



MANDATORY
SERVICE BULLETIN

No. 0011

DATE: 25th February 2025

**58 KEMP STREET
KILBIRNIE, WELLINGTON 6022, NZ**

SUBJECT: TVAL RAF1a engine propeller shaft cracking.

MODELS AFFECTED: All TVAL built RAF1a engines.

COMPLIANCE TIME: Within 5 flight hours or next scheduled inspection, whichever occurs first.

BACKGROUND: The Vintage Aviator Ltd has found that one propeller shaft has cracked at the ends of the splined portion nearest to the reduction gearbox. This is due to the hub riding up on the ends of the splines.

PURPOSE: This bulletin introduces a one-off inspection of the propeller shaft, and if necessary, machining of the propeller thickness to move hub away from the ends of the splines

INSTRUCTIONS:

1. Inspect the propeller hub fitment to determine if it is hard up against the lead-out of the propeller shaft splines, or if at least 2mm clearance exists as per Photo 2. If 2mm, or more clearance is found, then this inspection is complete. Make an entry in the maintenance logbooks that this Service Bulletin has been complied with. If less than 2mm clearance exists, go to instruction number 2.
2. Remove propeller and drive hub, then place to one side for later rectification. Inspect propeller shaft drive splines for signs of bruising at the lead-out end. If bruising is evident, conduct a MPI inspection of the shaft using a portable yoke. If no cracking is found, carefully dress out any damage to the splines.
3. Mark the position of the propeller drive hub relative to the backing plate and propeller, then remove the bolts and hub.
4. Measure the thickness of the propeller where the hub sandwiches it together. If the measurement is more than 100.7mm, carefully machine some wood from the rear face until the thickness reaches 100.7mm. Note. It will be necessary to reinstate the radius in the propeller hub bore so that the rear plate sits flat against the newly machined face.
5. Clean up the newly machined wood and protect with a high-quality polyurethane varnish or similar.
6. Temporarily assemble the metal hub into the propeller and tighten the bolts.
7. Check the clearance of metal hub half ends through the spline bore. If less than 1.5mm clearance is present, then machine the spline end face of the front hub portion to correct.

8. Once 1.5mm clearance is obtained, file all the ends of the splines with a needle file or similar. This is to create a smooth lead-in on both the front and rear drive plates to prevent further damage to the propeller shaft.
9. Reassemble the metal hub into the propeller and tighten the bolts once again. Note the position of the split pin holes in the bolts relative to the slots in the nuts. It may be possible to cut the bolts at the holes and then redrill, or to align the holes using thicker or extra washers, depending on how much wood was removed in instruction number 4.
10. Loosen the bolts to allow the splines to align, then reinstall the propeller onto the propeller shaft. Tighten the main locking bolt and all the propeller hub bolts. Check propeller tracking.
11. If tracking is correct, lock all the hub bolts.
12. Ground run engine and check for correct operation.
13. Make a logbook entry indicating compliance with this Service Bulletin.

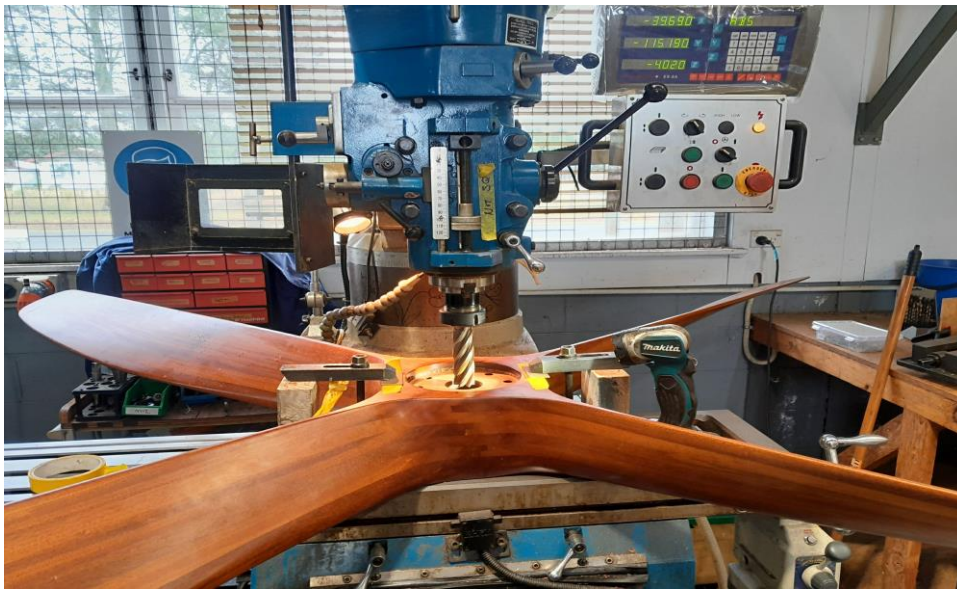


Photo 1. An example of one method to machine material out of the back side of the propeller.



Photo 2. Measurement points between the yellow lines. Must be 2mm or greater.