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Date Released: 10-June-2016

Subject: Motor Mount Failure update

Effectivity: ALTAs purchased after 18-March-2016

Recently, two ALTA 8 aircrafts experienced in-field failures of the motor mounts. One machined landed safely, and the other machine experienced a rapid (but level) descent and had a hard landing with minimal damage to the ALTA or payload.

Understanding the issue

Freefly has spent this week diving into the issue to make sure we fully understand the root cause of the problem, as well as a viable solution.

We have destructively tested dozens of ALTA motor mounts with accelerated lifecycle testing to better understand this failure mode. We have also destructively tested our solution to ensure it performs as expected. We have run simulations to better correlate the theoretical stresses on the motor mount to the ones seen in flight.

Freefly immediately launched an investigation into the root cause of these failures and determined the failures were caused by the combination of two main issues.

Root cause 1: Change in geometry

Our supplier for machined aluminum components removed a radius on the inner surface of the motor mount. Removal of this radius led to a substantial increase in the stress concentration during flight loading which contributed to the failure. Our supplier changed this feature without approval or notification to Freefly. Freefly also failed to identify the removal of this radius in our incoming quality control inspection.

Root cause 2: Sub-optimal thickness

Some of the motor mounts shipped during the affected time frame exhibited wall thicknesses that were lower than intended. Freefly did not catch this issue in our incoming quality control process.

Both of the failed motor mounts exhibited the lack of radius and were below nominal thickness. These two issues compounded to cause the accelerated failure of the motor mounts.

Solution

All of this testing and investigation has led us to the following solution:

- Inspect all inbound ALTA 8 motor mounts for micro cracks, cracks, or any signs of stress
- Replace any nonconforming mounts
- Bond a reinforcement plate into the bottom of each motor mount to strengthen the motor mount

- Institute a factory service interval for all ALTAs where customers can send their ALTA back to Freely for inspection

We estimate this process will take between 3-5 business days to complete from the time your unit arrives, and our team will be working around the clock to make it happen.

Again, we want to apologize for the issue and thank all our customers for their patience. As fellow pilots, we take safety and our customers' success very seriously, which is why we acted swiftly to ground the fleet until this issue was better understood.

Thank you,

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