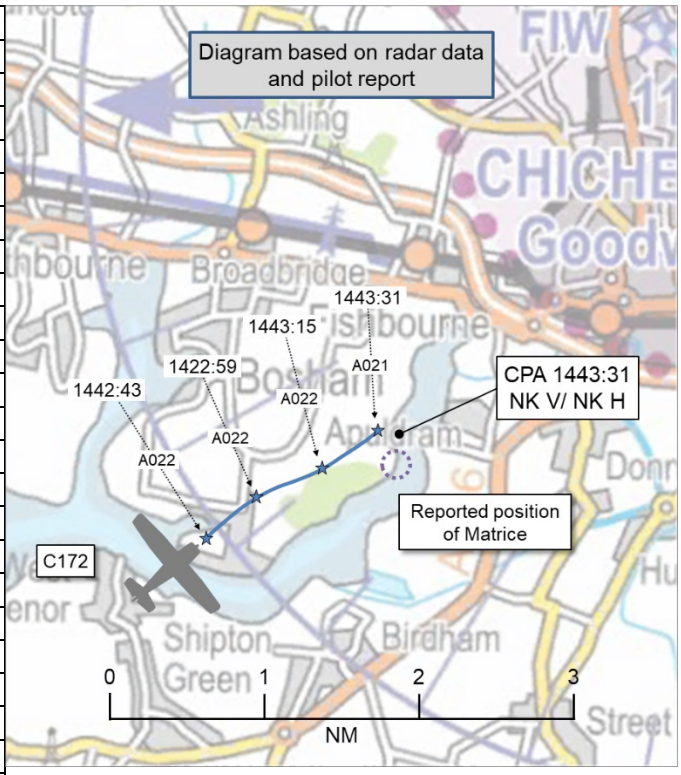
## AIRPROX REPORT No 2022260

Date: 04 Nov 2022 Time: 1444Z Position: 5049N 00049W Location: 3.5NM SW Goodwood

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | DJI Matrice | C172 |
| Operator | Civ UAS | Civ FW |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | VLOS | VFR |
| Service | None | Basic |
| Provider | N/A | Goodwood Info |
| Altitude/FL | ~400ft | 2100ft |
| Transponder | Not fitted | A, C, S+ |
| **Reported** | | |
| Colours | Grey | White |
| Lighting | Navigation | Strobes, nav |
| Conditions | VMC | VMC |
| Visibility | >10km | 5-10km |
| Altitude/FL | 400ft | 2000ft |
| Altimeter | agl | QNH (1014hPa) |
| Heading | NK | 060° |
| Speed | 0kt | 100kt |
| ACAS/TAS | PilotAware | TAS |
| Alert | Information | Information[1] |
| **Separation at CPA** | | |
| Reported | 200ft V/100m H | NK V/NK H |
| Recorded | NK V/NK H | |




**THE DJI MATRICE PILOT** reports that they had been flying the drone at its maximum height of 120m at the approximate position [near Dell Quay]. The drone was stationary and navigational lights were on. At approximately 1445, a light-aircraft flying very low (using their aircraft as reference they would reckon approximately 500ft) flew toward the drone. Upon assessing that the small aircraft was on a course and a height which could have resulted in a collision, they dropped the height of the drone straight down to 50m. Once the small aircraft had passed, they flew the drone back to the [destination site].

The pilot assessed the risk of collision as 'High'.

**THE C172 PILOT** reports that the flight had been an instructional flight. At the time of the incident, the aircraft was inbound to Goodwood Aerodrome, flying straight-and-level to join the circuit via the overhead. All lookout attention was focused towards the aerodrome and looking for any other joining or circuit traffic.

**THE GOODWOOD AFISO** reports that [the pilot of the C172] had been operating under a Basic Service, and then an AFIS at the point of entering the ATZ. Having listened to the VHF recordings, their call for joining had been made at 1442:27 giving the location as '..over the marina..' which would suggest they had been in the vicinity of Dell Quay, which is 1.2NM southwest of the ATZ. The runway in use was RW32 with a right hand circuit and the pilot elected for an overhead join.

[1] The EC equipment fitted to the C172 would not have been expected to have detected the DJI Matrice.

