

**DJI Matrice 200 V1,  
UAS  
(0FZDF7U0P30222)**

**Near Raigmore  
Hospital, Inverness**

**21 September 2019**

**Accident**

## **Investigation Synopsis**

The DJI Matrice 200 Unmanned Aircraft System (UAS) was being operated on an automated flight plan to conduct an aerial survey. On the fifth flight of the day, while the aircraft was at a height of 100 m, the ballistic parachute recovery system fitted to the aircraft activated. The aircraft descended under the parachute and was subsequently found on the roof of a nearby house.

Two months later, after having been repaired and fitted with a new parachute system, the aircraft experienced a second parachute deployment. On that occasion the aircraft was being manually flown in GPS mode at a height of 92 m over an area of open ground.

The first accident most likely occurred due to excessive vibration as a result of the parachute system not being securely attached to the airframe.

The investigation was unable to establish the cause of the second accident. There were several warnings in the recorded aircraft's flight log, but analysis of this data did not provide any insight into why the flight was abruptly terminated. However, the parachute manufacturer considered that the second event involved a valid activation of the parachute system in response to a total aircraft power failure.

The investigation was limited by the availability of recorded flight data for the first accident and a lack of information from the UAS manufacturer. It was therefore unable to establish if there were any common factors between the two accidents, which involved the same aircraft but different parachute units. One Safety Recommendation is made regarding technical support to accident investigations by the UAS manufacturer.

In response to the first accident, the parachute manufacturer and the operator amended their respective procedures for securely attaching the parachute system to the aircraft.

The operator also identified that further emphasis on wind speed and direction was required prior to launch, to provide greater understanding of the drift potential in the case of a parachute deployment.

## **Safety Recommendation 2021-016**

### **Justification**

Access to relevant technical information from aircraft manufacturers is often essential to assist investigators in understanding the causes of the accident and identifying areas which would benefit from safety improvement. The AAIB has experienced varying degrees of support from UAS manufacturers.

An absence of information from the UAS manufacturer impeded identification of a definitive cause during the investigation of a ballistic parachute deployment to a DJI Matrice 210, which is reported in AAIB report AAIB-26256, published in AAIB Bulletin 2/2021.

Therefore, the following safety recommendation was made:

**Safety Recommendation 2021-016**

It is recommended that DJI introduce an effective system for providing timely technical support to State safety investigations.

**Date Safety Recommendation made:** 19 March 2021

**LATEST RESPONSE**

**Response received:** 30 June 2021

DJI has over the past 15 years developed and refined drone technology that has been widely adopted by professional and recreational users alike. Based on our user experience data, we estimate there are tens of millions of drone flights every year. Since no one in the world has ever died as a result of a drone flight, this means the accidental fatality rate for drones is zero – making it the safest form of aviation the world has ever known.

While this and other data reaffirms our conviction that our products are safe and reliable, we have long believed that incidents and accidents involving drone safety must be investigated to understand their causal factors. DJI routinely participates in regulatory efforts around the world to gather safety data on drone performance, study drone safety factors in academic experimentation, and investigate drone incidents.

AAIB is the only regulator in the world which has adopted an approach to investigate drone incidents with a similar level of scrutiny as for traditional aviation incidents, despite the aircraft being unoccupied and rarely operated over people. This intense attention to certain incidents has challenged our internal workflows in the past, as our engineering teams have not previously been expected to provide timely, high-quality input on incidents which did not result in obvious or significant threats to public safety.

As previously discussed, DJI has introduced a process for how to coordinate our different teams, gather information systematically under firm timelines, and ensure we can respond appropriately. DJI's main contact point for AAIB will remain our European Policy team, which will coordinate internal investigations and occasionally organize direct meetings or exchanges between AAIB and the expert engineering teams.

We remain committed to working with the AAIB and any other State safety investigators to ensure aviation accidents and incidents will be thoroughly investigated and understood.

**Safety Recommendation Status**                      **Closed**

**AAIB Assessment**                                      **Adequate**

**Action Status**    **Planned Action Completed**

**RESPONSE HISTORY**

N/A