



### CAA Continuing Airworthiness Notice 61-001 - Jabiru 2200 and 3300 Engine Propeller Installations

Published: 27 August 2020

Effective: 27 August 2020

#### **Subject:**

This Continuing Airworthiness Notice (CAN) is issued to advise Jabiru engine operators of the safety recommendations identified by the Australian Transport Safety Bureau (ATSB) with an investigation of a propeller loss on a Jabiru J430 aircraft in Australia

#### **Applicability:**

All Jabiru 2200 and 3300 series aircraft engines.

#### **Purpose:**

This Continuing Airworthiness Notice (CAN) is issued to advise Jabiru engine operators of the safety recommendations identified by the Australian Transport Safety Bureau (ATSB) with an investigation of a propeller loss on a Jabiru J430 aircraft in Australia.

#### **Background:**

This CAN is prompted by a recent propeller loss on a Jabiru 2200A engine and a propeller loss in 2003 on Jabiru J430, VH-TJP in Australia, which resulted in a forced landing upon tidal flats at the western edge of Westernport Bay in Victoria. The pilot of VH-TJP was uninjured and able to disembark the aircraft safely.

The Australian Transport Safety Bureau (ATSB) investigation found that most of the cap screws connecting the propeller mounting flange to the engine crankshaft had failed by bending fatigue fracture – principally due to repeated relative movement between the mounted components. This movement was traced to a combination of an ineffective, multi-step torqueing method and the relaxation of tension within the crank–flange joint due to the compression of multiple layers of paint within the joint. It was also found that there were some anomalies within the maintenance documentation that related to these areas.

In July 2011, the engine manufacturer improved the strength and reliability of the crank–flange joint by adding positive-location dowels in all new production engines. However, that modification was not extended to earlier design assemblies, which included this specific Jabiru J430 aircraft engine.

Jabiru engines manufactured before July 2011 (pre-engine S/N 2446) have reduced strength and reliability of the crankshaft/propeller flange joint, compared with the later design that incorporated positive location dowel pins.

The current (revised) issue of the Engine Overhaul Manual has a strong recommendation that these dowels should be installed at the next full overhaul or at bulk strip of engines manufactured prior to July 2011. Furthermore, in addition to the earlier requirement for no paint on mating faces or where screw heads bear, a broad requirement was introduced to ensure that no paint, thread-locking compound, or contaminants remain in the propeller flange joint. The fastener torqueing method has been amended to a single-step process in which the required torque is to be obtained dynamically, while the fastener is being turned.

Finally, Jabiru Propeller Flange Attachment Service Bulletin JSB 022-2 now refers maintainers directly to the engine overhaul manual for installation procedures – removing the variability that previously existed between documents.

For further information refer to ATSB Transport Safety Report AO-2013-046 dated 19 August 2014 available on the ATSB website at <https://www.atsb.gov.au/publications/safety-investigation-reports/?mode=All&q=AO-2013-046>(external link)

#### **Recommendation:**

Jabiru 2200 / 3300 Engine Overhaul Manual (document JEM0001) now includes a strong recommendation that operators update their engines during the next full overhaul or bulk strip to include propeller flange dowels between the crankshaft and the propeller flange.

Engine Overhaul Manual JEM0001 is available on the Jabiru website at <https://jabiru.net.au/service/manuals/>(external link)

Jabiru Propeller Flange Attachment Service Bulletin JSB 022-2 issue 2, dated 20 June 2014 has been revised to no longer specify the multi-step torqueing procedure, instead referring to the correct torque procedure in the Engine Overhaul Manual i.e. a single-step torqueing procedure.

Propeller Flange Attachment SB JSB 022-2 is available on the Jabiru website at <https://jabiru.net.au/service/service-bulletins/>(external link)

An additional requirement has been introduced into the overhaul manual for mounting surfaces to be free from paint, thread-locking compound, or other contaminants before assembly. The relevant painting process specification now requires that all three facing surfaces of the flange be masked plus an illustrative diagram accompanies the text.

#### **Are you current?**

To be a current RAANZ microlight pilot you need to be up to date with your **BFR, medical and RAANZ membership**. Any one of those out of date and you are not legal.

The last one (\$\$\$\$s) is often regarded as secondary and can be sorted out sometime/later/down the track/if I remember/if RAANZ reminds me/...maybe. But if there is an incident, CAA look at all these things, so you need to be up to date with them all.

We have updated our database utilities and procedures to flag any expiries when logging BFRs and annual inspections- if the pilot, instructor, or IA is out of spec that CMV or annual inspection form is not valid, and processing will be held until corrected.

IAs and instructors- please ensure you are current when signing forms off to avoid delays and disappointing the pilot.

#### **Instructors and aircraft types**

There are situations where an Instructor may be asked to instruct in a type for which they do not hold a rating, or have ratings in various groups (eg weight shift, 3-axis, gyros) where they are not necessarily up to speed for instructing in all groups.

