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CANCELLED 27 Oct 2022
REFER GFA AN187

Airworthiness Alert 2015-4 **Arcus M**

Overview

The GFA has received a Service Difficulty Report detailing the inflight failure of an Arcus M propeller brake system.

Flight History

The Arcus M was built in 2013 and logged 77 launches, 337 hours TTIS, 18 engine/ propeller hours. Number of engine cycles is unknown.

Action Taken

The pilot first became aware after engine shut down as the propeller did not automatically stop in the vertical position. The manual brake was also found not to be functional. A landing with engine extended was then carried out without further mishap. It was subsequently found on inspection that the propeller drum brake had catastrophically failed, the remains of the brake drum lying in the bottom of the engine bay. No secondary or further damage was identified.

Preliminary Findings

A forensic examination of the failed drum is currently being investigated by a Forensic Engineering Team at Defence Science and Technology Group, Aerospace Division, the preliminary findings in brief are:

'Preliminary results show fatigue occurred near the hub and progressed either side towards the rim, with final rupture starting relatively close to the rim. Minor corrosion was found on the fatigue fracture surfaces, indicating more than a short time from crack initiation to final failure'.

The Type Certificate holder has been advised and is in receipt of the preliminary report.

Recommendation

No other failures of this kind have been reported through the GFA reporting system. It is however highly recommended that the brake system of an Arcus M be examined for serviceability before and after each engine cycle for signs of failure.

Dennis Stacey GFA CTO

23/12/2015