National Transportation Safety Board
Aviation Accident Final Report

Location:	Cape Girardeau, MO	**Accident Number:**	CHI07LA063
Date & Time:	02/02/2007, 0930 CST	**Registration:**	N777AJ
Aircraft:	Raytheon Aircraft Company B200	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The airplane was operated by a company pilot. A noncompany pilot, who had not attended or completed a training course or received a checkout for Raytheon Aircraft Company Beech King Air 200 airplanes, was asked by the pilot to accompany him on the flight so that the noncompany pilot could accumulate flight time. The flight only required one pilot.

While the airplane was in cruise flight (27,000 feet mean sea level), the cockpit voice recorder (CVR) recorded the sound of the windshield fracturing. The CVR transcript indicated that the company pilot was not in the cockpit when the windshield fractured because he was emptying trash in the cabin. This action showed poor judgment considering the noncompany pilot was not qualified in the airplane.

Although the windshield stayed in place, the company pilot stated that "within seconds" after it fractured, he depressurized the airplane because he was unsure about the windshield's "integrity." However, the Beech King Air Airplane Flight Manual (AFM) states to maintain cabin pressurization in the event of a fractured windshield and further states that the airplane can continue flight for up to 25 hours with the windshield fractured. During the on-scene examinations, an unapproved document (not derived from the AFM) that contained several checklists was found on the airplane. The company pilot stated that he used this document and that it "came with the airplane." The document did not include a checklist addressing a cracked or shattered windshield. The company pilot most likely was not aware that the airplane should not have been depressurized nor that it could operate for 25 hours after the fracture occurred and, therefore, that the fractured windshield did not present an in-flight emergency.

The CVR transcript revealed that, after depressurizing the airplane, the pilots attempted to use the oxygen masks but were unable to receive any oxygen. (The pilots most likely did not turn the oxygen on once they needed it because they either forgot as a result of the emergency or because they did not have time to do so before they lost consciousness.) According to the company pilot, during his preflight inspection of the airplane, the oxygen system was functional. He stated that, after the inspection, he turned the oxygen system ready switch to

the OFF position because he wanted to "save" the oxygen, which was not in accordance with the Before Start checklist in the AFM. Postaccident functional testing of the oxygen system revealed normal operation. The unapproved checklists document did not include the instruction to leave the oxygen system on. Regardless, the pilot stated that he knew the approved checklist stated to leave the oxygen system on but that he still chose to turn it off. The pilot exhibited poor judgment by using an unapproved, incomplete checklists document and by knowingly deviating from approved preflight procedures.

About 1 minute after the pilots tried to get oxygen, the CVR recorded the last comment by either pilot. For about the next 7 minutes until it stopped recording, the CVR recorded the sounds of increased engine propeller noise, the landing gear and overspeed warning horns, and altitude alerts indicating that the airplane had entered an uncontrolled descent. (The CVR's 4-g impact switch was found in the open position during the on-scene examination, indicating that the airplane experienced at least 4 acceleration of gravity forces.) Further, a plot of two radar data points, recorded after the last pilot comment, showed that the airplane descended from 25,400 feet to 7,800 feet within 5 minutes. Shortly thereafter, the pilots regained consciousness and recovered from the uncontrolled descent. The airplane was substantially damaged by the acceleration forces incurred during the uncontrolled descent and subsequent recovery.

Examination of the windshield revealed that a dense network of fractures was located on the inner glass ply; however, the windshield did not lose significant pieces of glass and maintained its structural integrity. Therefore, the fractures did not preclude safe continued flight. Postaccident examinations revealed evidence that the fracture initiated due to a design deficiency in the glass. The manufacturer redesigned the windshield in 2001 (the accident airplane was manufactured in 1998), and no known similar fractures have occurred in the newly designed windshield. The manufacturer chose not to issue a service bulletin for a retrofit of the new windshield design in airplanes manufactured before 2001 because the fracture of one pane of glass is not a safety-of-flight issue.

