



National Transportation Safety Board Aviation Accident Final Report

Location:	MARIETTA, GA	Accident Number:	ATL98FA060A
Date & Time:	04/04/1998, 1032 EST	Registration:	N111LR
Aircraft:	Cessna 525	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	4 Fatal
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

A Cessna 525 and a Cessna 172 collided in flight about 3,400 feet mean sea level on converging courses, with the 525 heading north and the 172 heading southwest. The converging speed was about 300 knots. The 525 departed under instrument flight rules, received vectors, and was initiating a climb on course. Training in the 525 emphasizes maximum use of the autopilot to afford greater outside scanning by the single pilot. The 525 was in radio contact with terminal approach control and the pilot's acknowledgement of the climb clearance was interrupted by the collision. The 172 had departed a local airfield, located just outside the 30 mile Mode C veil airspace of a terminal airport, and proceeded southwest. The collision occurred as the 172 was approaching Class D airspace of a military tower, and the pilot was initiating radio contact with the military tower. The terminal approach controller in contact with the 525 stated he did not observe the primary target of the 172, and conflict alert software was not installed. The 172 did not display a transponder signal and the transponder switch was subsequently found in the 'off' position. A cockpit visibility study indicated that from a fixed eye position the 172 was essentially hidden behind aircraft structure of the 525 for the 125 seconds before impact. The 172 could be seen by shifting the pilot's eye position. The 525 was viewable in the left lower section of the 172's windscreen. Both airplanes were operating in visual flight conditions.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of both pilots to see and avoid conflicting traffic, and the failure of the 172 pilot to operate the transponder as required by current regulations. Factors were the controller's failure to observe the traffic conflict, the lack of radar conflict alert capability, and the training emphasis on maximum autopilot usage with the autopilot controller placed at the rear of the cockpit center mounted pedestal.

Findings

Occurrence #1: MIDAIR COLLISION

Phase of Operation: CLIMB - TO CRUISE

Findings

1. (C) VISUAL LOOKOUT - INADEQUATE - PILOT IN COMMAND
 2. (F) ACFT/EQUIP,INADEQUATE CONTROL LOCATION - MANUFACTURER
 3. INADEQUATE CERTIFICATION/APPROVAL,AIRCRAFT - FAA(ORGANIZATION)
-

Occurrence #2: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: CLIMB - TO CRUISE

Findings

4. EMPENNAGE - SEPARATION
-

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 April 4, 1998, about 1034 eastern standard time, a Cessna 525 (CitationJet), N111LR and a Cessna 172N, N737WD, collided in flight over a residential area in Marietta, Georgia. Both airplanes were operated by the respective pilots, under the provisions of Title 14 CFR Part 91. Visual meteorological conditions prevailed at the time of the accident. The commercial certificated pilot of the 172, the airline transport pilot of the CitationJet, and the three passengers in the CitationJet, were all fatally injured. Both airplanes were destroyed. The CitationJet departed from the Dekalb-Peachtree Airport about 1030, with an instrument flight plan to Harrisburg, Pennsylvania. According to radar data, the 172 departed Mathis Airfield, near Cumming, Georgia, about 1025. A flight plan was not filed for the 172 flight, reported as a flight to inspect power lines for Georgia Power Co.

After takeoff, the CitationJet was initially assigned 3,000 feet mean sea level (msl) and a heading of 280 degrees by Atlanta Terminal Radar Control (TRACON). Subsequently, it was assigned a heading of 360 degrees and cleared to climb to 14,000 feet msl. According to radar data the CitationJet had vacated 3,000 feet msl and was at 3,400 feet msl, at 1034, when a primary target merged with the radar target of the CitationJet. In addition to the loss of radio contact with the CitationJet, the radar data block on the controller's display depicted "coast" indicating that radar contact was lost.

At 1033:01, a clearance to climb from 3,000 feet msl was issued to the CitationJet. Radar data indicated that N111LR was at 2,900 feet msl at that time. About 23 seconds later, at 1033:26, radar data depicted the airplane at 3,000 feet, indicating a climb had commenced. The CitationJet pilot's acknowledgement of the climb clearance was interrupted about 1034.

Recorded radar data provided by the Atlanta TRACON depicted a trail of primary targets (a primary target is radar energy reflected from the skin of the airplane without electronic enhancement) that began at 1025:07, approximately two miles southwest of the Mathis Airport, and extended to the southwest in a curving path that intersected the flight path of the CitationJet, over the collision site. The operator of Mathis Airfield reported that he believed the pilot of the 172 departed Mathis Airfield about 1015, on the day of the accident.

