



Civil Aviation Authority
SAFETY NOTICE
Number: SN-2018/005



Issued: 30 July 2018

Non-EASA General Aviation Aircraft Safety Harness Integrity

This Safety Notice contains recommendations regarding operational safety.

Recipients must ensure that this Notice is copied to all members of their staff who need to take appropriate action or who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

Applicability:	
Aerodromes:	Not primarily affected
Air Traffic:	Not primarily affected
Airspace:	Not primarily affected
Airworthiness:	All BCAR A8-23 / A8-24 / A8-25 / A8-26 Organisations
Flight Operations:	All Non-EASA General Aviation Pilots
Licensed/Unlicensed Personnel:	All Maintenance Engineers

1 Introduction

- 1.1 This Safety Notice applies to GA aircraft to which the EASA Basic Regulation does not apply. This may include some microlights, amateur built and historic aircraft, balloons, gliders, piston twins and singles up to 5,700 kg maximum take-off weight and single pilot helicopters up to 3,175 kg.
- 1.2 A review of recent Non-EASA GA aircraft accidents identified that the ground impact had been survivable due, in part, to the good condition of safety harness systems used in each instance. Conversely, the AAIB report of the accident involving Yak 52 G-YAKB in 2016, identified that the failure of the aircraft's lap and shoulder harnesses could have contributed to the severity of injuries incurred by both occupants during the unsuccessful forced landing. In this case, the lap and shoulder harnesses had been in service longer than originally intended by the aircraft manufacturer. The harnesses exhibited significant ultraviolet fading and discolouration, and the analysis showed that the harness strength had degraded by as much as 50%, but possibly more.
- 1.3 The evidence emphasises the importance of ensuring that the aircraft safety harnesses are in good condition if they should be relied upon, such as during an unsuccessful attempted forced landing.
- 1.4 The aircraft safety harness system is subject to routine inspections that are usually prescribed by the aircraft manufacturer for inclusion within the aircraft maintenance schedule. The CAA also prescribes maintenance tasks to be undertaken, including:

- (a) For aircraft maintained using the CAA publication Light Aircraft Maintenance Schedule (LAMS) (CAP 411) or CAP 412 for light helicopters, inspections of seats, belts/harnesses, attachment, locking and their release is required every 50 hours or 6 months, whichever occurs soonest;
- (b) Civil Aircraft Information and Procedures (CAP 562) leaflet B-180 Appendix 25-5 Seat Belts in Light Aircraft – Orientation of Stitched Joints, prescribes verification during routine maintenance;
- (c) Civil Aircraft Information and Procedures (CAP 562) leaflet 25-40 Maintenance and Inspection of Crew Harnesses and Passenger Seat Belts (metal to metal attachment).

1.5 Whilst several manufacturers provide some guidance to support the safety harness maintenance tasks, this is generally only applicable to their products.

1.6 This Safety Notice therefore provides advice regarding safety harness maintenance tasks for Non-EASA GA aircraft, identifying points to consider when establishing the integrity of the aircraft lap and shoulder harnesses, when undertaking the necessary routine inspection.

2 Action to be Taken

2.1 The scheduled maintenance inspection of safety harnesses in Non-EASA GA aircraft should be conducted in accordance with the procedure appropriate to the aircraft, which should preferably refer to the original manufacturer's instructions, or to other appropriate maintenance information such as that published by the CAA in LAMS (CAP 411).

2.2 When undertaking the scheduled maintenance, it is recommended that the following advice is considered as an aid to the inspection process. Gain access to the aircraft seat harness (shoulder harness, lap belt etc.) attachments and using a suitable light source, mirrors, magnifying glasses or other visual aids, examine:

- (a) each attachment bracket, its securing means and where appropriate, whether it's free to swivel;
- (b) each harness adjuster and buckle for evidence of cracking, corrosion, wear or deterioration of the surface finish, and for correct operation, freedom from jamming, slippage and broken springs, etc.;
- (c) the related aircraft structure in the vicinity for evidence of cracking, corrosion, distortion, wear or deterioration of the surface finish.

2.3 Any faults identified should be rectified in accordance with the requirements of the appropriate maintenance manual.

2.4 Without removing the safety harnesses from the aircraft, each individual strap of each cockpit safety harness should be examined in detail, including assessing for signs of:

- a) broken or frayed stitches and threads;
- b) cuts and tears;
- c) chafing;
- d) signs of contamination due to mould growth or from exposure to contaminants such as acid, oil, grease or water, etc.;
- e) deterioration due to exposure to sunlight (often evident by 'bleaching');
- f) security of end fittings;