

LAA/AWA/20/20  
3rd November 2020

## Wilksch WAM-120 Torque Check and Service Life of Flywheel Attachment Screws.

A recent in-flight engine failure of a Wilksch WAM-120 engine fitted to a Van's RV-9A has been found to have been caused by the sequential failure of all four of the screws attaching the gearhub to the crankshaft. Examination of the fracture faces of the embedded remains of two of these screws shows evidence of fatigue.

Two previous WAM-120 engine failure events, where gearhub attachment bolt failure has been shown to be the cause, have been recorded and, after each of these events, Wilksch Airmotive Ltd., the original manufacturer of the engine, issued Service Bulletins (WA-SB-05 & WA-SB-007). WA-SB-007, issued in September 2013, imposed a maximum in-service life of 100 hours on these bolts.

The Wilksch WAM-120 engine is now supported by Appletree Innovations:

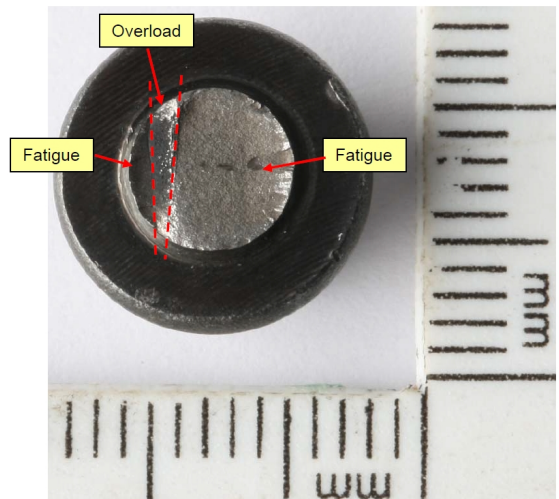
<https://www.appletreeinnov.co.uk>

and WA-SB-007 has been added to the customer support section of their website.

LAA Engineering has issued an Airworthiness Information Leaflet (AIL) (MOD/ENG/WAM/001 Issue 1) mandating the fifty hour screw torque check and the one hundred hour screw life on the four gearhub to crankshaft screws, as directed by the Service Bulletin.

LAA/MOD/ENG/WAM/001 Issue 1 may be downloaded [HERE](#).

A Library copy of WA-SB-007 may be downloaded [HERE](#).



Investigations continue into the reason why these flywheel bolts suffer from fatigue cracking and subsequent failure. Current suspicion lays with an increase in local stress due to 'notch effect' between the flywheel and the bolt head; the design team is looking at ways to reduce this. For the time being, the safest way to remove the threat of a bolt failure, is to change these bolts in a timely manner.