Aviation Safety Investigation Report 199503189

Beech Aircraft Corp Queen Air

26 September 1995

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Occurrence Number: 199503189 **Occurrence Type:** Accident
Location: Kununurra, Aerodrome
State: WA **Inv Category:** 4
Date: Tuesday 26 September 1995
Time: 1637 hours **Time Zone** WST
Highest Injury Level: None

Aircraft Manufacturer: Beech Aircraft Corp
Aircraft Model: 70
Aircraft Registration: VH-MWJ **Serial Number:** LB-29
Type of Operation: Charter Passenger
Damage to Aircraft: Substantial
Departure Point: Kalumburu Mission WA
Departure Time: 1535 WST
Destination: Kununurra WA

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	29.4	3014

Approved for Release: Wednesday, April 17, 1996

The pilot selected the landing gear down during a normal approach to Kununurra airport. Gear extension appeared to stop about midway through the sequence and the gear-down lights did not illuminate. The pilot also reported an acrid burning smell. As the landing gear circuit breakers appeared normal he attempted to recycle the landing gear. This had no apparent affect. The pilot checked the light bulbs and recycled again before attempting to extend the gear using the manual system. The manual extension handle was jammed and the gear position remained unchanged.

Following a flypast the pilot was advised that the gear appeared to be down. He decided to continue with a landing, after briefing the passengers on the situation. A landing was made on the grass to one side of the sealed strip. This area was chosen in case the gear was not locked down. As the main wheels touched the ground the pilot felt them collapse. He shut the engines down as the aircraft settled on to its lower fuselage and slid to a stop.

An on-scene inspection determined that the landing gear extension cycle had stopped after 60% travel. Landing loads had torn both main landing gear struts from the mounts in their wheel wells. The nose gear, although not locked down, was held in position by the aircraft's weight and its tail-down attitude. The normal and manual systems were jammed by a failure in the right landing gear actuator. Once the actuator was released the rest of the system worked normally. The gear-motor clutch is designed to slip if the load gets to great. This caused the acrid smell reported by the pilot.

Inspection of the right actuator determined that the crests of the teeth on the extension/retraction screw drive gear had been making contact with the the pinion gear body at the base of its teeth (the gears are set at 90 degrees). The additional loads resulting from this contact eventually caused one or more of the teeth to fail, jamming the gears and preventing full landing gear extension.

Damage to the actuator and the right landing gear system prevented an assessment of landing gear rigging. The failure sequence supports the theory that the right gear over-center lock may not have been operating correctly. This would have placed additional loads on the landing gear actuator during ground operations prior to the accident flight. The loads probably forced one gear against the other leading to contact between the crest of the teeth on one gear and the body of the other.

Any incorrect operation was not evident to the pilot as it was reported that the landing gear appeared to have been operating normally up until the accident.