Members Hersman and Sumwalt did not approve this brief. Member Hersman filed a dissenting statement, with which Member Sumwalt concurred. The statement can be found in the public docket for this accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The company pilot's poor judgment before and during the flight, including turning the oxygen system ready switch to the OFF position after he conducted the preflight inspection and using an unapproved checklist, which did not provide guidance for a fractured windshield and resulted in his depressurizing the airplane.

Members Hersman and Sumwalt did not approve this probable cause. Member Hersman filed a dissenting statement, with which Member Sumwalt concurred. The statement can be found in the public docket for this accident.

Findings

Occurrence #1: DECOMPRESSION
Phase of Operation: CRUISE

Findings
1. (F) WINDOW,FLIGHT COMPARTMENT WINDOW/WINDSHIELD - CRACKED
2. (F) CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND
3. (C) IMPROPER USE OF PROCEDURE - PILOT IN COMMAND
4. (F) CHECKLIST - NOT APPROVED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
6. (C) INCAPACITATION(LOSS OF CONSCIOUSNESS) - FLIGHTCREW

Occurrence #3: ABRUPT MANEUVER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On February 2, 2007, about 0930 central standard time, a Raytheon Aircraft Company B200, N777AJ, was substantially damaged due to acceleration forces incurred during an uncontrolled descent and recovery from cruise at flight level (FL) 270. Visual meteorological conditions prevailed at the time of the accident. The flight crew reported they depressurized the airplane after a cracked/shattered windshield. They then donned their oxygen masks but were unable to obtain oxygen from the oxygen system resulting in their loss of consciousness. They later regained consciousness, recovered from the descent, and landed without further incident at Cape Girardeau Regional Airport, Cape Girardeau, Missouri. The 14 CFR Part 91 business flight was operating on an instrument flight rules plan. The pilot and copilot were uninjured. The flight originated from Rogers Municipal Airport-Carter Field (ROG), Rogers, Arkansas, at 0839.

The business flight was a positioning flight with no passengers aboard. The pilot had the copilot accompany him on the positioning flight so that the copilot could accumulate flight time. The copilot was not a company pilot and had not attended or completed an initial/recurrent training course for the airplane or received a checkout in the airplane.

The pilot stated that he checked the oxygen system during his preflight checks but turned the system off for the accident flight because he wanted to "save" the oxygen within the oxygen system. He stated he didn't want the oxygen to deplete if the system were left on. He also stated that the windshield heater was in the OFF position and was not turned ON after departing from ROG.

The pilot stated in a National Transportation Safety Board (NTSB) Pilot/Operator Report, that the left pilot windshield "shattered" but stayed in place. He stated that "within seconds," he began to depressurize the airplane because the integrity of the windshield was unknown. He instructed the copilot to don the oxygen mask. The pilot pulled the left oxygen handle and "it did not seem to engage properly." He then pulled the right oxygen handle and the oxygen masks deployed in the rear cabin. The oxygen still did not "seem" to be delivering to the crew masks because he had tunnel vision and was having trouble thinking clearly. The last thing he remembered was being in an emergency descent. He disengaged the autopilot and pitched down, but was not able to reduce power to idle or extend the landing gear.

The pilot was interviewed a second time following the readout of the cockpit voice recorder (CVR). During the interview, the pilot stated that he was out of the pilot seat but had his leg on it while twisting around to empty trash.

The NTSB Vehicle Recorders Laboratory read out the airplane CVR and transcribed the recording as follows:

0854:01, Memphis Center clears aircraft to FL 270

0857:06, the pilot makes comment about setting the pressurization. Climbing you look at the inner scale and descending you look at the outer scale

0905:42, the pilot leaves the cockpit to "fetch the trash can"

0905:56, comment heard only on the cockpit area microphone channel (CAM) from the pilot

saying "don't tear it up while I'm gone"

0909:01, a sound of a very loud snap was heard on all CVR channels

0909:03, the copilot exclaims the pilot's first name.

