**ACCIDENT**

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|---|---|
| **Aircraft Type and Registration:** | Vans RV-7A, G-ELVN |
| **No & Type of Engines:** | 1 Lycoming YIO-360-M1B piston engine |
| **Year of Manufacture:** | 2015 (Serial no: LAA 323-14930) |
| **Date & Time (UTC):** | 12 August 2017 at 1325 hrs |
| **Location:** | Sywell Aerodrome, Northamptonshire |
| **Type of Flight:** | Private |
| **Persons on Board:** | Crew - 1 Passengers - 1 |
| **Injuries:** | Crew - None Passengers - None |
| **Nature of Damage:** | Extensive |
| **Commander's Licence:** | Light Aircraft Pilot's Licence |
| **Commander's Age:** | 57 years |
| **Commander's Flying Experience:** | 88 hours (of which 43 were on type)<br>Last 90 days - 23 hours<br>Last 28 days - 8 hours |
| **Information Source:** | Aircraft Accident Report Form submitted by the pilot and enquiries made by the AAIB |

## Synopsis

The aircraft landed heavily on the nose landing gear which collapsed, the propeller struck the ground and the aircraft slid to a halt in a tail-high attitude, resting on its lower engine cowling and left wingtip. The pilot stated that he was not familiar with the aerodrome's grass landing surface and found it difficult to judge his height above the runway while landing.

## History of the flight

This was the pilot's third landing on grass and his second on Runway 23 at Sywell, having first landed on the same runway earlier that day. He recalled that the surface wind was from 280º at 14 kt and that he flew a normal approach. The aircraft was positioned over the centreline of the runway, however the pilot had difficulty judging the height above the runway and landed heavily on the nose landing gear which collapsed. The propeller struck the surface and the aircraft slid to a halt resting on the lower engine cowling. Despite the tail-high attitude (Figure 1) the pilot and his passenger were able to open the canopy and escape forwards over the wing.

The pilot subsequently commented that just before touchdown he was not aware of any useful ground features in his field of vision to help him to judge his height accurately. On this 30 m wide runway the edge markings are 3 m x 1 m chalked slabs, spaced 80 m apart and slightly recessed into the ground. He said they were almost invisible just before

touchdown and that the grass of the landing surface was too featureless to assist his precise judgement of the aircraft's height.

The pilot stated that his successful landing earlier that day was made a few metres from the centreline and that he used the visual aspect of the centreline markings to ascertain his height.


**Figure 1**

G-ELVN after the accident,
with runway centreline markings visible to the aircraft's right

## Airfield

The aerodrome authority stated that the markings on Runway 23 accord with the CAA's '*Licensing of Aerodromes'* publication[1] and were re-chalked less than four months before the accident. A photograph taken after the aircraft was moved shows two ground marks made by the nose landing gear, with the gap between (Figure 2) which suggests that the aircraft landed heavily on the nose gear and then bounced. A historic photograph of the aerodrome (Figure 3), illustrates the markings on Runway 23 from the air.

**Footnote**

[1] CAP168

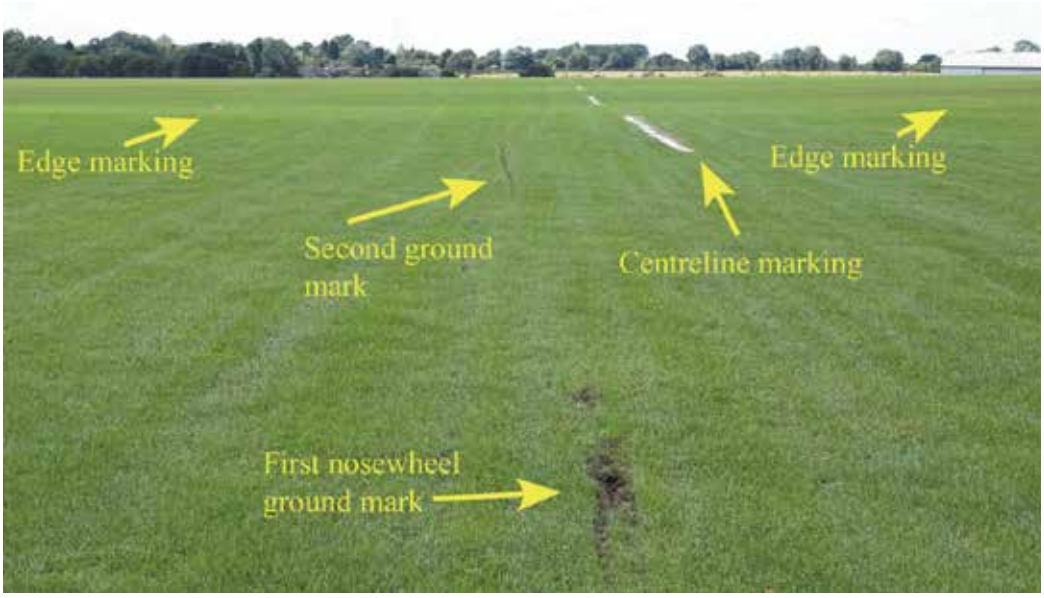


**Figure 2**

Marks on runway seen from eye level
(Photograph courtesy of Mr Jeff Bell)


**Figure 3**

Aerial photograph of Sywell Aerodrome, dated 2008, showing the Runway 23 markings
(Photograph courtesy of Mr Jeff Bell)

**AAIB Comments**

Reports of three previous accidents involving aircraft landing on Runway 23 at Sywell can be viewed on the AAIB's website[2], G-SYEL in AAIB Bulletin 2/2010, G-CEAM in Bulletin 11/2010 and G-CEND in 12/2014. All three accidents involved bounced landings and in each case it was suggested that the aircraft should have gone around when the pilot experienced difficulty.

The AAIB has reported on several previous accidents in which the nose landing gear leg of a Vans RV series aircraft has bent back or collapsed, many of these were on grass runways. AAIB Bulletin 3/2017 contains a report concerning G-RPRV, an RV-9A that flipped upside down, and this report lists other recorded UK accidents where the nose landing gear leg bent back. The report also mentions an 'Anti Splat kit' which is intended to reduce nose gear resonance and prevent the nose landing gear leg from tucking under. The aircraft involved in this accident was fitted with an 'Anti Splat kit'.

**Footnote**

[2] See https://www.gov.uk/government/organisations/air-accidents-investigation-branch