

Jabiru Service Letter: Valve Spring Washer Adverse Wear			JABIRU AIRCRAFT PTY LTD P.O. Box 5186 Bundaberg West Queensland, Australia. Phone:+61 7 4155 1778 Fax:+61 7 4155 2669 Email: info@jabiru.net.au		
JSL 008-1	Release Date: 21st Dec 2012	Effective Date: 21st Dec 2012	Affected Models: All	S/No. Range: All	Page 1 of 5

SERVICE LETTER: JSL 008-1

Issue: 1

Subject: Valve Spring Washer Adverse Wear

Release Date: 21st Dec 2012

Effective Date: 21st Dec 2012

Affected Models: All Jabiru Engines

Affected S/No: All S/No.

Issue	Reason for Issue	Issue Status
1	Original Issue	CURRENT

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2 General

- Jabiru Engines use a conventional arrangement of washers and collets to retain the valve spring assemblies (Figure 1).
- By design the valves are free to rotate within the valve collets. The valve actuation mechanism applies a small rotational force to the valve, rotating it to maintain valve sealing.
- Two incidents, one year apart, have been reported to Jabiru Aircraft: in each a valve jammed in the collet, causing the top spring washer to rotate with the valve and wear against the valve spring, eventually causing a failure of the washer and engine stoppage.
- In both cases the engines were operated in dusty conditions and dirt contamination was found within the carburettor and intake plenum.
- It is likely that dirt contamination caused the valve to jam in its collets.
- Jabiru Aircraft are releasing this document to alert owners and maintainers to the potential issue. The next revision of Jabiru engine service documentation will also incorporate the inspections detailed herein.
- Jabiru Aircraft and Engines are designed to operate from “typical” airfields. If they are operated in dusty conditions additional maintenance is recommended as noted in Section 3.2.
- This Service Letter is equivalent to a Manufacturer’s Special Airworthiness Information Bulletin (SAIB) for engines operating in Light Sport Aircraft categories.
- This letter has not been mandated (as an AD or similar) by any National Airworthiness Authority at the time of writing.

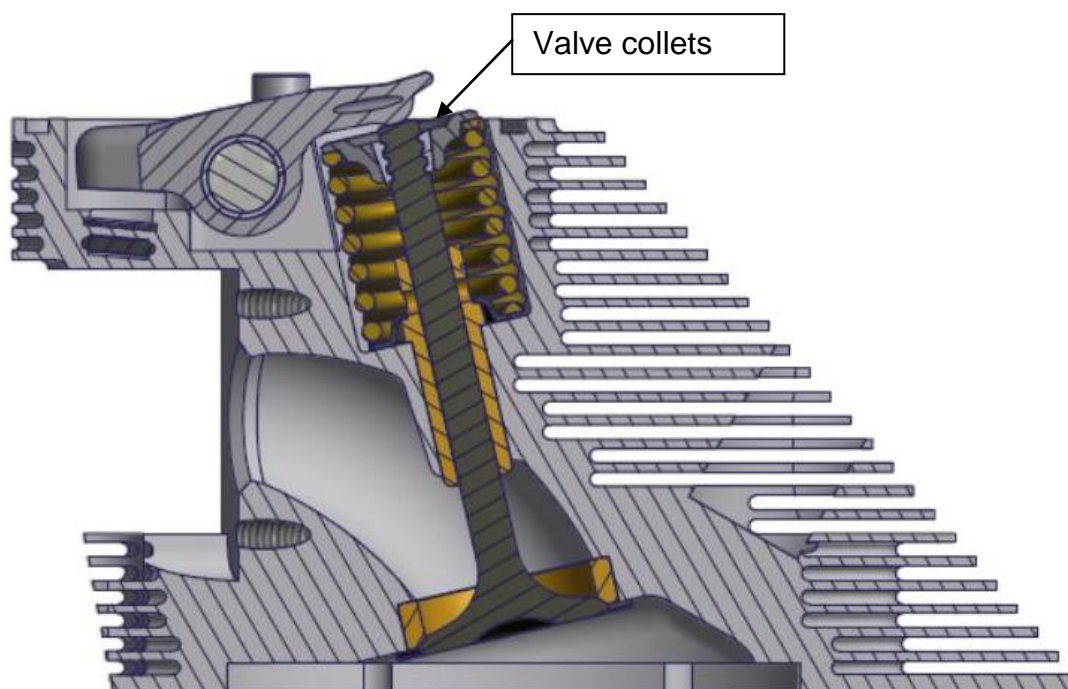


Figure 1 – Valve & Spring Cross Section

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Figure 2 – Valve Spring Washers