0909:08, comment heard only on CAM channel from the pilot saying "what'd you # break"

0909:16, comment heard only on CAM channel from the pilot saying "gunna dump the cabin"

0909:38, the copilot exclaims "what the #"

0909:42, the copilot states, "we need to go on oxygen"

0909:43, the pilot says "yeah"

0910:06, Center instructs the airplane to change to Memphis Center frequency but the airplane never changes frequency and remains on Memphis Center for the remainder of the CVR recording

0910:12, loud right seat pilot breathing starts and continues to the end of the recording

0910:25, comment heard only on CAM channel from left seat pilot saying "can't get no oxygen"

0910:36, comment heard only on CAM channel from left seat pilot saying "I ain't getting no oxygen"

0910:46, comment heard only on CAM channel from the pilot saying, "you got oxygen" (last comment heard on CVR recording from either pilot). After this time the only crew noise was the sound of the copilot breathing erratically.

0914:55, change in background engine propeller noise starts and continues until the end of recording

0915:20, start of 500 hertz (Hz) beeping tone that continues until end of recording (landing gear warning horn)

0916:41, start of alternating high (1 Khz) low (500 Hz) tones beeping at 5 Hz rate and continues until end of recording (over speed warning horn)

0916:57, sound of one altitude alert tone

0917:05, alternating high low tone transition to steady (1 Khz) tone began and continued for approximately 4 seconds

0917:17, sound of one altitude alert tone

0917:23, alternating high low tone transition to steady (1 Khz) tone continued for approximately 6 seconds

0917:54, sound of increasing wind noise

0918:28, the recording stopped while the airplane was still airborne

PERSONNEL INFORMATION

Pilot

The pilot held an airline transport pilot certificate with a multiengine airplane land and a commercial pilot certificate with an airplane single-engine landing rating.

The pilot completed a flight review during B200 training at Simcom International on August 24, 2006. At the time of the accident, he accumulated a total aircraft time of 4,048 hours of which 110 hours were in B200 airplanes.

According to Federal Aviation Administration (FAA) records, the pilot was involved in an incident on Oct 24, 2006, while flying N777AJ inbound to Adams Field Airport, Little Rock, Arkansas, in order to have scheduled maintenance performed on N777AJ. During the approach/landing, the pilot was unaware that the landing gear was not extended until queried by local air traffic control to check the airplane landing gear because it was not extended. The pilot then departed the airport traffic pattern and reportedly reset the circuit breaker and then landed without further incident. Post incident maintenance inspection of the airplane did not reveal any mechanical anomalies that would have precluded normal operation of the landing gear system.

Copilot

The copilot held a commercial pilot certificate with airplane single-engine land, airplane multiengine land and instrument airplane ratings. He also held a certified flight instructor certificate with single-engine land, multiengine land, and instrument airplane ratings.

At the time of the accident, he accumulated a total aircraft time of 2,806 hours of which 28 hours were in B200 airplanes.

AIRCRAFT INFORMATION

The airplane was a 1998 Raytheon Aircraft Company B200, serial number BB-1638, which accumulated a total time in service of 1,834.8 hours at the time of the accident. The airplane was last inspected during phase 1 to 4 inspections, which were completed on August 29, 2006.

The pilot windshield, model number 101-384025-21, serial number 98264H7442 was installed at the time of the airplane manufacture and subsequently had not been overhauled or repaired prior to the accident. The windshield had accumulated 1,834 hours of service and had no previous reports of delamination or cracking.

The crew and cabin oxygen system controls are located on the cockpit control pedestal via left and right push-pull control handles. Actuation of the left push-pull control handle actuates the oxygen system shutoff valve and places the oxygen system in ready mode. The right push-pull control handle is the passenger manual override control that will manually deploy the passenger oxygen masks. Oxygen will flow to each passenger mask only if the oxygen tank shutoff valve is in an OPEN position.

METEOROLOGICAL INFORMATION

The Springfield, Missouri, upper air temperature recording for FL 270 at 0600 was -39 degrees Celsius.

FLIGHT RECORDERS

The CVR was mounted aft the rear pressure bulkhead at waterline 124.00 and fuselage station 368.75. The CVR incorporated a 4-g impact switch, which was found deactivated (in the open position) at the time of the on-scene examination. The impact switch deactivates the CVR at 4-g.

