information

Certificate:	Commercial	Age:	53, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	06/22/1999
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	2000 hours (Total, all aircraft), 21 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mitsubishi	Registration:	N386TM
Model/Series:	MU-2B-26A MU-2B-26A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	386SA
Landing Gear Type:	Retractable - Tricycle	Seats:	9
Date/Type of Last Inspection:	08/19/1999, 100 Hour	Certified Max Gross Wt.:	10250 lbs
Time Since Last Inspection:	46 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	3767.3 Hours at time of accident	Engine Manufacturer:	Honeywell
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	TPE331-5-525M
Registered Owner:	BTC Saratoga, Inc.	Rated Power:	665 hp
Operator:	BTC Saratoga, Inc.	Operating Certificate(s) Held:	None
Operator Does Business As:	N/A	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	SAT, 809 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1438 CST	Direction from Accident Site:	360°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	Overcast / 25000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	220°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.83 inches Hg	Temperature/Dew Point:	21° C / 14° C
Precipitation and Obscuration:			
Departure Point:	San Antonio, TX (SAT)	Type of Flight Plan Filed:	IFR
Destination:	Tucson, AZ (TUS)	Type of Clearance:	IFR
Departure Time:	1432 CST	Type of Airspace:	Class C

Airport Information

Airport:	San Antonio International (SAT)	Runway Surface Type:	Concrete
Airport Elevation:	809 ft	Runway Surface Condition:	Dry
Runway Used:	30L	IFR Approach:	Unknown
Runway Length/Width:	8502 ft / 150 ft	VFR Approach/Landing:	Unknown

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	29.553611, -98.483056

Administrative Information

Investigator In Charge (IIC): Georgia R Snyder **Report Date:** 06/04/2002

Additional Participating Persons: Jason A Ragogna; National Transportation Safety Board; Arlington, TX
Jesus M Cavasos; Federal Aviation Administration; San Antonio, TX
Ralph Sorrells; Mitsubishi Heavy Industries America, Inc.; Addison, TX
Dave Chapel; Honeywell (Engines & Systems); Phoenix, AZ
Tom McCreary; Hartzell Propeller Inc.; Piqua, OH

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 pubinq@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](#).