Figure 3 – Carburettor Contamination & Slide Wear

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3 Recommendations:

3.1 Personnel & Data

- Where inspections or other actions are recommended below they must be carried out by personnel authorised appropriately to the aircraft type and category; for example, by appropriately type approved Aircraft Maintenance Engineers or RA-Aus Level 2 maintainers.
- Where inspections or other actions are recommended below they must be carried out in accordance with the maintenance documentation for the aircraft and engine (Engine Maintenance Manuals, Overhaul Manual, Aircraft Technical Manual etc).
- Where inspections or other actions are carried out they are to be recorded in the maintenance logbook for the aircraft and/or engine.

3.2 Operation in Dusty Conditions:

- The aircraft operating manuals, aircraft technical manuals and the engine maintenance manuals provide guidance for operating in dusty conditions. Maintainers must be pro-active and carry out appropriate preventative maintenance in these conditions. The following is recommended:
 - Air filters must be cleaned and replaced more frequently.
 - Maintainers must regularly check carburettor bowls, intake piping, oil breathers etc to monitor any potential dust contamination.
 - Operators must take steps to minimise dust around the aircraft when carrying out engine run-ups, ignition tests etc.
 - Certain older type air filter / hot air mixer boxes produced by Jabiru Aircraft did not filter the intake air when carburettor heat is selected to ON. This was a certification requirement to ensure that the engine would run if the filter is completely blocked by ice. Operators of aircraft equipped with this system must ensure the carburettor heat tests are carried out in conditions as dust free as possible.

3.3 Whenever Cylinder Head / Valve Assemblies are Disassembled:

- Thoroughly inspect all valve washers and replace any which show signs of wear.
- Trial fit all valves to their collets and assess the fit before assembly; the valve should be free to rotate within the collet. While some friction is normal, binding or jamming is not acceptable. If friction is judged excessive the overhauler should try the valve in other collets and, if necessary, source replacement parts.

3.4 During Normal Maintenance:

- Visually inspect the top spring washer. A washer which is being worn may show burrs on the outer edge and the reduced thickness may be evident.
- The thickness of the top valve spring washer may be measured (Figure 4) using vernier calipers. Older washers should measure 1.5mm (0.060"), newer parts 2.0mm (0.08". 2mm thickness was introduced from S/No. 332486, 22A3514 and 22B263 and spare parts from June 2011). Any measurement below 1.3mm must be investigated and worn parts replaced; failure typically occurs at around 1.0mm.

Note: A depth vernier may be used for measuring a top spring washer in situ.

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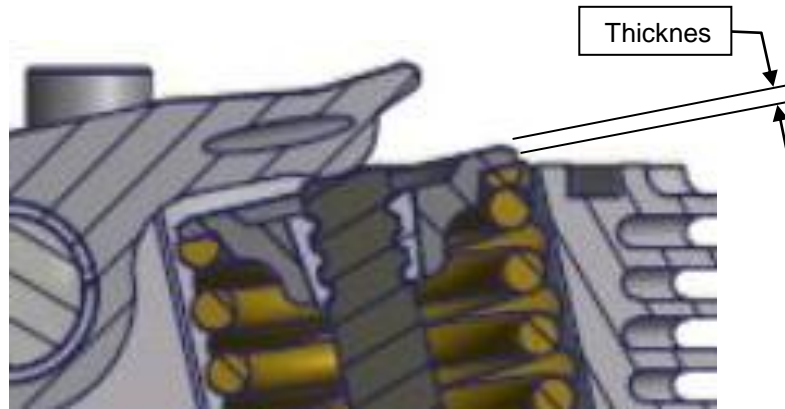


Figure 4 – Washer Thickness Measurement

4 Compliance – Implementation Schedule:

- Inspections per Section 3.4 are recommended during 50-hourly or Annual inspections whichever is the sooner.

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SPECIAL AIRWORTHINESS INFORMATION BULLETIN: JSAIB008-1

Issue: 1

Subject: Valve Spring Washer Adverse Wear

Release Date: 21st Dec 2012

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Affected Models: All Jabiru Engines

Affected S/No: All S/No.

Recommendations:

- Operators of affected engines within Light Sport Aircraft categories should comply with the recommendations of Jabiru Service Letter JSL 008-1.

Compliance:

- The compliance details given in JSL 008-1 must be met.

Background:

- This SAIB has been prepared to make applicable the recommendations of JSL 008-1 for engines operating within Light Sport Aircraft Categories.