WRECKAGE AND IMPACT INFORMATION

On-scene inspection of the airplane noted that approximately 2/3 of the left horizontal stabilizer and elevator were separated from the airplane and 2/3 of the right elevator was separated but attached at the inboard hinge. The left and right wings were wrinkled. The left pilot windshield outer and inner plies were intact. The inner ply exhibited a shattered appearance with a crack at the lower right hand corner of the windshield.

The cabin pressurization dump switch was in the dump position.

The left and right push-pull pedestal control handles were in the pushed in position.

The passenger oxygen masks were deployed.

TESTS AND RESEARCH

A plot of recorded radar data shows at 1517:45 the airplane was at an altitude of 25,400 feet and at 1522:59 the airplane was at an altitude of 7,800 feet. There were no radar data points between this time.

The oxygen system worked when it was functionally tested after the accident in accordance with the Super King Air B200/B200C Airplane Flight Manual (AFM).

The AFM Before Engine Starting checklist items requires that the oxygen system ready switch to be selected to the ON position and the oxygen system is to be checked. The Abnormal Procedures section for a Cracked or Shattered Windshield is:

1. Altitude - MAINTAIN 25,000 ft OR LESS, IF POSSIBLE

2. Pressurization Controller - RESET

a. Cruise and Descent - MAINTAIN A CABIN DIFFERENTIAL PRESSURE OF 2.0 TO 4.6 PSI

b. Before Landing - DEPRESURIZE CABIN PRIOR TO TOUCHDOWN

3. Other In-flight Considerations

a. Visibility through a shattered windshield may be sufficiently reduced to dictate flying the airplane from the opposite side of the cockpit.

b. Precautions should be taken to prevent particles or flakes of glass from a shattered inner ply of the windshield from interfering with the crew's vision.

c. A cracked outer windshield ply may damage operating windshield wipers.

d. Windshield heat may be inoperative in the area of the crack(s).

e. The structural integrity of the windshield will be maintained.

4. Postflight Considerations - SEE SECTION II, LIMITATIONS

The AFM Limitations states that continued flight with a cracked windshield is limited to 25 hours. It also states that windshields which have a shattered inner ply will have numerous cracks which will obstruct forward vision and may produce small particles or flakes of glass that can break free of the windshield and interfere with the crew's vision. These windshields must be replaced prior to the next flight unless a special flight permit is obtained from the local FAA Flight Standards District Office.

A one-page checklist was found in the airplane during the on-scene examination, which the

pilot stated that he was using. He stated that the checklist came with the airplane and was one that he did not create. The one-page checklist did not incorporate all the items found in the approved aircraft checklist. This one page checklist had the following annotated sections: Before Start, After Start, Taxi, Before Takeoff, Climb, Cruise, Descent, Approach, Landing, After Landing, and Shut Down. The last item of the Shut Down portion of this checklist is "Pajamas..As Req."

Windshield Examinations

The accident windshield, PPG Aerospace model number 101-384025-21, S/N 98264H7442, along with two additional PPG Aerospace windshields, model 101-384025-22, S/N 00031H8698, from a Beech King Air 200, and model 101-384025-24, S/N 02128H57330, from a Beech King Air 300. The additional windshields were from airplanes that landed without further incident with damage limited to the windshield. All of the windshields were examined by the Air Force Research Laboratory Materials Integrity Branch located at Wright Patterson Air Force Base, Ohio. All three windshields fractured during flight.

Model 101-384025-22, S/N 00031H8698 Examination

Model 101-384025-22, S/N 00031H8698 possessed a dense network of fracture on the inner glass ply. No evidence or any other damage was noted on the outboard (exterior) surface or within the outer glass ply. The fracture origin was noted to be approximately 1 inch from the center edge or the inner glass ply and approximately 4.75 inches from the upper edge of the glass.

