

No: 5/89

Ref: EW/G89/01/08

Category: 1c

**Aircraft Type and Registration:** Piel CP301A Emeraude, G-AYEC

**No & Type of Engines:** 1 Continental Motors Corp C90-14F piston engine

**Year of Manufacture:** 1958

**Date and Time (UTC):** 15 January 1989 at 1505 hrs

**Location:** 3 nm southwest of Gamston Aerodrome, Retford, Nottinghamshire

**Type of Flight:** Pleasure

**Persons on Board:** Crew - 2                      Passengers - None

**Injuries:** Crew - None                      Passengers - N/A

**Nature of Damage:** Broken propeller and dented engine cowling

**Commander's Licence:** Private Pilot's Licence

**Commander's Age:** 52 years

**Commander's Total Flying Experience:** 102 hours (of which 31 were on type)

**Information Source:** Aircraft Accident Report Form submitted by the pilot and subsequent AAIB enquiries

Whilst on a short pleasure flight from Netherthorpe, the engine suddenly developed severe vibration and lost power. The pilot found that the engine would continue to run at 1000-1200 rpm, albeit roughly, and the aircraft lost height rapidly from its 3000 ft cruising altitude. Being just south of Gamston airfield, the pilot declared a Mayday and requested an immediate emergency landing. However the pilot found he had insufficient height to fly a normal circuit for the active runway 21, and mindful of the West-Southwest 20/25 kt (estimated) wind, was reluctant to attempt a landing on the reciprocal runway 03. There was insufficient time to assess the condition of the disused runways, and moreover, one of them was being used for model aircraft flying. The pilot therefore elected to land in a cultivated area, with a short standing crop, in the centre of the airfield. A "full-flap" approach was made, but shortly after touchdown the aircraft tipped onto its nose due to the soft nature of the ground. Damage was confined to a dented cowling and broken propeller. The pilot's full harness held on impact, and he escaped injury.

Subsequent examination of the engine revealed that three rocker shaft support lugs in the number 4 cylinder had failed. The affected cylinder had been installed on the engine 356 hours before the accident, although it had already run approximately 1400 hours at the time of installation.

Following further investigation it was noted that both the inlet and exhaust valve springs had been manufactured with inner and outer coils wound in the same direction (the inner coils should be wound anti-clockwise). Such a condition would have allowed coil binding to occur, with resultant excess loading on the rocker shafts. It is understood that when the cylinder was replaced, the installed valves and springs had been used; thus the defective springs had probably been in service a considerable length of time.

In 1979 a similar problem came to light concerning Teledyne Continental O-200 valve springs (part number 24029) manufactured in 1977. This involved 95 springs, spread over four batches. All were allegedly recovered; thus it is likely that G-AYEC's problem resulted from another batch. The organisation repairing the engine has raised an MOR (mandatory occurrence report) and the matter is being pursued by the Civil Aviation Authority.