AIRWORTHINESS ALERT

LAA/AWA/13/06
3rd October 2013
(Update 1 – 07.11.13 incorporated)

Jodel Aircraft

Landing Lamp Cover Inspection

A recent incident, where the failure of a transparent landing lamp cover fitted to a Jodel D150 Mascaret led to pilot control difficulties, has emphasised the need to take into account differences in an alternative material's behaviour when using it as an accepted substitute.

In the incident, a standard Plexiglas landing lamp cover was replaced with a locally manufactured Polycarbonate cover; this cover failed along its leading edge during a take-off shortly after fitting (see Fig. 1.).

The reason for this failure is not fully understood although, because the part had not been heat-formed, it didn't retain its shape around the leading edge after it failed.

Fig. 1. The landing lamp cover fitted to this Jodel D150 Mascaret returned to its unformed shape, effectively a flat sheet, after failing in flight; this failure led to control difficulties for the pilot.

Fig 2. This picture shows an example of stress induced crazing which can lead to a local crack and subsequent failure of the part; this leading edge crazing has been caused because the part hasn't been heat formed. Jodel owners should be mindful that, should this part eventually fail, its failure might generate unforeseen flight safety problems for the pilot.

Polycarbonate sheet of an identical thickness and equivalent transmissivity (to light) is accepted as an alternative to acrylic sheet (Plexiglas) for use in transparent components (AC 23-27). However, differences in the material will affect the manufacturing techniques employed (when cutting, drilling or forming) and the subsequent maintenance of the part (for example, the choice of cleaners or polishing techniques).

The Light Aircraft Association has just issued an Airworthiness Information Leaflet (AIL) (LAA/MOD/235/002 issue 1) requiring checks to Landing Lamp Covers on all Jodel D150 Mascaret Aircraft, this AIL can be downloaded HERE.

Whilst the above AIL is limited to the aircraft type affected, the use of wing mounted landing lamps is commonplace amongst many LAA types; this Airworthiness Alert seeks to emphasise the need for vigilance during the inspection checks and offers a reminder that failure of, at first sight unimportant components on any aircraft, can have serious negative consequences for flight safety.