

DUAS19

Posted on 13.04.2023 by Rupert Dent

Category: [Drone](#)

Report Title Spatial awareness

Initial Report

Whilst on a training flight in the approved area of the sports field within [University] grounds, contact was made with the left (northern) rugby post as viewed from the take-off/landing zone. The collision took place approximately 7m above ground and was due to pilot error in estimating the proximity to the rugby post by way of depth perception. The intention was to pass behind both rugby posts; this was successful with the right-hand post but not the left, the aircraft must have been angled slightly towards the pilot.

Following the collision, the drone fell directly to the floor and the battery came out. One of the front arms had folded in, I believe it was the right one when viewed from above. The drone was then returned to the TLZ and examined and there appeared to be no apparent damage other than a scuff and some white marks which may have been line paint.

The battery was replaced, and the drone turned on. No error messages were received so take-off was initiated. All controls were then checked within the TLZ and, once it was established these were as normal, the drone was flown a distance away and the RTH checked. This worked as expected. Following this, the drone was flown for another 10 minutes without any cause for concern or any apparent issues with controls of operation.

Lessons learned:

- Updating of Risk Assessment about obstacles
- Annual Recurrent training to focus on Spatial Awareness
- Review of operational UAS – Parrot Anafi use
- Updating Operations Manual for Role of Visual Observer
- Review recency requirements

Comment

In addition to the actions listed in “Lessons learned” above, all of which are very good, along with the checks performed prior to flying the unit again, we would have looked carefully at all of the data

that almost all Drones record on each flight, and which will often indicate if there are any system or hardware faults. Various Apps are available that a pilot can sign up to, which after synchronising with the Drone will show multiple recorded parameters similar to a 'black box' Flight recorder used in crewed aviation. This enables pilots to check if there have been any faults or damage incurred following the accident. Whilst we understand the Anafi may not give the pilot the ability to look at CSV files, many other Drones do.

Developing Spatial Awareness is an important part of flying drones, not least because they are relatively small and can easily merge into the background; practicing flights at a distance is important. Contemporary drones are often equipped with sensors that show your distance from an object in 6 directions or on 3 planes. We would recommend using a drone that is equipped in this way, for the purpose of undertaking practice flights.

We have done this ourselves on many occasions and rugby posts are usually large enough to be detected by onboard sensors without too much problem. If you are going to use rugby posts for depth perception practice, it may be safer to try and align the drone 5 metres above the post, rather than attempting to fly it as near as the pilot can to the post.