A parabolic shaped fracture within the inner glass ply different from the dense network of fractures was observed in the upper center corner of the windshield. The fracture extended from approximately 4.8 inches from the center edge and approximately 4.4 inches from the upper edge of the inner glass ply. The fracture appeared to be on the outboard surface of the inner glass ply and did not extend to the inboard surface of the inner ply. The fracture was on the outboard surface of the inner ply and did not extend to the inboard surface of the inner ply. The fracture extended to the origin of the dense fracture network.

Within the corner bound by the parabolic fracture, a separation was noted within the windshield laminate. The separation contained fractureless and fractured areas. The fractured area exhibited evidence of an initiation point and beachmarks. The initiation point was located at the boundary between the fractureless and fractured areas. The characteristics of the initiation point and beachmarks indicate the fractured area grew away from the corner towards the geographic center area of the windshield.

Pieces of the fractured inner ply were removed at the separation in the upper center corner of the windshield such that the mating surfaces of the glass pieces and the surface remains on the windshield could be examined. It was noted during removal that the outboard surface of the inner glass ply was still bonded to the tacky, yellow-colored material around the outer perimeter. The remaining pieces within the separated area were relatively easy to remove. Upon removal, the surface remaining with the windshield exhibited similar characteristics, as observed through the outer ply of the glass. Examinations of the mating surfaces of the separation indicated that the smooth, fractureless area was an apparent separation between the outboard surface of the inner glass ply and the vinyl interface, with no evidence of an initiation point. The surface exhibiting fracture features was noted to be a separation within the inner ply of glass know as a "peel chip" fracture.

The origin of the dense fracture network was near the end of the parabolic fracture at the center of the windshield.

The origin of the dense network in the inner glass ply and the peel chip initiation were approximately 0.75 inches and 0.25 inches from the edge of the embedded heating element, respectively.

A smaller separation was noted at the lower center corner of the windshield. The separation extended approximately 2.8 inches from the center edge of the inner glass ply and approximately 2.3 inches from the lower edge of the inner glass ply. Examination of this smaller separation indicated it was most likely a separation at the inner glass/vinyl interface based on the apparent fractureless area.

The mating surfaces at the vinyl and glass interfacial failure were analyzed and its results showed no evidence of any vinyl material remaining on the glass consistent with an adhesive separation between the inner ply of glass and the vinyl interlayer

Thermal analysis of vinyl material samples from the separation area and the geographic center of the windshield was performed by measuring the material's coefficient of thermal expansion (CTA) and glass transition temperature (Tg), or possibly a softening temperature. The analysis revealed no significant differences between the two areas and provided CTA and Tg values.

Pieces of the vinyl were analyzed for moisture absorption and deabsorption. Samples from the separation and geographic center of the windshield were placed in an oven at 38 Celsius (C) and weighed periodically during a 144-hours period. Results showed the samples lost approximately 0.6 percent and 0.3 percent weight for the separation and middle areas, respectively. One additional sample from both the geometric center and the edge was placed in a humidly fixture (approximately 95 percent relative humidity) at 38 degrees C and weighed during a 144-hour period. Results showed that after 144 hours, both samples gained approximately 2.6 percent weight. Results showed that the vinyl material is capable of absorbing moisture. The samples could be dried out, thus indicating the material contained a small about of moisture.

The accident windshield and model 101-384025-22 were similar in construction with inner and outer plies of thermally tempered glass with a vinyl interlayer between the glass plies. Model 101-384025-24 also contained inner and outer plies of tempered glass; however, the interlayer was comprised of a similar vinyl material with an additional proprietary urethane material located between the vinyl and the inner glass ply.

Model 101-384025-21, S/N 98264H7442 Examination

The accident windshield, model 101-384025-21, S/N 98264H7442, possessed a dense network of fractures located on the inner glass ply. There was no evidence of fractures or any other damage on the windshield's outboard surface or within the outer glass ply. The fracture origin of a dense fracture network was noted to be approximately 1.6 inches from the center edge of the glass and approximately 3.5 inches from the lower edge of the inner glass ply. The lower center corner of the windshield in the area of the dense network exhibited evidence of separation with a fractureless and fractured area. The fractured area exhibited evidence of an initiation point and beachmarks consistent with a fracture within the inner glass ply known as a "peel chip" fracture.