## Factual Background

The weather at Shoreham was recorded as follows:

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EGKA 041450Z 31010KT 9999 FEW027 12/06 Q1014
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## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The DJI Matrice was not observed on radar. The C172 was positively identified from Mode S data. The diagram was constructed, and the CPA assessed, with reference to the radar position of the C172 and the reported position of the DJI Matrice.

At CPA, the C172 had been at 2100ft AMSL. The pilot of the DJI Matrice reported that their drone had been flying to a maximum height of 120m, equating to 400ft AGL. The elevation of the terrain at the DJI Matrice's reported position is approximately 6ft AMSL. It was therefore calculated that the vertical separation at CPA may have been a minimum of 1700ft but this could not be positively determined. Based on the radar position of the C172 and the reported position of the DJI Matrice, the horizontal separation at CPA had been approximately 0.3NM but this could not be positively determined.

The DJI Matrice and C172 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] During the flight, the remote pilot shall keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of collision with any manned aircraft. The remote pilot shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property.[3]

## Summary

An Airprox was reported when a DJI Matrice and a C172 flew into proximity 3.5NM southwest of Goodwood at 1444Z on Friday 4th November 2022. The DJI Matrice pilot had been operating under VLOS in VMC, not in receipt of a service, the C172 operating under VFR in VMC, in receipt of a Basic Service from Goodwood Information.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the AFISO involved. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first considered the actions of the DJI Matrice pilot and were heartened that they had maintained a good awareness of their operating environment. Members noted that the EC equipment that had been available to the pilot of the DJI Matrice, had provided information on the presence of the C172. After visually acquiring the C172, the DJI Matrice pilot had had time to consider that there could have been a risk of collision and had reacted quickly to descend their aircraft to remain well clear. Although acknowledging that it had not been a contributory factor in this case, some members suggested that it may have been of a benefit to the situational awareness of the Goodwood AFISO had the DJI Matrice pilot advised the AFISO beforehand that they had intended to operate close to the Goodwood ATZ.

[2] (UK) SERA.3205 Proximity.
[3] Regulation (EU) 2019/947 as retained (and amended in UK domestic law) Under the European Union (Withdrawal) Act 2018 - UAS.SPEC.060 Responsibilities of the remote pilot (2)(b).

Turning their attention to the pilot of the C172, members acknowledged that there had been no information available on the presence of the DJI Matrice to have enhanced their situational awareness. It was further acknowledged that it would have been very unlikely for the pilot of the C172 to have visually acquired the DJI Matrice as they had flown past.

Members next considered the actions of the Goodwood AFISO. Noting that the Goodwood AFISO had provided a Basic Service to the pilot of the C172, members were in agreement that there had not been a requirement for the AFISO to have monitored their flight. Notwithstanding, members concluded that, given that the AFISO had not had awareness of the DJI Matrice pilot operating in the vicinity of Dell Quay, they could not have provided any information to the pilot of the C172 on the presence of the DJI Matrice.

Concluding their discussions, members were satisfied that there had been sufficient separation between the aircraft, increased further by the actions of the DJI Matrice pilot, and that there had been no risk of collision. It was agreed that normal safety parameters had pertained and, as such, the Board assigned Risk Category E to this event. Members agreed that the following factors (detailed in Part C) had contributed to this Airprox:

**CF1.** The Goodwood AFISO had not been required to monitor the flight under the terms of a Basic Service.

**CF2.** The pilot of the C172 had not had situational awareness of the presence of the DJI Matrice.

**CF3.** The EC equipment that had been available to the pilot of the DJI Matrice had provided information on the presence of the C172.

**CF4.** The pilot of the DJI Matrice had been concerned by the proximity of the C172.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | 2022260 | | | |
|---|---|---|---|---|
| CF | **Factor** | **Description** | **ECCAIRS Amplification** | **UKAB Amplification** |
| | **Ground Elements** | | | |
| | **• Situational Awareness and Action** | | | |
| 1 | Contextual | • ANS Flight Information Provision | Provision of ANS flight information | The ATCO/FISO was not required to monitor the flight under a Basic Service |
| | **Flight Elements** | | | |
| | **• Situational Awareness of the Conflicting Aircraft and Action** | | | |
| 2 | Contextual | • Situational Awareness and Sensory Events | Events involving a flight crew's awareness and perception of situations | Pilot had no, late, inaccurate or only generic, Situational Awareness |
| | **• Electronic Warning System Operation and Compliance** | | | |
| 3 | Contextual | • Other warning system operation | An event involving a genuine warning from an airborne system other than TCAS. | |
| | **• See and Avoid** | | | |
| 4 | Human Factors | • Perception of Visual Information | Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement | Pilot was concerned by the proximity of the other aircraft |

