

Squarecraft Cavalier SA.102-5, G-BDKJ, 14 September 1997

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Aircraft Type and Registration:	Squarecraft Cavalier SA.102-5, G-BDKJ
No & Type of Engines:	1 Rolls-Royce Continental O-240-A piston engine
Year of Manufacture:	1977
Date & Time (UTC):	14 September 1997 at 1550 hrs
Location:	Gloucestershire Airport, Staverton
Type of Flight:	Flight Test
Persons on Board:	Crew - 2 - Passengers - None
Injuries:	Crew - None - Passengers - N/A
Nature of Damage:	Severe damage to wing, nose gear and engine bearer
Commander's Licence:	Private Pilot's Licence
Commander's Age:	62 years
Commander's Flying Experience:	949 hours (one hour on type) Last 90 days - 13 hours Last 28 days - 3 hours
Information Source:	1. Aircraft Accident Report Form submitted by the pilot 2. ATC and Police reports for the accident and previous incidents on 13 and 14 September 1997

The aircraft was being flown to complete the flight test schedule for a Permit to Fly Renewal after a lay-up of two years and had been subjected to a detailed inspection culminating in extensive engine ground runs.

The intention, agreed with ATC, was to stay in the vicinity of the airfield until confidence in the aircraft performance had been gained. The aircraft was climbed satisfactorily to 3,000 feet, when, at the start of some handling tests the engine started to run rough. Hot air was selected and the electric pump was checked ON but the engine ran down and would not respond to throttle commands. As the

aircraft was overhead the airfield a request to land was granted, and as there was plenty of height the into-wind runway was chosen. A curving, gliding approach was commenced, but the aircraft failed to reach the airfield by 50 yards. It touched down in a field in the undershoot, coming to rest adjacent to the perimeter road having been retarded by passing through a hedge.

The pilot assessed the misjudgement of the approach as being caused by the drag of the windmilling propeller, which was turning over the engine, considerably exceeding the drag of a propeller when the engine is producing power at flight idle.

The ATC and Police reports confirmed the details of the accident flight, and referred to two earlier flights; the first resulting in a forced landing on the previous day, and the second culminating in the engine stopping after landing, this was approximately three flying hours before the accident flight.

At 1457 hrs the previous day, whilst local flying on an air test, the pilot made a 'PAN' call reporting a rough running engine and his intention to return to the airfield. At 1459 hrs the pilot further reported being doubtful that he could reach the airfield and he elected to carry out a forced landing approximately 6 miles SW of the airfield. Full emergency action was commenced, 999 calls initiated to civil services, and another aircraft flying in the locality was diverted to the possible area of the forced landing. At 1503 hrs this latter aircraft reported that 'KJ' had apparently landed safely; this was subsequently confirmed by a third aircraft in the area who also established radio contact with 'KJ' on the ground and reported that the aircraft was undamaged and the crew unhurt.

The following day the aircraft was flown from the forced landing field to Staverton where the engine stopped on landing. A new set of plugs was fitted and after extensive engine ground runs it was decided to complete the flight tests. It was on this second flight of the day that the reported accident occurred.

The engine had flown a total of 216 hours since new. The cause of the engine failures has not been established, but reports indicated that the carburettor contained fuel and that the plugs were clean. Any further information received will be published as an addendum to this bulletin.