

LAA/AWA/21/03
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Stampe SV 4 DGAC Airworthiness Directive F-2020-006 Tightening of the Propeller

A recent Airworthiness Directive (AD), published by the French aviation authority, the Direction Generale de l'aviation Civile, (DGAC), requires owners of Stampe SV 4 aircraft to check that the propeller attachment bolts on their aircraft have been correctly tightened, and that the locking tab-washers, when fitted, remain in good condition and are not re-used.

Further instructions within the AD require owners to check that the frequency of checking the propeller tightness in the maintenance schedule for the aircraft at least aligns with the instructions given by the propeller manufacturer.

We believe that this AD has been issued as a response to an incident in 2009 where, after the propeller departed the aircraft, the pilot was forced to ditch in the Mediterranean Sea; the reason for the propeller's failure was not definitively established, though loosening of the propeller clearly led to friction-heating of the wood.

The importance of ensuring that all wooden propellers remain correctly tightened cannot be over-emphasised, this is especially true after an extended period where the aircraft hasn't been operated.

This incident, and the resulting AD, are discussed in the February 2021 edition of Safety Spot.

A copy of the AD (F-2020-006) can be downloaded [HERE](#).



Wood swells and shrinks as its percentage water content rises and falls; during a period of very dry weather, the wood will lose water and shrink. Though the amount of this shrinkage is small, it's enough to reduce the securing bolt's tension. When this happens, the consequential reduction in grip may allow a propeller to move back and forth as the propeller rotates, generating heat and, as can be seen in the picture above, carbonise the wood. When this starts to happen, a propeller loss is inevitable.



Another possible reason for this propeller loss may have been that the attachment bolts had worked loose. This may have happened because locking 'tab' washer had failed in service. The AD reminds owners that locking 'tab' washers' must only be used once as, during the bending/unbending process, the tab will become work-hardened and prone to failure in service.