



# Aviation Investigation Final Report

<b>Location:</b>	MERIDIAN, Mississippi	<b>Accident Number:</b>	MIA96FA035
<b>Date &amp; Time:</b>	December 6, 1995, 11:50 Local	<b>Registration:</b>	N33AS
<b>Aircraft:</b>	Aerospatiale TB-20	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	3 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation		

## Analysis

The pilot had been cleared for the ILS RWY 1 approach in instrument flight conditions. A short time later, the pilot contacted the control tower, provided his altitude, and asked for a heading. The tower controller provided the pilot with the published inbound heading for the approach which the pilot acknowledged. There were no other known recorded communications with the pilot. A witness observed the airplane in instrument flight conditions at about 100 feet with the landing gear down. The airplane made a steep turn to the north and continued northbound until it disappeared from view. The airplane wreckage was located the next day 4 miles south of the airport and west of the outer marker. The airplane had collided with trees in a 90-degree left bank, 45-degree nose-down attitude. Examination of the wreckage revealed no evidence of a precrash mechanical failure or malfunction.

## 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 airspeed (VSO) while maneuvering during an ILS approach in instrument flight conditions. Factors related to the accident were: the pilot's failure to follow the published approach procedure, his failure to maintain a proper altitude, and the low ceiling.

### Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: APPROACH

Findings

1. (F) IFR PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
2. (F) WEATHER CONDITION - LOW CEILING
3. (F) PROPER ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND
4. (C) AIRSPEED(VSO) - NOT MAINTAINED - PILOT IN COMMAND
5. STALL - INADVERTENT - PILOT IN COMMAND

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

## Factual Information

### HISTORY OF FLIGHT

On December 6, 1995, about 1150 central standard time, an Aerospatiale TB-20, N33AS, registered to a private owner, operating as a 14 CFR Part 91 business flight, crashed in the vicinity of Meridian, Mississippi, while conducting an instrument approach. Instrument meteorological conditions prevailed and an instrument flight plan was filed. The airplane was destroyed. The private pilot and two passengers were fatally injured. The flight originated from Indianapolis, Indiana, about 3 hours 46 minutes before the accident. The airplane was located on December 7, 1995.

Review of transcripts revealed that the flight was receiving vectors for the ILS approach to runway 1 at Key Field. The approach controller issued the weather, an altimeter setting, and told the pilot to fly a heading of 210 degrees. A short time later, the flight reported level at 3,000 feet. The controller instructed N33AS to descend to 2,000 feet and turn right to a heading of 270 degrees. Shortly thereafter, N33AS was told that he was 3 1/2 miles from the locator outer marker. The controller then instructed the flight to turn right heading 340 degrees, maintain 2,000 feet until established on the localizer, cleared for the approach, and to contact Key Tower. The flight contacted the tower at 1147:24, and stated, "Uh, three alpha sierra, we're at uh 1,300 feet, uh, gimme a heading here will ya please." The tower replied, "November three alpha sierra, I'm not understanding you sir. Aren't you on the ILS approach. The flight replied, "all right were turning right to ILS." The tower controller issued the inbound heading, and the flight acknowledged the transmission at 1147:57. There were no other known radio communications with N33AS. The tower controller made several transmissions to other aircraft, and then called the approach controller and asked what N33AS was doing. The approach controller stated he showed N33AS at 800 feet, and then added, "he's awful low out there, tell him to check his altitude, he's abeam Savoy." The tower controller asked if the airplane was on course. The approach controller stated he didn't have a good radar target, and that it appeared that N33AS was west of the localizer. The approach controller told the tower controller to tell the pilot if he didn't have the localizer to climb to 2,000 feet, and fly 270 on the heading. The tower controller attempted to contact N33AS with negative results.

A pilot-rated witness who was located at his hunting cabin southwest of the Meridian locator outer marker, stated he heard an airplane approaching his location. The noise sounded as if the airplane was in a steep descent. He stepped off his front porch and observed the airplane approaching his location from east to west. The airplane was at about 100 feet, wings level, landing gear down and traveling at about 140 mph. The weather at the time was estimated at about 100 feet overcast, visibility 1/8 of a mile with light rain and fog. The wind was out of the west at about 8 knots. The airplane was observed to make a steep turn to the north estimated at about a 45-to 50-degree angle of bank, continued northbound until it

disappeared from view.

## PERSONNEL INFORMATION

For first pilot information see page 3 of this report.

## AIRCRAFT INFORMATION

Review of the airframe maintenance records revealed the altimeter system, altitude reporting equipment, and transponder were inspected on April 30, 1994. For additional aircraft information see page 2 of this report.

## METEOROLOGICAL INFORMATION

Instrument meteorological conditions prevailed at the time of the accident. For additional weather information see page 4 of this report. 6120.4.

## AIR TRAFFIC CONTROL

Review of Meridian Radar Air Traffic Control Facility (RATCF), ARTS II teletype printout, indicates RATCF received a minimum safe altitude warning (low altitude alert) at 1146:44, 1147:27, and 1149:01. Approximately 1 1/2 to 2 miles south of Savoy locator outer marker, RATCF observed that N33AS had lost his data tag, but still observed a primary target return from the airplane. There is no recorded record that Meridian RATCF issued a safety alert as required by the Air Traffic Control Manual, and there were no reported communications difficulties.

Interviews with Meridian RATCF personnel on duty at the time of the accident revealed areas of premature low altitude alerts in the vicinity of Savoy locator outer marker. Controllers stated they would characterize the minimum safe altitude warning and related equipment as "lousy." The parameters are too broad, the low altitude alerts go off for virtually every aircraft that lands at Key Field, and the controllers are not required to issue an erroneous alert. Most erroneous alerts occur during descent, left or right of the final approach course, or inside Savoy. There were no known attempts by Meridian RATCF to correct the premature low altitude alerts before the accident. For additional information see Air Traffic Control Field Assistance Factual Report.