To help clarify things, we have updated our Exposition as follows-

2.9.2.1 The holder of a Microlight Instructors Certificate may exercise the privileges of an Advanced National Pilot and

- Give flight and ground Instruction in **those types of** Microlight Aircraft **for which they hold a type rating AND are authorised by their supervising ATO.**

The ATO will determine which groups and types for which the Instructor is approved and note those in their logbook.

Senior Instructors have the ability to self-rate as per 2.10.2 and 2.10.3, but that should be exercised with due caution.

### Additional On-Condition Program Authorising IAs

To help fill the gap for West Coasters needing access to IAs who can sign an aircraft into our On-Condition escalation program, we have appointed **Ray Leach/Hokitika** and **Steven Reynolds/Westport** as Authorising IAs.

### Incident reports received

#### Incident Details

|   |  |
|---|--|
| Microlight type/model                           | Cessna 162   |
| Place of incident                               | Kaitaia  |
| Other aircraft involved                         | Nil  |
| Describe the incident                           | Student pilot failed to latch the RH. door prior to Take-off.<br>The door opened in flight, sustaining damage to the rear latch mechanism.<br>The pilot returned to base and landed safely.  |
| Describe the affect on safety                   | There does not appear to be any problems with the safety of the aircraft.  |
| Remedial action taken                           | The door was repaired by an authorized engineer.   |
| Corrective or preventive action recommendations | All members of the Club have been informed of the incident in writing and the flight instructors reminded to reinforce the need for pilots to carry out thorough Pre-Flight checks.<br><br>NOTE...There is bold signage in red and white, in place above the door latch stating: CAUTION. LATCH BEFORE STARTING. |

## Incident Details

Microlight  
type/model Tecnam Bravo

Place of incident Feilding Airfield

Other aircraft  
involved No other aircraft involved.

Tail strike.  
The tail skid struck the runway hard enough to punch a hole in the rear fiberglass tail cone. The incident wasn't reported.

Describe the  
incident

As this wasn't reported and wasn't the easiest to see it put other club pilots at risk because we didn't know the extent of the damage to the aircraft.

Describe the  
affect on safety

The aircraft was grounded and completely inspected .All damaged parts repaired and because we do not know exactly what happened we replaced the center main undercarriage bolt as well as inspecting the front end and all other areas that could be effected by a heavy landing.

Remedial action  
taken

Corrective or  
preventive action  
recommendations

The club has added extra to pre-flights to ensure this and other areas are looked at from different angles to find such damage in the future  
Post checks also added checking prop front end mains and rear end before putting away.  
Also club is holding at least twice a year safety seminars covering fueling,pre-flights,hangar and aircraft care etc .The first to be held on the 3rd and 4th October. Rated pilots have to have a flight check with instructor before their next solo flight.

## Membership changes

|                       |                                       |                          |             |
|-----------------------|---------------------------------------|--------------------------|-------------|
| Michael Adams         | Coromandel Flying Club                | Advanced Local           | Upgrade     |
| Peter Rix             | Wairarapa Aero Club                   | Senior Flight Instructor | Upgrade     |
| Barry Steven Mowat    | Canterbury Recreational Aircraft Club | Advanced Local           | Upgrade     |
| Clive Tidball         | Canterbury Recreational Aircraft Club | Intermediate             | Upgrade     |
| Nigel Malham          | Canterbury Recreational Aircraft Club | Advanced National        | Joined      |
| Beau Neill            | Canterbury Recreational Aircraft Club | Novice                   | Joined      |
| William Leipnik       | Feilding Flying Club                  | Intermediate             | Joined      |
| Wayne Munro           | Parakai Aviation Club                 | Advanced National        | Upgrade     |
| Robert Jeremy Waters  | Bay of Islands Aero Club              | Novice                   | Joined      |
| Stephen Davies-Howard | Wairarapa Aero Club                   | Advanced National        | Joined      |
| Anthony Halahan       | Bay of Islands Aero Club              | Novice                   | Joined      |
| Yang Wanli            | Parakai Aviation Club                 | Novice                   | Joined      |
| Glenn Sanders         | Wairarapa Aero Club                   | Novice                   | Joined      |
| Duncan Elliott        | Wairarapa Aero Club                   | Novice                   | Joined      |
| Alan Ross Gordon      | Whangarei Flying Club                 | Novice                   | Joined      |
| Lukas Lenk            | Associate                             | Novice                   | Joined      |
| Lindsay Whelan        | Associate                             | Advanced National        | Type rating |
| Logan Elliott         | Canterbury Recreational Aircraft Club | Novice                   | Joined      |
| Hayden Robinson       | Wairarapa Aero Club                   | Novice                   | Joined      |

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