

DUAS20

Posted on 13.04.2023 by Rupert Dent

Category: [Drone](#)

Report Title Damaged propellor after landing

Initial Report

Narrative of events:

- Synopsis: Training night flight re-familiarising with procedures and thermal imagery.
- Particulars of the UAS involved, including firmware and software version number: Mavic Enterprise Advanced, V01.00.0520, SDK App 4.12.0
- Crew composition and experience: Pilot, 91hr25min. Hours in past 30 days until accident: 1hr11 (4 flights prior plus accident flight).
- Site information: Flat field, landing pad used, landing area lit with torch.
- Meteorological information: Light winds, clear skies, 1°C
- Communication and satellite coverage / information: Good satellite coverage, lowest 15
- Pilot previous 24 hours: Good night's sleep previous night, full day of work (computer based). Hydrated and fed.
- Sortie details and preparation: very basic profile running through all procedures at night and basic camera manipulation and night thermal camera search practice.
- Sortie execution up to the accident point – full flight completed with no issues, weather good.
- Accident events: On landing, fractionally not centred on the landing pad. As the aircraft touched down the front left propeller struck a protruding landing pad peg causing the tip of the blade to break.
- Post-accident events: The aircraft was shut down and made safe. A photo was taken of the damaged propeller and then the propeller removed from the aircraft. A full visual inspection of the drone was completed (no other damage) and a new propeller blade fitted. The pegs were removed from the landing pad and re-fitted at a much shallower angle and pushed until flush with the surface. A subsequent flight was completed, following control checks (as per checklist) proving the new propeller before flying any distance.
- Damage: Injuries to persons – Nil.
- Damage to the UAS and impact information – Damage to one propeller set. Propeller removed from service.
- Additional information: Organisational and Management Information – Aircraft's 6th flight.

Comment

On landing, in the final moments between the hover and the final descent, it is quite possible to move one of the sticks very fractionally in one direction or another. In addition a small gust of wind can also cause a small amount of drift from the centre of the target landing site. We at CHIRP are not huge fans of the very light-weight orange circular target-like landing pads that require tent pegs to hold them down. Whilst they do have the benefit of being visible, if they are on grass they don't really compress it enough and so landing a Mavic on it will often mean the rear two propellers will come into contact with the fabric of the target.

A colourful carpet tile that is heavy enough to end up flat, stop the Drone from sliding and doesn't require any form of tie downs, has been what we have used in the past. It is also easy to store and takes very little space. Last but not least, landing pads are now available with integrated weights, which removes the requirement for ground pegs, and some RAEs have now switched to these because of the hazard posed by the pegs.



