ACCIDENT

Aircraft Type and Registration:	Rand KR-2, G-DGWW
No & Type of Engines:	1 HAPI Magnum 75 piston engine
Year of Manufacture:	1992
Date & Time (UTC):	14 December 2009 at 1422 hrs
Location:	Near Beeston Castle, Tarporley, Cheshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - 1 (Minor) Passengers - N/A
Nature of Damage:	Extensive
Commander's Licence:	Private Pilot's Licence
Commander's Age:	64 years
Commander's Flying Experience:	658 hours (of which none were on type) Last 90 days - 0 hours Last 28 days - 0 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

At a height of approximately 700 feet above ground level, the engine stopped for a second time during the flight. The pilot carried out a forced landing, but as the aircraft approached the selected field, it clipped the top of a row of trees, causing the aircraft to pitch over and crash-land, coming to rest inverted just beyond the trees. The aircraft was extensively damaged but, due to his harness and local strengthening of the aircraft's structure, the pilot sustained only minor injuries. The weather at the time of the flight was such that there was a serious risk carburettor icing at any power setting.

History of the flight

The aircraft had just been flown uneventfully by the owner for approximately 40 minutes, after which he briefed the pilot, who was about to fly this type of aircraft for the first time. As part of the briefing, the owner mentioned that he had experienced some carburettor icing during his flight.

After refuelling the aircraft to full, the pilot took off from Liverpool (John Lennon) Airport, intending to initially assess the general handling characteristics of the aircraft. En route towards Chester and clear of the Liverpool zone, the pilot applied carburettor heat a number of times but noticed no icing effects.

Once clear of the zone, the pilot flew some slow-speed manoeuvres with a low power setting and carburettor heat on. After completion of the manoeuvres he

selected carburettor heat off and increased the power; however, the engine ran rough and then stopped. The altitude at this point was approximately 1,300 ft amsl. The aircraft descended to about 900 ft before the pilot was able to restart the engine. He then climbed back to 1,300 ft at full power and radioed Liverpool to get clearance to re-enter the zone for a return back to the airfield. Moments later, the engine again ran rough, and despite application of carburettor heat and leaning of the mixture, the engine failed to respond and eventually stopped. The altitude was now about 1,000 ft (or between 700 and 800 feet agl) so the pilot selected a field for a forced landing and further attempts to restart the engine failed. He then tightened his four-point harness.

As the aircraft approached the selected field, it clipped a row of trees causing the aircraft to pitch over and crash-land, coming to rest inverted just beyond the trees. The aircraft was extensively damaged but the rear fuselage and a strengthening frame just aft of the cockpit remained largely intact thus leaving a gap, where the canopy had been, between the structure and the ground. The pilot undid his harness and vacated the aircraft through this gap, having suffered only minor injuries. During construction of the aircraft the owner had added extra strengthening to the structure aft of the cockpit and also to the four harness hard points.

No detailed examination of the engine or engine systems was carried out. The pilot stated that he was aware of the potential for carburettor icing during the flight. An assessment by the Meteorological Office of the conditions at the time of the accident estimated that the temperature and humidity were about +3ºC and 80% respectively, which placed the risk of carburettor icing as '*Serious icing – any power*' based on the CAA's carburettor icing probability chart in their Safety Sense Leaflet 14.