Degree of Risk: E

Safety Barrier Assessment[4]

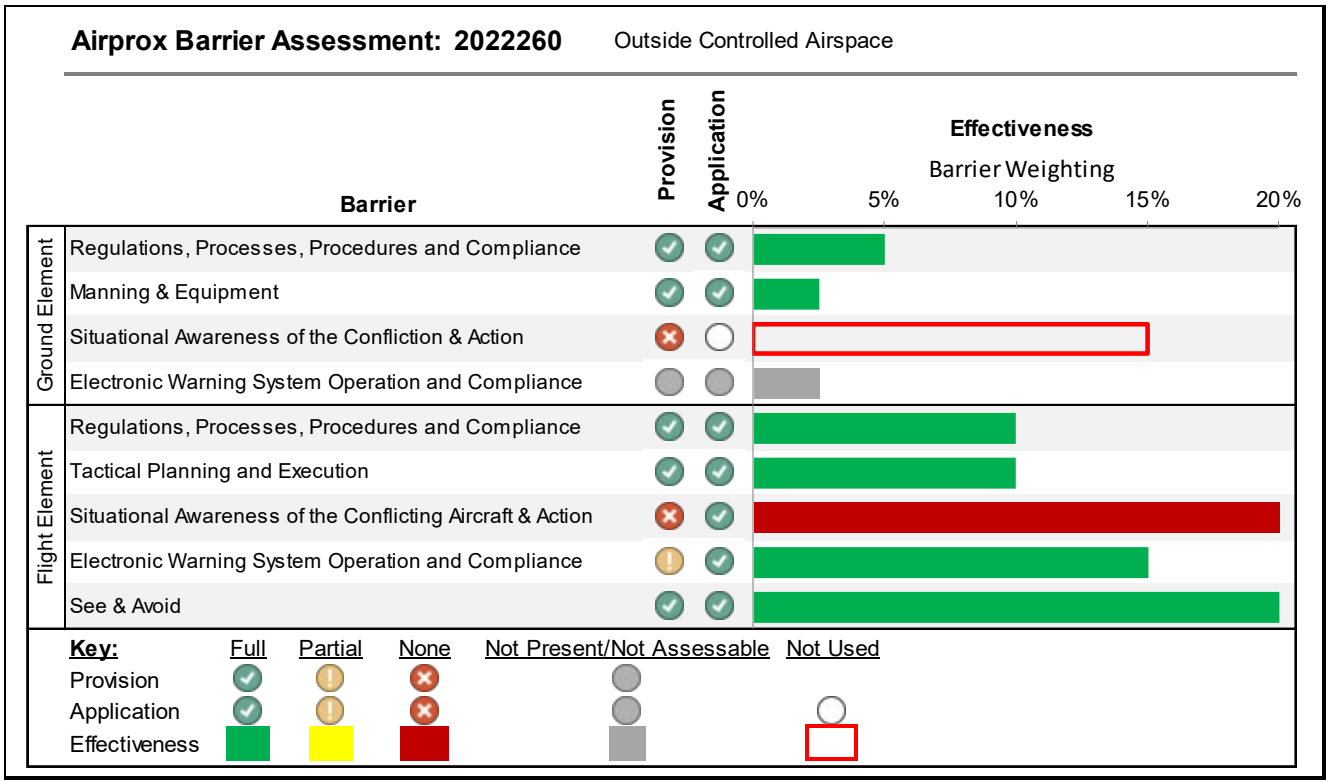
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

**Ground Elements:**

**Situational Awareness of the Confliction and Action** were assessed as **not used** because the Goodwood AFISO had not been required to monitor the flight under the terms of a Basic Service.

**Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the C172 had not been aware of the presence of the DJI Matrice.




[4] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.