About 1034, the Cessna 172 initiated radio contact with Dobbins Air Force Base Air Traffic Control Tower (ATCT), and identified itself as seven Whiskey Delta. The controller responded "7WD, Dobbins Tower." The aircraft responded "Good morning , sir, 7WD Cessna one seventy." The controller stated "seven whiskey delta you were cut out." No further transmissions were received from the airplane, and the controller was unable to re-establish contact.

The CitationJet came to rest inverted in the rear of a residence at 1922 Fields Pond Glen, Marietta, Georgia. The 172 was observed to collide with trees and come to rest inverted in a residential yard at 5125 Timber Ridge Road, Marietta, Georgia.

PERSONNEL INFORMATION

CitationJet Pilot

The pilot of the CitationJet held airline transport pilot certificate number 253663704, with a CE-525S (Cessna 525 CitationJet) type rating. (The "S" suffix denotes that this type rating

allows the holder to operate the CitationJet as a single piloted airplane.) Additionally, he held an airline transport pilot multiengine rating and a private airplane single engine land rating. The airline transport pilot certificate was issued to the pilot on January 9, 1998. His last medical certificate, a first class, was issued March 28, 1997, with the limitation that the airman must wear corrective lenses. As of the date of his last medical examination, the pilot had 1,510 total flight hours, according to Federal Aviation Administration records.

A pilot log was obtained that contained the CitationJet pilot's name on a preprinted label indicating he had completed a pilot-in-command and instrument proficiency check on February 28, 1998, at Wichita, KS. The last entry in the log was dated March 29, 1998. According to entries in the log the pilot had 1,824.6 total flight hours, with 81.4 and 4.5 flight hours within 90 and 30 days, respectively, prior to the accident. All of the flights listed in the log book within the 90 days prior to the accident were in the accident airplane. According to the log book, the pilot had 86.3 total hours in the CitationJet. The pilot recorded a total of 4.2 actual instrument flight hours, and 0.7 simulated instrument flight hours in the CitationJet. His total instrument flight hours were recorded in the log book as 180.1 actual instrument and 104.6 simulated instrument. There were entries in the log book that indicated the pilot regularly flew a Beech 90, turbopropeller airplane, prior to his operation of the CitationJet. The log book contained an entry dated August 29, 1997, that indicated an "ATP checkride" in the CE-525 simulator. The log book reflected two periods of CE 525 training at Flight Safety during August, 1997 and February, 1998.

A local flight instructor was interviewed who stated he provided the pilot's initial flight instruction in 1994, as well as through several ratings. He assisted the pilot to purchase his first airplane, a Beech 60 Duke, a high performance, pressurized, reciprocating engine twin. The pilot later moved to a Beech 90 King Air, high performance, pressurized, "T" tail, turbine powered twin. He then assisted the pilot select and purchase the CitationJet, and attended Flight Safety International training with him. The instructor described the pilot as highly qualified, competent, and detail oriented. It was his understanding that the pilot bought the airplane to be used for business travel. He also stated that the pilot enrolled in the CitationJet proficiency course that required attendance every three months. The instructor reported that the Flight Safety training course instructed the student to use the auto-pilot as soon as possible, after takeoff, to reduce the work load on the pilot (wheels up, flaps up, auto-pilot on). The instructor stated that the use of the auto-pilot to initiate a climb involved looking down, locating and turning the altitude select knob, checking the readout on the Electronic Attitude Director Indicator, then rotating the Pitch Wheel to initiate the climb.

Cessna 172 Pilot

The pilot of the Cessna 172 held commercial pilot certificate number 216623423 with airplane single engine, multiengine, and instrument airplane ratings. Additionally, he was a certificated flight instructor with airplane single and multiengine ratings. The pilot also held a mechanics certificate with airframe and powerplant ratings. His second class medical certificate was last issued on April 2, 1998, with no waivers or limitations.