## WRECKAGE AND IMPACT INFORMATION

The wreckage of N33AS was located about 4 miles south of the airport and west of the Savoy locator outer marker. Examination of the crash site revealed the airplane collided with trees on a heading of 230 degrees magnetic in a 90-degree left bank, 45-degree nose down attitude. The airplane came to rest on its left side about 50 feet from the initial point of impact. The engine was partially buried below the ground. The propeller was attached to the propeller

flange, and the spinner had evidence of rotation. Chordwise scarring was present on both propeller blades. Torsional twisting and "s" bending was present on one propeller blade, and the other propeller blade was bent aft. The landing gear was down and the flaps were extended 35 degrees. The autopilot was found in the off position. The left wing was separated and compressed aft. The right wing was partially separated and laying on top of the right forward fuselage. The left and right fuel tanks were ruptured. Examination of the airframe, flight control system, engine assembly and accessories revealed no evidence of a precrash failure or malfunction. Continuity of the flight control system was confirmed for pitch roll and yaw.

Examination of the airborne vacuum pump revealed the drive was intact and would freely turn by hand. The rotor and vanes were not damaged. The vanes were measured at 19/32 inches wide.

Examination of the electric turn coordinator and gyro horizon revealed no evidence of rotational scarring on the electric gyro, rotor, or gyro housing. There was no damage on the casing.

Examination of the vertical speed indicator revealed no evidence of a precrash failure or malfunction. The vertical speed indicator sustained impact damage. The sector gear was disengaged from the pointer gear shaft, and the diaphragm was not damaged.

Examination of the pressure altimeter and the encoding altimeter revealed no evidence of a precrash failure or malfunction. Both instruments sustained impact damage. The factory seal was installed on the pressure altimeter. The sector pivots were broken. No tension was present on the hair spring to the sector and sector pointer, and the diaphragm was not damaged. The factory seal was installed on the encoding altimeter. The hand staff was broken. No tension was present on the hair spring to the sector and sector pointer. The diaphragm was not damaged.

## MEDICAL AND PATHOLOGICAL INFORMATION

Post-mortem examination of the pilot was conducted by Dr. Steven T. Hayne, Mississippi State Medical Examiner's Office, Jackson, Mississippi, on December 8, 1995. The cause of death was airplane crash. Post-mortem toxicology studies of specimens from the pilot were performed by the Forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma. These studies were negative for alcohol, neutral acidic, and basic drugs.

Post-mortem examination of the passengers was conducted on December 7, 1995, and December 8, 1995, by Dr. Steven T. Hayne.

## TEST AND RESEARCH

Examination of the KFC-150 Autopilot, KCS-55A Compass System and KX-165

NAV/Comm radios was conducted at Allied Signal Inc., on February 5, 1996, in the presence of the FAA Kansas City Manufacturing Inspection District Office. (For additional information see Allied Signal Inc., Report.)

A flight check of ILS runway 1 at Key Field, Meridian, Mississippi, was conducted by the FAA Oklahoma City Flight Inspection Field Office on December 8, 1995, with no deficiencies noted.

#### ADDITIONAL INFORMATION

The airplane wreckage was released to Mr. Marshal Dean, U.S. Aviation Underwriters Inc., Atlanta, Georgia, on December 9, 1995. The pilot logbook was released to Melodie W. Marsch, wife of the deceased pilot on December 12, 1995. The aircraft logbooks were released to Marshal Dean on January 30, 1996. Aircraft components obtained for further testing was released to Mr. Joe Clark, Clark Aviation Inc., Bay Minette, Alabama, on February 12, 1996.

#### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	48, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	March 10, 1995
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	452 hours (Total, all aircraft), 185 hours (Total, this make and model), 277 hours (Pilot In Command, all aircraft), 46 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Aerospatiale	<b>Registration:</b>	N33AS
<b>Model/Series:</b>	TB-20 TB-20	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	33
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	September 27, 1995 Annual	<b>Certified Max Gross Wt.:</b>	3000 lbs
<b>Time Since Last Inspection:</b>	50 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1103 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	IO-540-C4 D5D
<b>Registered Owner:</b>	FRED M. MARSCH	<b>Rated Power:</b>	250 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	MEI ,297 ft msl	<b>Distance from Accident Site:</b>	4 Nautical Miles
<b>Observation Time:</b>	11:56 Local	<b>Direction from Accident Site:</b>	8°
<b>Lowest Cloud Condition:</b>	Unknown	<b>Visibility</b>	4 miles
<b>Lowest Ceiling:</b>	Overcast / 500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	30°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	13°C / 12°C
<b>Precipitation and Obscuration:</b>	N/A - None - Fog		
<b>Departure Point:</b>	INDIANAPOLIS , IN (I52 )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	(MEI )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	09:06 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	ILS
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	2 Fatal	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 Fatal	<b>Latitude, Longitude:</b>	32.379005,-88.709953(est)



## Administrative Information

<b>Investigator In Charge (IIC):</b>	Smith, Carrol
<b>Additional Participating Persons:</b>	MELVIN R ATHEY JR.; JACKSON , MS GREGORY A ERIKSON; WAYNE , IL JAMES T MORAN; GRAND PRAIRIE , TX PHIL GOETTEL; OLATHE , KS
<b>Original Publish Date:</b>	July 31, 1996
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=37885">https://data.nts.gov/Docket?ProjectID=37885</a>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).