

## Cessna 172N, G-BUAN

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| <b>AAIB Bulletin No: 6/2004</b>        | <b>Ref: EW/G2003/10/03</b>   | <b>Category: 1.3</b> |
| <b>Aircraft Type and Registration:</b> | Cessna 172N, G-BUAN  |                      |
| <b>No &amp; Type of Engines:</b>       | 1 Lycoming O-320-H2AD piston engine  |                      |
| <b>Year of Manufacture:</b>            | 1977   |                      |
| <b>Date &amp; Time (UTC):</b>          | 4 October 2003 at 1013 hrs   |                      |
| <b>Location:</b>                       | 6 miles south of the Isles of Scilly   |                      |
| <b>Type of Flight:</b>                 | Private  |                      |
| <b>Persons on Board:</b>               | Crew - 1   | Passengers - 2       |
| <b>Injuries:</b>                       | Crew - 1   | Passengers - 1       |
| <b>Nature of Damage:</b>               | Aircraft sank and not recovered  |                      |
| <b>Commander's Licence:</b>            | Private Pilot's Licence  |                      |
| <b>Commander's Age:</b>                | 75 years   |                      |
| <b>Commander's Flying Experience:</b>  | 2,520 hours<br>(of which 900 were on type)   |                      |
|  | Last 90 days - 20 hours  |                      |
|  | Last 28 days - 7 hours   |                      |
| <b>Information Source:</b>             | Aircraft Accident Report Form submitted by the pilot and additional enquires by the AAIB |                      |

The original report on this accident was published in AAIB Bulletin 1/2004. Since publication new and significant information has been received requiring the re-opening of the investigation and subsequent revision to the accident report. The original report has been included for clarity.

The aircraft was one of a group of seven that was participating in a Fleet Air Arm Squadron 'fly in' from Kemble to the Scilly Isles. It was en-route from Lands End to the Isles of Scilly at 2,000 feet when without warning, the engine stopped. The engine failure drills were carried out but a restart was unsuccessful and an emergency call was made to St Mary's ATC to advise them that the aircraft was ditching. The aircraft touched down on the top of a wave crest heading into a 12 kt headwind. The passengers were able to make a rapid exit but the pilot caught his foot on the cockpit coaming and was only able to free himself when the aircraft had sunk to a depth of approximately 10 feet. A nearby fishing vessel rescued the occupants and a search and rescue helicopter airlifted them to hospital. The aircraft was not recovered.

It was reported that all the aircraft that day had ample fuel for the flight and none of the other aircraft, flying at a similar level, reported any significant carburettor icing. The accident aircraft's fuel cock had been selected to both tanks and the rapidity with which the engine failure occurred led associates of the pilot to speculate that it may have been caused by a double magneto failure brought about by the failure of the single magneto drive. Later variants of this engine incorporate a double drive to the magnetos. The possibility, however, that some other unidentified problem caused the engine failure cannot be excluded.

### Additional information

The aircraft was fitted with long range fuel tanks giving a maximum tank usable capacity of 50 US gallons. Further investigation has been unable to find any evidence of the aircraft having been refuelled between 20 August 2003 and the accident occurring. In the intervening period, the aircraft appears to have been flown on eight occasions including the accident flight. Conservative still air performance figures, from the manufacturer's handbook, suggest that, at best, the aircraft is unlikely to have had more than 1.6 US gallons of fuel remaining when the engine failed.

#### G-BUAN - Table of Flights since last confirmed refuel

| Date        | Route                    | Distance/Time (nm/hrs) | Fuel Used | Fuel Remaining |
|-------------|--------------------------|------------------------|-----------|----------------|
| 30 Aug 2003 | Kemble-Dunkeswell-Kemble | 140 / 1.4              | 10.6      | 39.4           |
| 31 Aug 2003 | Kemble-St Mawgan-Kemble  | 280 / 2.8              | 19.0      | 20.4           |
| 1 Oct 2003  | Kemble air test          | - / 0.3                | 2.9       | 17.5           |
| 3 Oct 2003  | Kemble-Dunkeswell        | 70 / 0.7               | 5.3       | 12.2           |
| 3 Oct 2003  | Dunkeswell-Lands End     | 110 / 1.1              | 7.7       | 4.5            |
| 4 Oct 2003  | Lands End-ditching       | 25 / 0.3               | 2.9       | 1.6            |
| Total       |                          | 625 / 6.6              | 48.4      |                |

**Assumptions:** Fuel tank capacity 50 US Gallons; 1.1 USG per start; Fuel consumption of 6 USG /hour at 100 kt cruise.

Before the aircraft departed Kemble for the Isles of Scilly on the day of the accident, one of the passengers, who flew the aircraft on the first sector, reported that he visually checked the fuel tanks. He estimated them to be three-quarters full but he did not use a dipstick to confirm this. He reported that a refuel had been requested on the previous day but there was no documentary evidence to indicate that refuelling had been carried out. This was not unexpected however, as on the three or four previous occasions that he had flown this aircraft, there had been no written record of refuelling either.