ACCIDENT

Aircraft Type and Registration:	DJI Matrice 210 (UAS, registration n/a)
No & Type of Engines:	4 electric motors
Year of Manufacture:	2018 (Serial no: OGODF6C0230006)
Date & Time (UTC):	11 June 2019 at 1458 hrs
Location:	Hammond Court, Norwich, Norfolk
Type of Flight:	Emergency services operations
Persons on Board:	Crew - N/A Passengers - N/A
Injuries:	Crew - N/A Passengers - N/A
Nature of Damage:	Motor arms, body, battery casing and cameras damaged
Commander's Licence:	Not applicable
Commander's Age:	43 years
Commander's Flying Experience:	100 hours (of which 100 were on type) Last 90 days - 6 hours Last 28 days - 2 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

The DJI Matrice 210 quadcopter small unmanned aircraft (SUA) [1] was being operated by the Police over a congested[2] area. It was fitted with optical and a thermal imaging cameras. The pilot had checked the weather and although very light rain was forecast, it was considered that the conditions were suitable as they were within the manufacturer's parameters[3].

The takeoff and ascent to the operating height of 80 m (~260 ft) agl were normal and the aircraft remained static and stable for nearly 10 minutes; the battery level was 68%. The cameras then started to rotate and a 'motor overload' message was displayed. The aircraft then began to spin anticlockwise whilst rapidly descending. It subsequently crashed in an open space and was destroyed on impact. There was no damage to persons or property.

The pilot considered the accident was caused by either a motor or ESC failure and commented that the extra weight and position of the thermal camera away from the centre

Footnote

[1] A SUA is defined by the Air Navigation Order (ANO) 2016 (Amendment 13 March 2019) as '*any unmanned aircraft, other than a balloon or a kite, having a mass of not more than 20 kg without its fuel, but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight.*' This meaning includes traditional remotely controlled model aeroplanes, helicopters or gliders, as well as multirotor '*drones*' and remotely controlled '*toy*' aircraft.

[2] The ANO defined a congested area " in relation to a city, town or settlement, means any area which is substantially used for residential, industrial, commercial or recreational purposes".

[3] Refer to report EW/G2019/03/12 for information on the manufacturers limitations of operation during rainfall.

of gravity may have caused extra load on the propulsion system. He added that he thought restrictions on operating a UAS in congested areas should be reintroduced as he had one second's warning of the failure before control of the aircraft was lost.

Refer to report on DJI Matrice 210 - EW/C2019/03/02 in this AAIB Bulletin 1/2020 for information on other accidents involving the DJI Matrice 210 and Safety Recommendations concerning the safe operation of a UAS near to people and congested areas.