

AAIB Bulletin No: 7/93

Ref: EW/G93/02/10

Category: 1c

Aircraft Type and Registration: Rand KR-2, G-BTGD

No & Type of Engines: 1 Volkswagen 1843 cc piston engine

Year of Manufacture: 1992

Date & Time (UTC): 3 May 1993 at 1008 hrs

Location: Liverpool Airport, Merseyside

Type of Flight: Test Flight

Persons on Board: Crew - 1 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Damage to propeller, engine cowling and landing gear

Commander's Licence: Private Pilot's Licence

Commander's Age: Not known

Commander's Flying Experience: 188 hours (of which 10 were on type)
Last 90 days - 2 hours
Last 28 days - 2 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and a report from PFA

The pilot was landing on Runway 27 after a satisfactory test flight of a recently completed homebuilt aircraft. The weather was good with a favourable wind of 290/09 kt and the IAS was 60 kt over the threshold, however, a bounce occurred and power was increased to cushion the aircraft down onto the runway. The attitude of the aircraft at this time was probably between level and the three-point attitude, but the situation was not alarming and the pilot expected the remainder of the landing run to be uneventful. When contact was made with the runway the aircraft almost immediately nosed over and slid to a halt in the nose down attitude, facing directly down the runway.

The landing gear spring bar had taken on a permanent set, and witness marks indicated that it had deflected at the outboard ends through approximately 3.25 inches under the landing loads. Examination of the landing gear spring bar on another KR-2 showed that it had a thickness of 0.75 inches, whereas the spring on the accident aircraft had a thickness of only 0.5 inches. Calculations of the amount the two springs would deflect under various loads showed that the 0.5 inches thick spring fitted to this aircraft would have the same deflection (3.67 inches) at 2.0g as the Rand spring would have at a load of 6.5g.

The supplier of the 0.5 inches thick spring demonstrated a 2.5g static loading of the landing gear spring in a representative fixture without permanent deflection. The 0.5 inches thick spring was originally marketed by a company which has now ceased trading, some of its stock passed to another company who supplied the spring in the belief that it was a substitute for the fixed gear conversion kit supplied by Rand. The thinner springs have now been withdrawn from sale, and have been the subject of a PFA Engineering Warning.