



# Interagency Aviation SAFETY ALERT



No. IASA 21-01

Date: October 15, 2020

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**Subject: Unmanned Aircraft Systems (UAS) DJI M600 Mishaps**

**Area of Concern: Airworthiness Inspection.**

**Distribution: All DJI M600 UAS Operations**

**Discussion:** On October 7 and 8, remote pilots conducting aerial ignition missions experienced two mishaps using DJI M600 unmanned aircraft. In both cases, the aircraft began an uncommanded yaw that resulted in loss of control and impact with terrain. One of the aircraft was consumed by a post-crash fire.

Initial post-crash inspection revealed that both aircraft were missing one of the motors at the 9 o'clock position. After an extensive search, neither motor was located. Additional evidence of small fractures on one of the motor housings strongly suggests that the motor broke free of the motor housing during flight. It is



**Figure 1: Normal motor mount.**

It is suspected that metal fatigue played an integral role as the small fractures propagated over time until the motor finally broke free. Both mishap aircraft had experienced extensive use over the past two years.

All Department of Interior/US Forest Service (DOI/USFS) remote pilots are required to inspect the motor housing of all DJI M600 aircraft for any evidence of cracking around the four mount attachment points. If any cracks are discovered, the aircraft is grounded until a replacement mount can be installed. These cracks are most probable on aircraft that have experienced extensive use and/or been carrying heavy payloads.



**Figure 2: Motor mount after departure of motor.**

OAS is working with the manufacturer to determine appropriate preventative

maintenance measures. The inspection procedures for the DJI M600 are outlined below. Any cracks should be reported to OAS and your respective National Aviation Office/Manager.

Questions related to this inspection can be sent to [Steven\\_Stroud@ios.doi.gov](mailto:Steven_Stroud@ios.doi.gov) or [Steven\\_Ramaekers@ios.doi.gov](mailto:Steven_Ramaekers@ios.doi.gov). USFS operators with questions or reports of cracks should contact [Dirk\\_Giles@usda.gov](mailto:Dirk_Giles@usda.gov).

#### M600 Motor Mount Inspection Procedures:

The following is a guide for DOI/USFS personnel to use in inspecting DJI M600 motor mounts for cracks. Tools required include allen wrenches, light, magnifying glass and two people for assistance.

1. While the M600 is right side up, feed available cable into the arm as its pulled up and locked into place. A few centimeters is all that is required.
2. Invert the M600 with antennas folded and place on a soft padded area. Ensure the aircraft is secure and will not tip over.
3. Locate four small screws on the underside of the antenna. Proceed with their removal and carefully lift the cover with your fingers. Pay particular attention to where the cable is fed into the tube.
4. Locate **the foam plug and** gently pull the cable through. This will expose four screws that go in to the motor base. With a magnifying glass and light, inspect the area around each bolt head for signs of cracks or defects.
5. With the assistance of another person, inspect the exterior of the motor mount around each bolt looking for cracks. As one person is inspecting the exterior, the other person should carefully apply torque to the props. This is done in accordance with the training received in A-454, *Small UAS Operator Add-On Course*, in which you are testing that the motor is firmly mounted. If cracked, this action should reveal defects.



- 6. If a crack or defect is discovered, contact OAS and your National Aviation Office/Manager for assistance.



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