

**Aviation Safety Investigation Report
199201773**

**Beech Aircraft Corp
Super King Air**

18 October 1992

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 199201773 **Occurrence Type:** Accident
Location: 117km E Sydney
State: NSW **Inv Category:** 3
Date: Sunday 18 October 1992
Time: 1215 hours **Time Zone** EST
Highest Injury Level: None

Aircraft Manufacturer: Beech Aircraft Corp
Aircraft Model: 200
Aircraft Registration: VH-IBF **Serial Number:** 5670
Type of Operation: Air Transport Domestic Low Capacity Passenger Scheduled
Damage to Aircraft: Substantial
Departure Point: Lord Howe Island NSW
Departure Time: 0958 EST
Destination: Sydney NSW

Crew Details:

Role	Class of Licence	Hours on	
		Type	Hours Total
Pilot-In-Command	ATPL 1st Class	3500.0	6000
Co-Pilot/1st Officer	ATPL 1st Class	1000.0	3700

Approved for Release: Friday, March 8, 1996

On the morning of the accident the aircraft which had been leased from another company, completed a scheduled service from Brisbane to Lord Howe Island. The crew reported all aspects of the aircraft operation were normal.

In accordance with company procedures the co-pilot was the last to board the aircraft for the flight to Sydney and he closed the cabin door. He reported all visual indications showed the door locks were properly engaged.

After takeoff passengers seated near the rear of the aircraft reported a very loud whistling noise from the area near the rear cabin door. During the climb to FL180 cockpit instruments indicated a cabin pressurisation leak with the pressurisation system unable to maintain a cabin pressure differential greater than 3.8 lb/sq in.

The pilot in command identified the problem as being a faulty main cabin door seal. About 30 minutes before commencing descent to Sydney, he inspected the door and observed the leak to be in the vicinity of the top right hand corner of the door. He partially plugged the gap between the door and fuselage with rags and plastic sheeting which reduced the noise created by the pressurisation leak. A passenger seated close to the door was moved to a seat closer to the flight deck where it was less noisy.

Following receipt of clearance to descend to 7000 ft, descent was commenced at 70 NM from Sydney in accordance with the normal flight profile. During the descent, as the indicated airspeed (IAS) was increasing through 200 kts at FL170, a loud bang was heard and the cabin rapidly depressurised. The pilot in command disengaged the auto pilot and conducted an emergency descent to 11,000 ft.

After donning his oxygen mask, the co-pilot advised the pilot in command that the cabin door had separated from the aircraft. He also noted that the oxygen masks had dropped from the roof of the passenger cabin and some passengers had placed the masks to their faces. During the investigation the passengers reported they had been unable to obtain any flow of oxygen from the masks. The pre-takeoff safety briefing did not include instructions on the use of oxygen masks, nor did the safety-on-board briefing card describe the requirement to pull on the mask to commence the flow of oxygen.

The pilot in command did not don his oxygen mask given the relatively short period of time in the descent. Approaching 11,000 ft he reduced the rate of descent and carried out a handling check at 160 kts IAS. Apart from the increased slipstream noise aircraft operations appeared normal. The crew advised air traffic control that they had a pressurisation problem but did not declare an emergency. The aircraft proceeded to Sydney and landed without further incident.

The door separated from the aircraft about 65 NM NE of Sydney. It did not strike the rear fuselage or tailplane as it departed the aircraft and damage to the aircraft was confined to the door lower latches and the hinge. The damage to the latches was consistent with the lower horizontal pins being fully engaged at the time. There was no damage to the latches of the upper horizontal pins, nor the top hook latches. It is possible that a material failure of the internal locking mechanism occurred during the flight which permitted the upper latch pins and hooks to release. Under the increased air loads during the descent, the door separated from the remaining attachment points.

The door was not recovered and the reason it separated from the aircraft has not been determined.

SAFETY ACTION

As a result of this investigation the Bureau issued safety advisory notice SAN10192 to all Beech 200 operators on 23 October 1992. The SAN provided the Beech 200 operators with preliminary information of the occurrence.

On 28 October 1992 the Bureau issued interim recommendation IR9221045 to the Civil Aviation Authority. It stated:

That the Civil Aviation Authority:

1. Advise all Beechcraft King Air series operators of the circumstances of this in-flight separation of a cabin door from a Beech 200 series aircraft.
2. Implement the requirement for an initial engineering inspection of the cabin airstair door locking and latching mechanisms paying particular attention to the following points:
 - (i) integrity of the inner (upper) door handle sprocket braze assembly;

- (ii) the condition, assembly and rigging of chain and sprocket mechanisms;
 - (iii) the latches, hooks, rollers and their pivot pins;
 - (iv) rigging, operation, lubrication and correct indication of handles and latch pins; and
 - (v) any abnormal loads required to operate the handles arising from possible door and/or hinge distortion.
3. In consideration of the inspection reports, urge the manufacturer to introduce repetitive inspection requirements to ensure door mechanism integrity.
4. Ensure that operator's systems of maintenance reflect relevant inspections at appropriate intervals to maintain door integrity.

The CAA issued Airworthiness Directive AD/Beech 200/53 in response to IR9221045.

The Bureau has classified this response as CLOSED/ACCEPTED.