A total of five pilot logbooks, numbered 2-6, were located for the pilot. Logbook number 1 was not found, however, an entry at the beginning of Logbook number 2 stated the student had lost his logbook, and his flight hours had been reconstructed from invoices. Entries in the logbooks indicated the pilot obtained his instrument rating, multiengine rating, and commercial pilot certificate in early 1982. Logbook entries indicated he received his flight instructor certificate

and multiengine flight instructor rating about July 21, 1989. The logbook numbered 6 had a beginning date of May 22, 1997. An entry in logbook number 6, dated August 13, 1997, indicated the pilot had received a flight review. A corresponding entry indicated the flight review was accomplished in N737WD, the accident airplane. According to the entries in logbook number 6 the pilot had 13,958.8 total flight hours, as of the last entry dated March 31, 1998. Within the last 90 and 30 days, the pilot's log indicated he had flown a total of 67.8 and 13.8 hours respectively. His pilot's logbooks inconsistently reflected multiengine, night, and instrument flight hours. The last entry that totaled multiengine flight hours indicated 348.9 hours, in logbook 5, which listed a beginning date of December 13, 1990. Additionally, the last recorded total instrument flight hours were 154.8, and the last recorded total night hours were 181.9.

Information provided by FAA records indicated the pilot's certificate was suspended on three occasions. On September 10, 1987, his certificate was suspended for 30 days for violation of Title 14 CFR Part 91.119 regarding minimum safe altitudes. The certificate was suspended on March 26, 1990, for 45 days for violation of Title 14 CFR Part 91.131 regarding an ATC clearance for operations in Class B airspace. His certificate was suspended for 60 days on July 12, 1993, for violation of various sections of Title 14 CFR Part 23 and 91 that dealt with miscellaneous markings and placards on the airplane, airman certificate requirements, careless operation, and airworthiness of the airplane. Additional information is contained in the Operations Group Chairman's Factual Report.

AIRCRAFT INFORMATION

CitationJet

N111LR was a Cessna 525, manufactured in 1997, with serial number 525-0222. The airplane was registered to Alpha Wolf Enterprises LLC, 116 Lewis Lane, Trailsend Ranch, Twin Bridges, Montana 59749. The airplane was configured with two pilot seats, one jump seat, four passenger seats, and one toilet seat. It was powered by two Williams International FJ44-1A turbojet engines with 1,900 pounds of static thrust. Maximum weight of the airplane was 10,500 pounds. The airplane was certificated for day, night, instrument flight rules, visual flight rules, known icing conditions, and single pilot operations.

The autopilot control panel, containing the autopilot and yaw damper engage switches, the pitch wheel, and the turn knob was located on the rear of the cockpit center pedestal.

The airplane, according to Cessna Aircraft Company was wired for, but not equipped with a cockpit voice recorder. A Traffic and Collision Avoidance System was not installed in the airplane. According to the instructor for the CitationJet pilot, the airplane was not equipped with a Flight Management System.

The Aircraft Flight Log and the airplane maintenance records were examined. The last entry in the Flight Log was dated March 29, 1998, which recorded 181.7 total airplane and engine hours, 125 landings, and 125 engine cycles. An entry with the same date indicated the VOR 1 and VOR 2 bearing error was zero.

The maintenance records indicated that the airplane was maintained under a manufacturer's inspection program. According to a Maintenance Transaction Report dated November 18, 1997, the static pressure system, both transponders, and the altimeters were inspected and found to comply with applicable federal aviation regulations.

The records for the left and right engine, serial number 1457 and 1456, respectively, indicated the engines were maintained under a manufacturer's inspection program. Engine Service and Maintenance Record entries indicated a Check 1 inspection was performed on both engines on February 28, 1998. The record also indicated that the engines were on a spectrometric oil analysis program.

Cessna 172

Cessna 172N, N737WD, serial number 17269724, was manufactured in 1977. Maximum weight for the airplane was 2,150 pounds. It was powered by a Lycoming O-320-H2AD, engine, serial number L-6597-76. The airplane was registered to Rudolph H Duncan d/b/a Duncan Aviation, 1022 Oak Chase Drive, Apt G Tucker, GA 30084.

Partially burned records were found in the wreckage of the airplane that included a "profile" of the airplane and major installed accessories, and a list of Airworthiness Directives that applied to a Cessna 172N. Additional pages were entitled Airworthiness Directive (AD) Compliance Record, for N737WD. The compliance records indicated compliance with the individual AD, or listed its non-applicability to N737WD.

