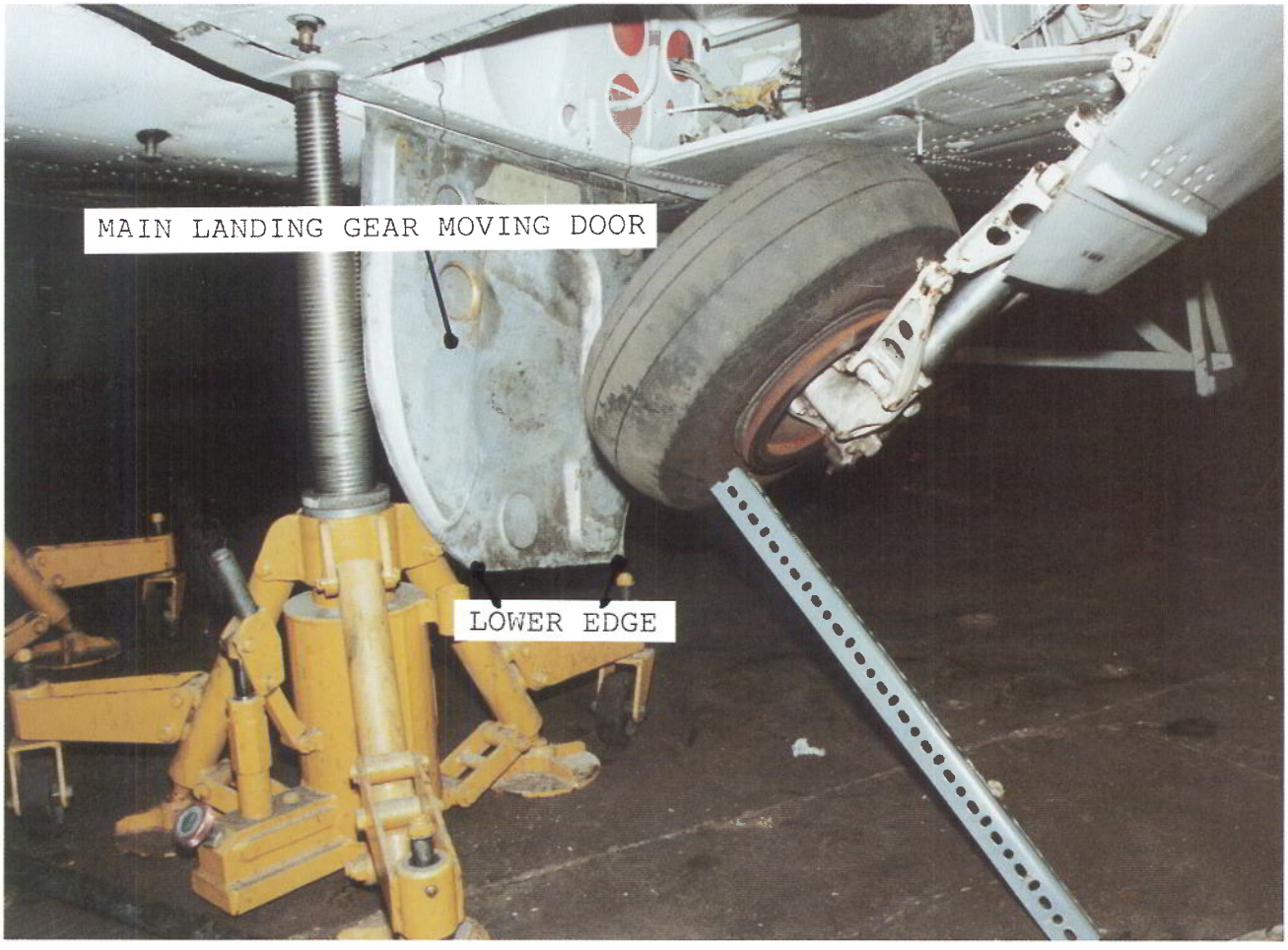
No: 4/91 **Ref: EW/G91/01/09** **Category: 1b**

Aircraft Type and Registration:	Beech D55, G-AWAD
No & Type of Engines:	2 Continental IO-520-C2B piston engines
Year of Manufacture:	1968
Date and Time (UTC):	19 January 1991 at 1015 hrs
Location:	Bournemouth International Airport, Dorset
Type of Flight:	Commercial (training)
Persons on Board:	Crew - 3 Passengers - 2
Injuries:	Crew - None Passengers - None
Nature of Damage:	Propellers and main landing gear doors
Commander's Licence:	Airline Transport Pilot's Licence with Instructor rating
Commander's Age:	57 years
Commander's Total Flying Experience:	12,399 hours (of which 2,642 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot and investigation by AAIB

The pilot reported that during take-off on runway 26 the aircraft had accelerated to 80 kts, with all indications normal, when he felt the nose of the aircraft suddenly 'drop' and heard a loud noise from the nose area. He immediately pulled back on the control column. The aircraft became airborne and was climbed at a safe speed. During the early part of the climb, the pilot noted that the landing gear position indicator showed one red nose gear and two green main gear lights. The pilot informed ATC of the problem and requested permission to orbit. Whilst orbiting in an area nominated by ATC the pilot attempted to obtain a green nose gear position light, but without success. A fly-past of the ATC tower was then carried out and the pilot was advised that the nose landing gear appeared to be down. An approach to land was made on runway 35, with two green main gear lights and the red nose gear position indicator light still illuminated. On touchdown the propellers were feathered and the nose held off the runway as long as possible. When the nose wheel was gently lowered onto the runway, the noseleg remained extended and the nose gear position indicator light changed from red to green.

Subsequent AAIB inspection of the aircraft showed that all four propeller blades had contacted the runway, causing very similar damage to each blade. This damage consisted of forward bending on three blades and rearwards bending on one. The bending had occurred through an angle of approximately 90° and was over the outboard 3 ins. of each blade. Examination of runway 26 at

Bournemouth Airport showed that the propellers had contacted the surface during the aircraft's take-off. Both main landing gear inboard doors had approximately ¼ in. of their lower edges (that is the lower edges with the doors open) abraded away. This damage was uniform over the length of each door, indicating that the aircraft had been in a fairly level attitude when it occurred. There was no damage to any other part of either main landing gears. As shown in the accompanying photograph, this damage to the doors could only have occurred when the main landing gears had partially retracted. Measurement of ground clearances on an identical aircraft showed that the main landing gear inboard doors had 1½ ins. of clearance and the propeller blades had 8½ ins. Examination of the nose landing gear showed that part of the retract/extend mechanism had partially failed such that the nose landing gear appeared able to transit but that a full uplock, or downlock, would not be achieved. The damage to this linkage was assessed as having been caused by a large upward force applied to the nose wheel whilst the nose landing gear was in transit. This had caused one bolt to fail in shear and another to have large shear forces applied to it. The 'weight-on' wheel switch actuation rod, which was located on the nose landing gear, was bent. Examination of this actuating rod indicated that the damage had been caused at the same time as that which had occurred to the retract/extend mechanism. To date, no functional testing of the aircraft's landing gear retract/extend mechanism has been carried out, but further visual inspection has revealed no other faults.



PHOTOGRAPH SHOWING MAIN LANDING GEAR PARTIALLY RETRACTED