



THE GLIDING FEDERATION OF AUSTRALIA INC

LEVEL 1/34 SOMERTON ROAD, SOMERTON, VICTORIA 3062.
PHONE +61 (0) 3 9303 7805, FAX +61 (0) 3 9303 7960. ABN: 82 433 264 489

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REFER GFA AN 081.

Airworthiness Alert 2012-1

Overview

The GFA has recently become aware of a PIK 20E Flaperon push rod end fitting which has failed. Further investigation has revealed that this failure has occurred on two other PIK20E's in Australia over the past 20 years. The most recent report states that the failure had not been identified until circumstances arose which resulted in investigation and defect identification. It is not known when this failure occurred or how many hours the aircraft had flown with this defect. The flaperon control rod end jam nut had become loose allowing additional loads on the rod end fitting causing failure. One PIK 20E which suffered a similar failure 20 or so years ago was modified under an Engineering Order and fitted with larger and heavier duty rod ends. This EO is available to owners who wish to replace the original 6mm rod ends with 8 mm units.

Flight History

The latest failure was a PIK20E with 3864 hours TTIS with 2139 launches. It had flown 277 hours in the preceding 12 months. The pilot noticed a rattle in the right wing when flying through turbulence.

Action Taken

The aircraft was de-rigged to investigate and found the right hand intermediate control rod end bearing broken at the control push rod. The jam nut was found loose which allowed flexing of the rod end in the push rod. Additionally, anti corrosion substance (linseed type oil) was found weeping out of the push rod.

The System

There are three actuating push rods. Two drive the inner flap portion and one the outer (aileron). If the centre push rod fails, the flaperon is still driven by the inner control. The flap itself transfers the load or control action to the outer flap drive which in turn drives the outer control or aileron. Failure of a control circuit on a PIK20D or E cannot simply be ascertained by simply inspecting the flap externally and testing the controls at the stick and/or flap.

Recommendation

That all PIK 20 D or E sailplanes be inspected for serviceability and flaperon control integrity. Further, that owners and operators inspect the flaperon control system for loose jam nuts. It is recommended that this inspection be carried out on all flaperon rod end fittings as soon as practical and then repeated annually at Form 2 inspections. Simply, by de-rigging and rotating the wing and listening may reveal if a rod end has failed.

Inspection

It has been established that a non invasive inspection of the flaperon system can be carried out by using a boroscope. Access to the relevant control circuit can be gained at the rear of the wing. The flaperon may be removed for the inspection or simply deflected to gain access to the control cut out. It is recommended in addition to the boroscope inspection, a long screwdriver or other suitable tool be used to apply a force to the push rod end and visually observe if there is abnormal flex indicating the jam nut is not locked or secure.

Please advise this office or your RTO/A if there are any further findings of loose jam nuts and broken rod ends. It is anticipated that a GFA Airworthiness Directive will follow.

Regards

A handwritten signature in black ink, consisting of a stylized 'D' followed by a horizontal line that ends in a small hook.

Dennis Stacey
GFA, Chief Technical Officer