

Brooker KH QAC Quickie Q2 G-BMZG

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Category: 1.3

Aircraft Type and Registration: Brooker KH QAC Quickie Q2 G-BMZG

No & Type of Engines: 1 Revmaster R2100D piston engine

Year of Manufacture: 1987

Date & Time (UTC): 18 May 2001 at 1845 hrs

Location: Withbybush Airfield, Haverfordwest

Type of Flight: Private

Persons on Board: Crew - 2 Passengers - None

Injuries: Crew - 2 Passengers - N/A

Nature of Damage: Damaged beyond repair

Commander's Licence: Private Pilot Licence

Commander's Age: 69 years

Commander's Flying Experience: 703 hours (of which 24 were on type)

Last 90 days - 14 hours

Last 28 days - 5 hours

Information Source: Aircraft Accident Report Form submitted by the pilot

The aircraft was engaged in a local flight from Haverfordwest. The takeoff and departure from Runway 27 were normal. At approximately 200 feet agl the engine began to run roughly. At this point the pilot applied carburettor heat and checked that the fuel and magnetos were ON and that the fuel mixture was fully rich.

Having decided that there were no suitable fields in which to carry out a forced landing, the pilot elected to turn left for a landing on Runway 03. He radioed to the control tower and stated his intentions. Shortly after his radio call the aircraft crashed on the airfield just short of Runway 03. The damage was severe, with both wings becoming detached, and the aircraft was a total loss. Both the pilot and the passenger suffered serious injuries. After the pilot regained consciousness in hospital the next day, he was unable to recall any event following the final radio call.

In his report the pilot states his opinion that the loss of power could well have been due to carburettor icing. He states that, while taxying for takeoff, he applied carburettor heat for approximately 15 seconds. He also comments that, due to the low power setting at which the check was carried out, the small size of the engine RPM gauge and its position in the aircraft, it was very difficult to see if there was any change in engine speed during this check. As a result he tended to listen for changes in engine speed instead of relying on the RPM gauge.

The evidence available to AAIB at the time of initial publication indicated that carburetor icing was the probable cause of the power loss the pilot had reported in this accident. Later the AAIB received a copy of an examination of the Revmaster engine from this aircraft (G-BMZG) and this report showed a possible technical explanation for the reduction in power reported by the pilot.

Due to the damage sustained in the accident, it was not possible to run this engine. A compression check of the cylinders revealed that cylinders Nos 1, 2 & 3 had compression readings of 73/80, 76/80 and 62/80 respectively, whereas cylinder No 4 would not hold compression at all. This was because No. 4 cylinder had a small negative tappet clearance (-0.002") so that the exhaust valve was still slightly open when it should have been firmly seated. It was also noted in the examination that the top spark plug from No. 4 cylinder was loose in its seating.

The negative tappet clearance on the No. 4 cylinder appeared to be due to fretting between the alloy cylinder head and the steel cylinder barrel. When the attachment studs were examined on the cylinder Nos. 3-4 head, it was found that two of the eight nuts were slack and two were not properly tight. This appeared to have been the cause of the fretting.

It is likely that the reported defects would have developed before the accident flight and would have resulted in rough running and a reduction in rate of climb at take-off.