One aircraft log was found with the airplane wreckage, one aircraft log was provided by family members of the pilot/owner, and the engine log was not located. The last entry in the aircraft logs was dated March 28, 1998, and stated that an annual inspection had been completed. The entry indicated that Airworthiness Directive (AD) 80-20-03, requiring an inspection of seats and seat tracks, had been complied with, by inspection. The logbook contained entries that indicated that the airplane had accrued 13,744.3 total hours as of March 28, 1998. An entry was found in the aircraft log indicating that the transponder had been inspected and found to comply with 14 CFR Part 91.413 on October 15, 1996. Another entry with the same date indicated the altimeter and pitot static system also had been inspected.

The aircraft records indicated that the engine installed in the airplane had been installed on November 24, 1994, as an overhauled engine. Based on the aircraft records, as of March 28, 1998, the engine time since overhaul was 847.8 hours.

The flap extension system had an electric motor that moves a jack screw on the right wing flap, which moves a bellcrank. The bellcrank then moves the right wing flap through a rod, and the left wing flap through cables.

METEOROLOGICAL INFORMATION

The aviation routine weather report (METAR) for Atlanta's Hartsfield International Airport, located 22 miles south of the accident site, at 1053 eastern standard time on April 4, 1998, was wind 290 degrees at 16 knots; visibility was 10 statute miles; clouds were broken at 3,300 feet; with 5/8 coverage, temperature was 12 degrees centigrade (54 degrees Fahrenheit) and dew point was 06 degrees centigrade (43 degrees Fahrenheit); altimeter setting was 29.77 inches of Hg.

Dekalb-Peachtree Airport METAR, located 9 miles southeast of the accident site, at 1053 eastern standard time on April 4, 1998, was wind 320 degrees at 12 knots with gusts to 20 knots; visibility 10 statute miles; broken clouds with 5/8 coverage at 2,800 feet, overcast clouds with 8/8 coverage at 3,600 feet; temperature 12 degrees Centigrade (53 degrees Fahrenheit), dew point 07 degrees centigrade (44 degrees Fahrenheit); altimeter setting 29.76 inches of Hg.

Dobbins Air Force Base METAR, located 8 miles southwest of the accident site, at 1055 eastern standard time on April 4, 1998, was wind 310 degrees at 14 knots; visibility 7 statute miles; scattered clouds at 2,600 feet, with 3/8 coverage, and overcast clouds at 3,100 feet; with 8/8 coverage, temperature 11 degrees centigrade (54 degrees Fahrenheit), dew point 06 degrees centigrade (43 degrees Fahrenheit).

WRECKAGE AND IMPACT INFORMATION

CitationJet

The wreckage of the CitationJet was scattered over an area of approximately 1.5 square miles. The horizontal stabilizer, elevators, and the top 1/4, approximately, of the vertical stabilizer was separated from the airplane. The separated portion of the empennage was found about one mile southeast of the main wreckage. Additionally, the outboard 1/2 of the left horizontal stabilizer and elevator were sheared away and mangled. The main wreckage came to rest, inverted, in a residential yard at geographical coordinates 33 degrees 59' 55" N and 84 degrees 24' 11" W. The terrain around the accident site was rolling hills at an elevation between 968 to 1168 feet.

The airplane wreckage was moved to a hangar for further examination. Black color tire marks were found on the vertical stabilizer leading edge beginning about 60 inches above its base and extending up to about 72 inches from the base. The left horizontal stabilizer outboard 2/3 was crushed aft about 40 degrees, with respect to the leading edge. Engine oil was found on a separated portion of the upper surface. A small 5 inch long section, separated from the outboard end of the left horizontal stabilizer leading edge, was crushed aft, forming a tight 3 inch diameter "U" shape. This section was among the first debris located on the wreckage path. Additionally, blue paint that was similar to the blue paint of the Cessna 172 was found transferred to the leading edge of the portion of the horizontal stabilizer that remained attached to the vertical stabilizer. The Structures and Systems Group Chairman's Factual Report indicated that all of the fractures to the empennage that were examined exhibited overload failures. There was no evidence of any bird strike on the leading edge surfaces or on the cockpit area.

Flight control continuity was established by examination, except for the right rudder cable that exhibited tension overload failure at the rudder bellcrank, and the elevator cable, that experienced tension overload failure between the autopilot servo and the elevator bellcrank. Elevator trim cables exhibited tension overload failures in the vertical fin.

Cessna 172

The Cessna 172 impacted the ground approximately 0.5 miles southeast of the CitationJet at geographical coordinates 33 degrees 59' 42" N and 84 degrees 24' 01" W. The wreckage was scattered over an area of approximately 1.5 square miles. Witnesses observed the 172 impact trees before impacting the ground. The wreckage of the Cessna 172 was burned in a post-impact fire.