Scanning electron microscope examinations conducted of the glass fracture at the peel chip

initiation revealed evidence of the initiation at a possible anomaly in the glass.

Thermal and chemical analysis revealed no significant differences in comparative samples taken from windshield 00031H8698. X-ray photoelectron spectroscopy analysis of the glass and vinyl surfaces at the separation produced similar results as found in 00031H8698.

According to the windshield manufacturer, the 00031H8698 and 98264H7442 behaved, as they should during a cracking episode; the windshield did not lose significant amounts of glass pieces and maintained its structural integrity. The windshield design incorporated in 101-384025-23/24 was changed to place a urethane layer between the vinyl interlayer and the inner glass ply. The purpose of the urethane layer is to relieve stresses on the glass ply.

Model 101-384-025-25, S/N 02128H5733 Examination

The examination revealed that the outer glass ply's fracture orientation was in the vertical direction except for one fracture, which was along the entire width of the windshield. The fracture origin was located approximately 1.4 inches from the inner edge. No evidence of separation within the windshield laminate or fractures within the inner glass ply was observed. The fracture origin location possessed multiple chipped pieces of glass of an impact at the fracture origin. There was no evidence of debris material at the impact area. Small, brown-colored areas were noted in the located of the embedded heating elements near the bus bar at the upper and lower edges of the windshield. Increased magnification of these areas revealed the heating elements crossed over one another two times.

According to PPG's historical data, windshields installed on King Air airplanes are returned/replaced upon reaching an approximate calendar time in service of 5 years.

ADDITIONAL INFORMATION

Parties to the investigation were FAA, PPG Aerospace, and Raytheon Aircraft Company.

Pilot Information

Certificate:	Airline Transport; Commercial	**Age:**	31, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2	**Last Medical Exam:**	02/01/2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	08/01/2006
Flight Time:	4048 hours (Total, all aircraft), 110 hours (Total, this make and model), 3878 hours (Pilot In Command, all aircraft), 49 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft)		

Co-Pilot Information

Certificate:	Flight Instructor; Commercial; Private	**Age:**	28, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2	**Last Medical Exam:**	04/01/2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	04/01/2005
Flight Time:	2806 hours (Total, all aircraft), 28 hours (Total, this make and model), 2737 hours (Pilot In Command, all aircraft), 72 hours (Last 90 days, all aircraft), 28 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Raytheon Aircraft Company	**Registration:**	N777AJ
Model/Series:	B200	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	BB 1638
Landing Gear Type:	Retractable - Tricycle	**Seats:**	9
Date/Type of Last Inspection:	08/01/2006, Continuous Airworthiness	**Certified Max Gross Wt.:**	12500 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo Prop
Airframe Total Time:	1834.8 Hours	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-42
Registered Owner:	Hudson Timber Services Inc	**Rated Power:**	850 hp
Operator:	Hudson Timber Services Inc	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	CGI, 342 ft msl	**Observation Time:**	1037 CST
Distance from Accident Site:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Temperature/Dew Point:**	-3°C / -10°C
Lowest Ceiling:	Broken / 3300 ft agl	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	11 knots, 330°	**Visibility (RVR):**	
Altimeter Setting:	30.02 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:			
Departure Point:	ROGERS, AR (ROG)	**Type of Flight Plan Filed:**	IFR
Destination:	Staunton, VA (SHD)	**Type of Clearance:**	IFR
Departure Time:	0839 CST	**Type of Airspace:**	

Airport Information

Airport:	Cape Girardeau (CGI)	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	N/A	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	37.225278, -89.573611

Administrative Information

Investigator In Charge (IIC):	Mitchell F Gallo	**Adopted Date:**	11/20/2008
Additional Participating Persons:	Ray J Callahan; Federal Aviation Adminstration; Springfield, IL Mark Hilborn; PPG Aerospace; Kennesaw, GA Paul Yoos; Raytheon Aircraft Company; Wichita, KS		
Publish Date:	11/20/2008		
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.ntsb.gov/pubdms/.		

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