CEA Robin DR220A, G-BKOV

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Aircraft Type and Registration:	CEA Robin DR220A, G-BKOV
No & Type of Engines:	1 Rolls-Royce Continental O-220-A piston engine
Year of Manufacture:	1967
Date & Time (UTC):	22 November 1997 at 1415 hrs
Location:	Hucknall Airfield, Nottinghamshire
Type of Flight:	Private
Persons on Board:	Crew - 1 - Passengers - 1
Injuries:	Crew - Minor - Passengers - Minor
Nature of Damage:	Substantial and beyond economic repair
Commander's Licence:	Private Pilot's Licence
Commander's Age:	60 years
Commander's Flying Experience:	606 hours (of which 246 were on type) Last 90 days - 11 hours Last 28 days - 4 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot plus aftercast from the Meteorological Office

The aircraft was taxied to the holding point of Hucknall's Runway04. There was an Antonov AN2 biplane ahead of the Robin whichdeparted in what the Robin pilot described as calm wind conditions. When the biplane was airborne, the Robin lined-up and startedits take-off roll on the same runway. The Robin became airborneafter travelling a greater distance along the runway than theAntonov which, at the time was starting its crosswind departureleg. As the Robin was climbing through an estimated 50 feet atbetween 65 and 70 KIAS it suddenly rolled to the left throughabout 80° for no obvious reason. The pilot applied fullright aileron and rudder but the aircraft remained steeply bankedto the left as the nose began to drop and the aircraft entereda spiral dive to the left. After a few seconds, control was regainedfor a moment before the aircraft again rolled into a steep bankto the left. By this time the aircraft had lost most of its heightand the pilot concentrated on levelling the wings before it hitthe ground. He was partially successful as the aircraft struckthe ground wingtip first at a shallow bank angle which slewedit around in a flat attitude. There was no

fire and the cockpitremained intact although the empennage was almost completely severedfrom the fuselage. Both pilots suffered whiplash injuries, minorcuts and bruising inflicted by their harnesses which withstoodthe crash forces. Both were able to escape from the aircraftunaided.

The Robin pilot deduced that loss of control was caused by waketurbulence from the preceding Antonov. His take off was witnessedby the local Flying Club's Chief Instructor who agreed with hisdiagnosis regarding the initial loss of control. However, theCFI thought that the second loss of control may have been moreattributable to the 'down wind turn' section of the aircraft'sspiral descent during which the pilot throttled back the engine. According to a Meteorological aftercast the surface wind wasless than 5 kt and variable in direction between 030° and140°.

Although both aircraft types are in the same UK 'light' categoryfor wake turbulence purposes (see AIC Pink 178/1993), at MAUWthe AN2 is seven times as heavy as the Robin and has about twicethe wing span. General Aviation Safety Sense Leaflet 15A entitled'Wake Turbulence' describes the characteristics of wake vorticesand states 'The heavier the aircraft and the slower it is flying,the stronger the vortex.' It also states 'In simple terms, thelighter the aircraft you are flying, the greater the degree ofupset if you encounter a wake vortex. Thus a general aviationaircraft will be vulnerable to the vortices of a similar sizedaircraft ahead of it, and microlight aircraft will be vulnerableto the vortices of many general aviation aircraft.'