The engine cowling was found with the main wreckage with the lower left side exhibiting impact damage, scrape marks, and black color rub/scuff marks. There was evidence of metal scrape marks to the underside of the tail cone.

The left main wheel was separated from the airplane at the axle nut, and was found about 1,600 feet southwest from the main wreckage. The brake housing support was severely

deformed. The wheel assembly brake rotor was deformed and sheared away from its normal plane (bent outward). The outer side wall of the tire exhibited numerous cuts and jagged edges at various locations. There were no gouge marks on the tire tread.

The nose landing gear was found with the main wreckage and exhibited fire damage. The upper strut housing evidenced an indentation between 5 and 7 inches below the upper end of the strut. The indentation on the outboard left horizontal stabilizer leading edge piece of the CitationJet, referenced above, matched with the indentation of the nose landing gear strut housing of the Cessna 172.

The right wing leading edge exhibited two "U" shaped chordwise indentations at 2.5 feet from the root and again 40 inches inboard of the tip. At the latter indentation, the upper skin surface was accordioned, and the lower surface was severely crushed aft. Tree bark was found embedded in the crushed structure.

The propeller spinner was crushed rearward against the propeller hub. A piece of tree limb was compressed within the center of the propeller hub and crankshaft flange.

One propeller blade of the fixed pitch propeller exhibited slight torsional bending. The opposing blade had heavy leading edge damage with multiple deep nicks and chordwise scrapes. Black rub marks were noted along the cambered side of the same blade.

Continuity of the flight controls was established by examination, except for the ailerons which exhibited tensile separation of the cables at the right wing break and at the left wing root. The flap screw jack was found extended, corresponding to a 40 degree flap position.

The transponder was found and examined. It was severely fire damaged and exhibited the function switch in the "off" position.

Detailed charts of the wreckage distribution and descriptions of the damage to the aircraft are contained in the attached Structures and Systems Group Chairman's Factual Report of Investigation.

MEDICAL AND PATHOLOGICAL INFORMATION

CitationJet Pilot

A post mortem examination of the pilot was conducted by the Office of the Medical Examiner, Cobb County, Georgia, 150 North Marietta Parkway, Marietta, Georgia 30060. The medical examiner's report stated the cause of death was generalized trauma. The report of the examination indicated that a medical certificate with a limitation to wear corrective lenses was found in the pilot's personal effects. The report stated that a fragmented portion of an eyeglass was found during the examination of the pilot.

Toxicological examinations of the pilot were conducted by the State of Georgia Division of Forensic Sciences and the Federal Aviation Administration's Toxicology and Accident Research Laboratory. The report from the State of Georgia indicated that the sample condition precluded reliable alcohol test results, and that no drugs were found. Carboxyhemoglobin was detected but not quantifiable. The FAA report indicated that carbon monoxide and cyanide tests were not performed due to lack of suitable specimen. Ethanol was detected in kidney fluid. The report stated that the ethanol found in this case was from postmortem ethanol production. Other drugs were not detected.

Cessna 172 Pilot

A post mortem examination of the pilot was conducted on April 5, 1998, by the Office of the Medical Examiner, Cobb County, Georgia, 150 North Marietta Parkway, Marietta, Georgia 30060. The medical examiner's report stated the cause of death was "Sequelae of blunt head trauma, generalized second and third degree burns and associated smoke inhalation." The report of the examination indicated that among the personal effects received was a "black cell phone/radio."

Toxicological examinations of the pilot were conducted by the State of Georgia Division of Forensic Sciences and the FAA's Toxicology and Accident Research Laboratory. The report from the State of Georgia indicated that no ethyl alcohol or other drugs was found in the toxicology samples submitted by the medical examiner's office. Additionally, the condition of the submitted samples revealed they were unsuitable for reliable analysis of carboxyhemoglobin. The report of the examination from the FAA's laboratory indicated there was no carbon monoxide, cyanide, ethanol, or other drugs.

TESTS AND RESEARCH

CitationJet

The CitationJet engines were examined at the accident site, then forwarded to the manufacturer's facility in Michigan. On April 6 and 7, the engines were disassembled and examined. Both engines exhibited fractures of the low pressure shafts, foreign material in the core flow path and back through the high pressure turbine of both engines, foreign material ("dirt") in the bleed ports of both engines, and evidence of high pressure compressor rub and exducer blade erosion on both engines. A detailed description of the damage to the engines is contained in the Powerplant Group Chairman's Factual Report.

