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AIRWORTHINESS DIRECTIVE

THE GLIDING FEDERATION OF AUSTRALIA Inc

GFA AD 371 Issue 3

Date: 27 July 2017

Note: This Airworthiness Directive is issued by the Gliding Federation of Australia

Type Certificate Holder	Grob Aircraft AG
Manufacturer(s)	Grob Aerospace
Types/Models Affected	Grob G 109 " G 109B
Serial Numbers	All
Subject	Ultrasonic Inspection of Main Spar Root End Stub Spigots
Implementation	MANDATORY
Background	Grob Twin Astir gliders worldwide, have been subjected to inspection and replacement of their wing root, spar end stub fittings. (Ref. AD 346) In Australia that process uncovered 5 out of 18 gliders with cracked pins, the last one found having less than 120 hours total flight time. The cracks are considered to be the result of poor welding and manufacturing technique. The British C.A.A issued AD 006-10-88 which asks for Grab 109 and 109B powered sailplanes to be visually inspected using 10x magnification for cracking of the spar stub pins at the toe of the fillet welds within 50 hours and then every 300 hours. GFA Issued AD371 Issue which required ultrasonic inspection of the stub fittings within 50 hours and then every 500 hours. To date no cracks in the stub fittings have been reported. The pin loads on the G109 / G109 B are less than that of the Twin Astir and the fatigue environment more benign as the G109 / G109 B are non-aerobatic. Issue 2 of AD371 extends the reinspection interval to 1,000 hrs since the previous inspection. Issue 3 of AD371 clarifies that the spar stub pins require replacement at 3,000 hrs and that the inspections are not required after the pins have been replaced.

Documentation	1. GFA AD 346 Issue 4 2. CAA (UK) AD 006-10-88 3. GFA AD 371 Issue 1 4. Grob TM 817-28/1 Extension of Service Life
Required Action(s)	Amend aircraft logbook do that reinspection of wing spar stub fittings occurs 1,000 hrs since previous ultrasonic inspection. At 1,000 hours since previous ultrasonic inspection carry out the inspection in accordance with Appendix A. If cracks are found notify the GFA via a Sailplane Defect Report and the stub assembly is to be replaced. At 3,000 airframe hours the spar stub fittings are to be replaced in accordance with Grob TM 817-28/1 Extension of Service Life. After replacement of the spar stub fittings, ongoing inspection of the pins are not required.
Compliance, Compliance Time(s) and Frequency	Compliance with this Airworthiness Directive is mandatory and compliance, including action taken pursuant to this Airworthiness Directive must be recorded in the aircraft log book, annually.
Effect on Weight and Balance	No effect on W&B.
Effective Date	27 July 2017

APPENDIX A

ULTRASOUND INSPECTION PROCEDURE

SUBJECT: Wing Stub Spiggot fitting inspection

EQUIPMENT: Krautkramer ultrasonic flaw detector USM2 or equivalent
Probe SMWB45 – 6 MHz
Serial No. 55996
Test standard T.A.-1

CALIBRATION / SET UP:

Connect Probe to instrument and calibrate the screen for 2" metal travel distance

Set the indication from the 45° notch at 50% horizontal position and 80% full screen height - no reject used.

Shift the probe forward to show the reflection from the end of the counter bore and note the position shift.

Scan further forward to show the reflection from the top of the counter bore and note the position.

PREPARATION:

Clean all dirt and foreign material from the spiggot fitting and apply couplant (SAE 30 oil or equivalent).

INSPECTION:

Carefully scan the spiggot fitting at the 12 and 6 o'clock positions identifying the counter bore and weld root from each side of each plate.

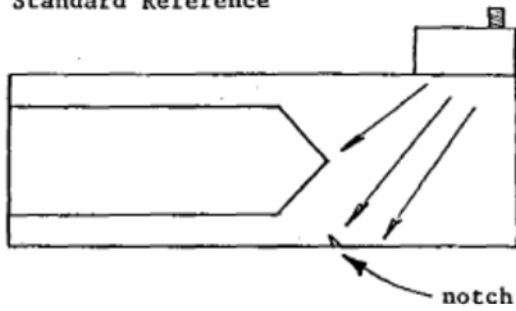
DISPOSITION:

All indications from cracks require further investigation.

Correlation between cracks and reference standard have been such that the standard represents approx .020" deep crack.

Report crack sizes by length of circumference and + or - gain in db compared to standard.

Standard Reference



Set notch at 80% full screen height

