ACCIDENT

Aircraft Type and Registration:	Vans RV-7, G-CDME
No & Type of Engines:	1 Superior XP-IO-360-A1A2 piston engine
Year of Manufacture:	2006 (Serial no: PFA 323-14151)
Date & Time (UTC):	28 February 2021 at 1400 hrs
Location:	Farm strip near Goose Green, West Sussex
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Moderate damage to engine and mount, propeller, canopy, rudder, fin and spats
Commander's Licence:	Private Pilot's Licence
Commander's Age:	53 years
Commander's Flying Experience:	2,743 hours (of which 300 were on type) Last 90 days - 3 hours Last 28 days - 1 hour
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries made by the AAIB

Synopsis

Approximately 140 m into its landing roll on a grass runway, the aircraft encountered an area of soft ground. The wheels and spats sank in and caused a rapid deceleration during which the tail rose, the propeller dug in and the aircraft over-ended onto its back. The pilot was tightly strapped in but was able to exit the aircraft uninjured. The cause of this accident was the sudden increase in drag created by the wheel and spats clogging with soil.

History of the flight

The pilot was landing at this private grass strip after carrying out a short flight within the COVID restriction regulations. The touchdown was normal and slightly to the left of the runway centre line. After the aircraft had travelled approximately 140 m, it encountered a patch of soft ground which caused a rapid deceleration as the wheels sank in. The tail started to rise until the aircraft nose and propeller struck the ground and dug in, resulting in the aircraft nosing over and coming to rest upside down on its back. The propellor, engine and its mounting, were damaged as was the canopy, fin and wheels spats. The pilot was tightly strapped in by his four-point harness and was uninjured. He made the aircraft safe and was able to exit the aircraft. Figure 1 shows the deep tracks made by the aircraft wheels. Figure 2 shows the condition of one of the wheel spats.

Figure 1

Tracks made by the aircraft wheels

Figure 2

Contamination and damage to one of the wheel spats (pictures courtesy of the pilot)

Circumstances of the accident

Having not flown for several weeks, the pilot, who was also the owner of the airstrip, had cut the grass with a tractor and gang mower, and had walked the runway prior to deciding to fly. In his assessment of the accident causes, he drew the following conclusions.

- Having cut the grass on the runway using a tractor with low footprint tyres, the runway conditions seemed normal. But with hindsight, he considers that he should have carried out a slow taxi test in the aircraft. This may have enabled his discovery of any softer less suitable areas of the runway.
- Although the wheel spats had been modified to create more wheel clearance, they quickly became blocked when the aircraft entered the area of soft ground (Figure 2).
- He also considers that a complete removal of the spats would have resulted in a different outcome.
- He also observed that his attention to the safety harness being correctly worn prevented injuries.

AAIB comment

The cause of this accident was the sudden deceleration of the aircraft due to the increased drag created by the mainwheels and spats as they became clogged with soil. The tail started to rise and the propeller contacted the ground and dug in; the speed and momentum of the aircraft resulted in the aircraft nosing-over.

The AAIB has reported on numerous accidents where the combination of soft grass runways and aircraft fitted with wheel spats have been causal or contributory to an accident. These have often resulted in aircraft damage or injury, in some cases serious, to the occupants.

The pilot of this aircraft had taken steps to ensure his safety harness was properly fastened with tight straps as per his normal practice. He described how when the aircraft came to rest, the “straps held well”. The correctly fastened safety harness is likely to have greatly reduced his risk of injury in this accident. The AAIB has reported on numerous low energy accidents where safety harnesses had not been properly worn and the occupants of aircraft have sustained varying degrees of injury and in some of these cases, fatal injuries.

Safety actions

As a result of this accident wheel spat contamination was discussed with the CAA. Accordingly, the CAA has taken several actions to ensure General Aviation (GA) pilots aware of the risks. These safety actions are as follows:

CAA Safety Sense Leaflet 12 – *‘Strip Flying’* includes a note to remind pilots to ensure that the wheel spats are clear of mud and grass and that temporary removal of the wheel spats must be agreed with the CAA regional office.

As part of the safety promotion and safety education service to pilots across GA, there will be reminders to pilots to inspect wheel spats and to consider ground conditions at grass strips as part of the aircraft loss of control focus.

CAA GA Unit Communications will share on social media the request to inspect spats for mud accumulation using the pictures supplied by the AAIB.

The CAA will raise the matter at the GA Safety Council meeting as part of the safety information exchange.