Cessna 172

On April 4, the engine was disassembled and examined. There was rearward compression crushing to components forward of the oil sump, including the carburetor, muffler, and the induction air box. The air filter assembly was not located with the main wreckage. It was located with a number of components from both airplanes and exhibited similar upward crushing as both the muffler and the induction air box. A detailed description of the examination is contained in the attached Powerplant Group Chairman's Factual Report.

On June 22, 1998, the Cessna 172 transponder was examined at AlliedSignal Inc., Olathe, Kansas, for switch position and damage. Fire damage precluded functional/electrical testing. The mode/function switch was in the "off" position. The ATC code switch wafers were burned and in one piece. The wafers and the function switch were compared with an exemplar unit and found to be in a position corresponding to an ATC code of 1200 and "off".

Information was obtained from the FAA that included a Certificate of Waiver or Authorization. The waiver was issued to Aerotech Aviation Inc., Rudi H. Duncan, authorizing "Power line patrol within the state of Georgia; and the states of Alabama, South Carolina, North Carolina, and Tennessee in accordance with the terms of this Certificate of Waiver, Special Provisions, and Operations Manual of Aerotech Aviation, Inc." The certificate stated "This certificate constitutes a waiver of these Federal rules or regulations specifically referred to above." The rules referred to were Title 14 CFR Part 91.119(B) Minimum Safe Altitudes: Over congested areas, and Title 14 CFR Part 91.119(C) Minimum Safe Altitudes: Over other than congested areas. The certificate was effective between September 8, 1997, and September 8, 1999. Special Provisions provided to Aerotech included authorization for flight below 200 feet above ground

level within a power line right of way.

An interview was conducted with the pilot's son who stated he had flown often with his father. The son stated that because of the type flying involved, it was his father's practice to leave the transponder in the "off" position during normal flight, until he approached airspace in which he needed the transponder. At that point, he would turn on the transponder, prior to entering the airspace.

According to personnel with the Georgia Power Company, the pilot had performed power line patrol in 1996, 1997, and was doing so in 1998. According to the General Manager Transmission & Construction, the Georgia Power contract with the pilot required that the pilot adhere to the FAA regulations as far as certification of aircraft, special permits, etc. He also stated that the contract required that the surveillance aircraft must have an observer on board at all times. He stated that the observer was required for safety reasons so the pilot could fly the airplane and the observer look at the lines. He further stated that if a pilot was discovered conducting surveillance flights without an observer, he would likely be counseled first, and if the action were repeated, the pilot could lose the surveillance contract. Forms pertaining to Aerotech Aviation entitled Aircraft Patrol Report were found in the pilot's airplane records. Dates on the Patrol Report form ranged from January 29, 1997, to March 18, 1997. Nine flights recorded on the forms, with a total of 32 flights recorded, did not reflect an observer, or "self" was recorded in the "observer block."

The Georgia Power Area Supervisor stated during an interview that he had called the pilot on the evening of April 3, 1998, to discuss of the storms of that morning. He said there was no answer at the pilot's home, and he left a message on the pilot's voice mail system. The message was that he needed the line between Rock Springs and Rocky Mount, and the line between Villa Rica and Bremen checked (this was a special mission). The Area Supervisor stated the pilot returned his call about 0900 on Saturday April 4, 1998, to confirm the lines to be checked and verify the location of one suspected line break, about four and one half miles from the station at Villa Rica. He further commented that the request was made in a neutral manner but urgent. The pilot did not give him a time of expected takeoff, but said he would call if he found anything. The Area Supervisor said the only special equipment that the power company had given the pilot was a combination cell phone and 800 MHz radio for communications with the power company.

Aircraft Performance Radar & Cockpit Visibility Study

A study of the cockpit visibility and the performance of the airplanes involved in this mid air collision, based upon radar data, was conducted by a Safety Board specialist. The Study is an attachment to the report. Based on the radar information, the airplanes were closest to each other at 1034:05 and were located 1.6 Nmi east and 21.8 Nmi north of the Atlanta ASR9 radar antenna. The approximate altitude, based on the study was 3,425 feet mean sea level. The antenna is located at 33 degrees 37' 43.48" N and 84 degrees 25' 48.16" W at an elevation of 1,030 feet, mean sea level. The CitationJet was tracking north, while the primary target that merged with the CitationJet target exhibited a south track.

