Aviation Investigation Final Report

Location:	KENLY, North Carolina	**Incident Number:**	MIA97IA151
Date & Time:	April 5, 1997, 10:30 Local	**Registration:**	N402G
Aircraft:	Beech 100	**Aircraft Damage:**	Minor
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

About 15 minutes after departure while climbing through 12,000 to 12,500 feet, at a cabin differential pressure of 4.3 psi, the pilot's flight compartment side 'D' window separated with a resulting rapid decompression. The pilot diverted to the destination airport and landed uneventfully. Post incident examination of the failed window revealed evidence of preexisting cracks that originated at the external surface of the window at the transition radius between the window flange and the center portion of the window. The failed window had accumulated 4,008 hours since replacement at failure and was the latest design. Review of the inspection requirements for the window which is scheduled to occur every 600 hours revealed that the metal retaining ring is not required to be removed for inspection.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: Inadequate inspection procedures by the airframe manufacturer for failure to require removal of the metal retaining ring to inspect the entire area of the window for cracks.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CLIMB - TO CRUISE

Findings
1. WINDOW,FLIGHT COMPARTMENT WINDOW/WINDSHIELD - FAILURE,TOTAL

2. (C) CONDITION(S)/STEP(S) NOT LISTED - MANUFACTURER
3. WINDOW,FLIGHT COMPARTMENT WINDOW/WINDSHIELD - CRACKED

Factual Information

On April 5, 1997, about 1030 eastern standard time, a Beech 100, N402G, registered to and operated by ISO Aero Service, Inc., experienced failure of the pilot's "D" oversize window while climbing to cruise near Kenly, North Carolina. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 CFR Part 91 positioning flight. The airplane sustained minor damage and the airline transport-rated pilot, the sole occupant, was not injured. The flight originated about 15 minutes earlier from the Kinston Regional Jetport at Stallings Field, Kinston, North Carolina.

The pilot stated that while climbing through 12,000 for 12,500 feet, at a cabin differential pressure of 4.3 psi, the pilot's flight compartment side "D" window separated. He diverted to his departure airport and landed uneventfully. At the time of the window separation the cabin altitude was about 2,000 feet.

The remaining portion of the failed window was sent to the NTSB Materials Laboratory in Washington, D.C. Examination of the window revealed evidence of preexisting cracks that originated at the external surface of the window at the transition radius between the window flange and the center portion of the window.

Review of the maintenance records for the airplane revealed that the failed window was installed on February 13, 1986, in accordance with an Airworthiness Directive. At the time of failure, the airplane had accumulated 4,008 hours since the window installation. Further review of the maintenance records revealed that it was last inspected on October 10, 1996. The airplane had accumulated about 240 hours since that inspection at the time of failure. The airframe manufacturer inspection requirements for the failed window does not require the removal of the metal retaining ring to examine the entire area of the window for cracks if none are visually observed on the outer surface of the window during the initial inspection. Additionally, a detailed inspection of the failed window is required by the manufacturer to be accomplished only every 600 hours.

Pilot Information

Certificate:	Airline transport	**Age:**	42,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	July 25, 1996
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	10000 hours (Total, all aircraft), 3000 hours (Total, this make and model), 9000 hours (Pilot In Command, all aircraft), 75 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N402G
Model/Series:	100 100	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	B-14
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	January 9, 1997 Continuous airworthiness	**Certified Max Gross Wt.:**	10600 lbs
Time Since Last Inspection:	76 Hrs	**Engines:**	2 Turbo prop
Airframe Total Time:	9758 Hrs	**Engine Manufacturer:**	P&W
ELT:	Installed, not activated	**Engine Model/Series:**	PT6-28
Registered Owner:	ISO AERO SERVICE, INC.	**Rated Power:**	680 Horsepower
Operator:		**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ISO ,94 ft msl	**Distance from Accident Site:**	
Observation Time:	10:50 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 20000 ft AGL	**Visibility**	20 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	26°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	KINSTON , NC (ISO)	**Type of Flight Plan Filed:**	None
Destination:	GREENSBORO , NC (GSO)	**Type of Clearance:**	None
Departure Time:	10:15 Local	**Type of Airspace:**	Class E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Minor
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	35.589851,-78.120384(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	WILLIAM R NEWBY; WINSTON-SALEM , NC
Original Publish Date:	February 29, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=38161