

ACCIDENT

Aircraft Type and Registration:	Beech 76 Duchess, G-TWNN	
No & Type of Engines:	2 Lycoming O-360-A1G6D piston engines	
Year of Manufacture:	1980	
Date & Time (UTC):	2 April 2009 at 1001 hrs	
Location:	Runway 08, Bournemouth Airport	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Wing tip, flap, flap support, foot step	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	34 years	
Commander's Flying Experience:	2,654 hours (of which 1,035 were on type) Last 90 days - 68 hours Last 28 days - 42 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Internal corrosion of the right main landing gear oleo shock strut had limited its free movement, such that landing gear was able to retract, but not extend. The aircraft landed with the right gear in the retracted position.

History of the flight

When the landing gear was lowered during a stalling exercise, only two green 'down and locked' lights illuminated. The light for the right main landing gear did not illuminate, although the 'push to test' feature confirmed that the bulb was serviceable. The emergency gear extension system was then used, but the indication did not change; similarly, there was no change in the indication when the aircraft was manoeuvred vigorously in an attempt to release the right gear.

The commander briefed his student to fly an ILS approach down to 500 ft, at which point he would take control and fly past the control tower to allow ATC personnel to conduct a visual inspection of the landing gear position. He would then fly a visual circuit and land.

Having informed ATC of the nature of the problem and of his intentions, the commander flew the aircraft past the tower, where ATC confirmed that the right main landing gear was not extended. The aircraft was asked to delay landing in order to allow other aircraft to land first. During this time the crew reviewed the checklist for a wheels-up landing and subsequently followed that procedure. Following clearance to land from ATC, the aircraft flew a normal approach but, during the flare,

both engines were shut down and the propellers feathered. After touchdown on the left main wheel, the pilot held the right wing up for as long as possible; the wing tip eventually contacted the ground and the aircraft swung to the right before coming to rest at the side of the runway. The occupants were uninjured and exited the aircraft without difficulty.

Subsequent investigation of the aircraft

The landing gear on this type of aircraft is operated by a hydraulic system powered by an electric motor. Figure 1 is an illustration of the trailing link main landing gear where vertical movement of the wheel is controlled by an oleo strut/shock absorber. Disassembly of this strut revealed internal corrosion that had inhibited movement of its internal piston. This had had the effect of preventing the strut from fully extending, such that following the previous takeoff, it was probably no more than around three quarters of its maximum length. This in turn would have caused the wheel to trail aft of its normal weight-off-wheels position and it was found that, in this position, the wheel fouled the edge of the wheel-well. Although this had not prevented gear retraction, it had ‘hung up’ during the subsequent attempts at gear extension.

The oleo is maintained ‘on condition’, meaning it is not subjected to periodic internal inspections. Following this event, the maintenance organisation commented that they were unaware of any previous occurrences of this type of problem. The company has subsequently instigated a maintenance action at the 150 hour inspection, whereby the range of travel of the oleo struts is checked whilst the aircraft is jacked up.

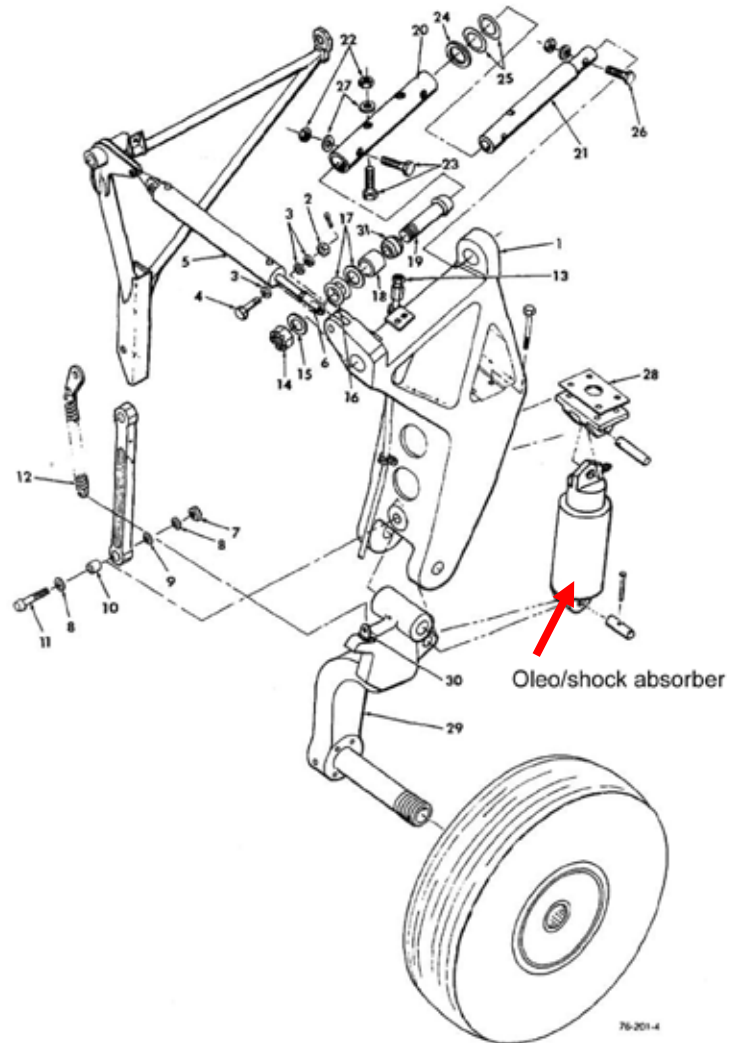


Figure 1

Beech Duchess main landing gear