Based on the study, the aircraft had an approximate closure rate of 300 knots with an angular difference of their heading about 52 degrees. The visibility portion of the study, based on a single eye position in each cockpit, plots the relative position of the aircraft in the opposing airplane's windscreen. The plots indicated that the Cessna 172 was either behind the

CitationJet center windscreen post, based on a single eye position, or to the right of the center windscreen post from 35 seconds prior to the closest radar position of the two aircraft. The plots indicate that the CitationJet was visible, based on a single eye position, in the lower left quadrant of the pilot's windscreen between 35 and 5 seconds prior to the closest radar position of the two aircraft.

ADDITIONAL INFORMATION

An Air Traffic Control Group Chairman's Factual Report is attached. The ATC group's investigation determined that the CitationJet was radar identified and in radio contact with Atlanta TRACON. Additionally, at 1025:07, a trail of primary targets commenced approximately two miles southwest of the Mathis Airport, N737WD's home base, and extended to the southwest in a curving path that intersected the flight path of N111LR over Marietta.

Under Title 14 CFR Part 91.215(b).2, the Cessna 172 was required to have an operating transponder while flying within 30 nautical miles of the Atlanta Hartsfield International Airport.

FAA handbook 7110.65, "air Traffic Control", directs controllers to provide radar traffic advisories, considered an "additional service", on a workload-permitting basis. "Additional Services" are defined in the handbook's Pilot-Controller Glossary as follows: Additional Services- Advisory information provided at ATC which includes but is not limited to the following: 1. Traffic advisories. 2. Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic. Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the performance of higher priority duties and on the basis of limitations of the radar, volume of traffic, frequency congestion, and controller workload.

During interviews, the air traffic controllers involved with the aircraft, stated they did not observe the primary targets associated with N737WD, and therefore, did not provide advisories to the CitationJet pilot.

The wreckage of N111LR was released to the owner's representative: Marshal Dean
USAIG, Inc Equitable Building Suite 2600 100 Peachtree Street Atlanta,
Georgia 30303.

The wreckage of N737WD was released to the owner's representative: Kevin Twiss
Phoenix Aviation 1255 Roberts Blvd #200 Kennesaw, Georgia 30144

ADDITIONAL PERSONS George W. Black Member NTSB

Terry N. Williams Keith Holloway NTSB Public Affairs Officer

Butch Wilson Regan Campbell Danielle Pinneri NTSB SEF-A

Deepak Joshi Kevin Pudwill Aerospace Engineer NTSB Washington DC AS-40

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Edward G. Rogalski Textron Lycoming P.O. Box 1493 11245 SE 47th Ave Belleview, FL 34421

Pilot Information

Certificate:	Airline Transport; Private	Age:	53, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	Last Medical Exam:	03/28/1997
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	1824 hours (Total, all aircraft), 86 hours (Total, this make and model), 1772 hours (Pilot In Command, all aircraft), 81 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Cessna	Registration:	N111LR
Model/Series:	525 525	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	525-0222
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	03/29/1998, AAIP	Certified Max Gross Wt.:	10500 lbs
Time Since Last Inspection:		Engines:	2 Turbo Jet
Airframe Total Time:	181 Hours	Engine Manufacturer:	Williams Intl
ELT:	Not installed	Engine Model/Series:	FJ44-1A
Registered Owner:	ALPHA WOLF ENTERPRISES LLC	Rated Power:	1900 lbs
Operator:	MARION H. ALLEN	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PDK, 1002 ft msl	Observation Time:	0953 EST
Distance from Accident Site:	9 Nautical Miles	Direction from Accident Site:	135°
Lowest Cloud Condition:	Thin Broken / 2800 ft agl	Temperature/Dew Point:	12° C / 8° C
Lowest Ceiling:	Overcast / 3300 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	12 knots/ 20 knots, 320°	Visibility (RVR):	0 ft
Altimeter Setting:	29 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	CHAMBLEE, GA (PDK)	Type of Flight Plan Filed:	IFR
Destination:	HARRISBURG, PA (MDT)	Type of Clearance:	IFR
Departure Time:	1030 EST	Type of Airspace:	Class B

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	3 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	PRESTON HICKS	Adopted Date:	09/07/2000
Additional Participating Persons:	JEFF RICH		
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.