

LAA/AWA/13/07  
11<sup>th</sup> October 2013

## Rotax 912 and 914 (Series) Engines Checking of the Crankshaft Journal

In January 2012 Rotax Aircraft Engines issued a Mandatory Service Bulletin requiring a one-off Dye Penetrant inspection of the crankshaft journal at the power take-off side on some 912 and 914 (series) engines (SB-912-059UL & SB914-042UL). Checks were required because cracks had been found on some engines in service.

Investigations by Rotax engineers led to the belief that cracking may have been due to changes in the crankshaft's manufacturing process and they were thus able to limit the number of affected engines to specific serial number ranges. This Bulletin required the gearbox to be removed for access, a number (less than ten) LAA machines were found to fall into the serial number range requiring checks; no LAA engine was found to be cracked. Importantly, none of the engines had been supplied directly by the UK's Rotax distributor, *SKYDRIVE*, and so wouldn't automatically have received this Bulletin.

On October 10<sup>th</sup> 2013 Rotax Aircraft Engines issued a Mandatory Service Bulletin requiring periodic checks of the crankshaft journal to some 912 and 914 (series) engines, the serial number range of engines affected by this new Bulletin has been significantly widened but the new check does not require the gearbox to be removed and doesn't involve specialist Non Destructive Test (NDT) methods.

The reason for this LAA Safety Alert is to bring this new Service Bulletin to the attention of owners of aircraft that may be affected but who are not in receipt of regular Rotax service information.

Fig. 1 (opposite) shows a sketch of the area of concern, item 1 shows the crankshaft journal itself, this bearing face sits securely in the gearbox housing. Item 2 shows a small crack in the radius between the splined power take off and the journal. It can be seen that drive to the propeller would not be lost if this crack progressed to a complete failure of the shaft as the gear is driven through the parallel spines although, naturally, some radial support would be lost in the crankshaft assembly should separation occur. Rotax engineers have determined that, in the event of complete failure, engine operational reliability is assured until the next maintenance check.

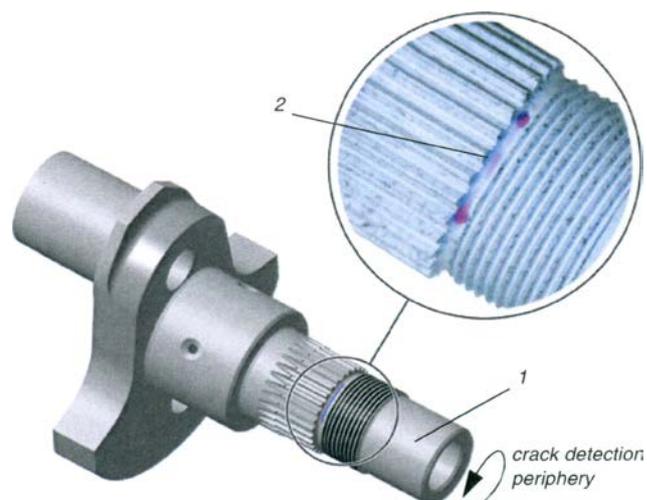


Fig. 1. Crankshaft Journal  
Rotax Aircraft Engines.

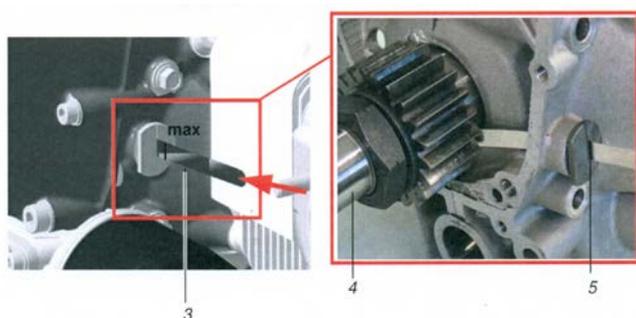


Fig. 2. Feeler Gauge to check crankshaft security.  
(Note: Gearbox removed for clarity)  
Rotax Aircraft Engines.

Fig. 2. (opposite) shows a picture of the new repetitive check required on affected engines; a special tool is required to carry out this check. Checks need to be carried out each 100 hours (or annually).

In basic terms, a pre-marked feeler gauge (3) is inserted through a guide pin (5) until it abuts the main crankshaft journal then, with a slightly elevated force, the pinion gear will be contacted. Increasing pressure on the feeler may move (very slightly) the gear on the spline; if the crankshaft is intact then the mark on the feeler will remain outside the housing.

If you operate either a 912 or 914 (Series) engine and think that you might be affected, the initial Bulletin (SB-912-059UL & SB914-042UL) can be downloaded [HERE](#) and the latest Bulletin (SB-912-064 & SB-914-045) can be downloaded [HERE](#). Serial numbers of affected engines can be downloaded [HERE](#). Please inform LAA Engineering if, during the course of these checks, you find anything amiss with your engine.