

# Australian Ultralight Federation Inc

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## MAINTENANCE ALERT UNDERCARRIAGE SUSPENSION LEG CLAMPING.

*Two failures of the rear clamp bolt in the undercarriage suspension leg clamp have been reported. This can result in damage to the aircraft as the aircraft will settle to the ground on that side. Owners and operators are advised to ensure maintenance practices comply with the Service Manual paying particular attention to the warning in that part which involves checking the leg for movement and that the clamp bolt is not damaged in the shank by overtravel of the nut..*

**Background.** The main landing gear of the Jabiru comprises two separate composite beams which are bolted to the fuselage. One bolt passes through the inboard end of the member near the centreline of the fuselage while the beam is held by a clamp fastened by two bolts outboard near the root of the wing strut. For engineering reasons the beams (or legs) are raked slightly forward as they descend to the wheel meaning that there is a tendency for the upper portion leg which runs transversely across the fuselage to twist. This results in the rear bolt of the clamp taking most load in service.

The AUF Office has had two reports of failures in the rear bolt. Such failures allow the wheel to move forward allowing that side of the aircraft to settle

In the most recent incident, the failure occurred during a normal landing resulting in damage to the wheel fairing, strut fairing and keel fairing at the rear. The aircraft had only operated some 150 hours since new and had not been subject to abnormal operating loads.

Jabiru advises that this type of failure will occur if there is looseness in the clamp bolts or if the clamping allows the nut on the bolt to bind on the shank of the bolt due to squashing of the components of the joint. Loose bolts allow excess shock loading while thread binding by the nut introduces stress raisers leaving the bolt prone to fatigue failure.

While the actual causes of the two reported failures cannot be determined, owners and operators are reminded of the **WARNING** on page 5/2 of the Jabiru Service Manual which states *"Check looseness of main U/C beams by lifting on each wing and trying to move beam back and forth. If movement, tighten clamp bolts (2) evenly to take beam movement out. Do not overtighten or exceed three threads clear on the nuts (use extra washers). Models with 65lt tanks must have tank attachments and hoses loosened and rocked to obtain clearance on main saddle bolt.. Over tightening can cause bolt fracture and failure to tighten can also cause bolt failure."*

Note that torque values are given in Section 1 of the manual. For those who are critical of the bolt size, be advised that there are good engineering reasons for the choice of this sized bolt. (One of the reasons is that bolt failure results in a far lower repair bill than tearing the bottom out of the fuselage. Jabiru note that properly installed and maintained, the bolt is quite adequate).

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