

## ACCIDENT

<b>Aircraft Type and Registration:</b>	DJI Matrice 300	
<b>No &amp; Type of Engines:</b>	4 electric motors	
<b>Year of Manufacture:</b>	2020 (Serial no: 1ZNDHAL00CPC93)	
<b>Date &amp; Time (UTC):</b>	17 August 2021 at 0036 hrs	
<b>Location:</b>	Cam, Dursley, Gloucestershire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - None	Passengers - None
<b>Injuries:</b>	Crew - N/A	Passengers - N/A
<b>Nature of Damage:</b>	Motor carrier arms broken from the casing	
<b>Commander's Licence:</b>	Other	
<b>Commander's Age:</b>	34 years	
<b>Commander's Flying Experience:</b>	26 hours (of which 2 were on type) Last 90 days - 3 hours Last 28 days - 2 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

The unmanned aircraft (UA) was completing an aerial search flight and whilst on approach to its landing site, it became unresponsive and dropped to the ground. Its motor carrier arms were damaged when the UA hit the ground. The nature of the damage suggests, although is not conclusive, that one of the arms was not correctly locked in place. In this condition it is possible the thrust from that rotor became variable rendering the UA unresponsive to control inputs.

## History of the flight

The UA was being operated at night to carry out an aerial search. It had completed the flight lasting approximately 18 minutes and was on approach to its primary landing site. At about 30 m agl, the UA became unresponsive and immediately dropped to the ground. All its motor carrier arms were damaged during the impact and had detached from the casing. There was no indication of any malfunctions during the flight prior to the accident.

## Examination of the UA

In this design, the motor arms are hinged to enable them to be folded to allow the UA to fit in its transportation case. When the arms are extended during preparation for flight, they are each locked in place by a 'twist to lock' collar. An examination of the UA by the operator found that three of the four arms had broken away from the structural casing of the machine, with their foldable joint locking collars still in place. The hinges of these

three arms were surrounded by their collars and were undamaged. However, the fourth motor arm appeared to have broken at its hinge with its locking collar loose and the collar had then moved outwards, along the arm.

The damage to this arm suggests that the collar may not have been fully locked and had become loose during the flight. With a single arm not locked in place, it is probable this would result in variable thrust and cause the UA to become uncontrollable. However, this evidence is not conclusive, and the cause of this accident cannot be confirmed.