Australian Government
Civil Aviation Safety Authority

AIRWORTHINESS BULLETIN

Agricultural Aircraft Fatigue Lives

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1. Effectivity

Any single engine aircraft used in agricultural operation under any CASA exemptions that allowed the aircraft to be flown above the certificated / published maximum take-off weight stated in the approved flight manual or type certificate datasheet.

2. Purpose

To highlight to agricultural aircraft operators the importance of ensuring the fatigue lives of any lifed aeronautical product or the aircraft is correctly calculated and recorded.

3. Background

From approximately 1999 till 2012 CASA had, at the request of the agricultural industry, issued exemption instruments that allowed operators to operate their aircraft at take-off weights above those that have been the maximum certificate weight published by the type certificate holder/manufacturer. These CASA exemption instruments did not contain any requirement to appropriately factor any fatigue lives as a result of any operation above the published maximum take-off weight or correct the fatigue lives, nor did they allow the operator to not maintain the aircraft in accordance with the approved maintenance data.

As a result of operating aircraft above their certificated maximum take-off weight there is a potential for the airframe and any other fatigue lifed aeronautical product to have accelerated fatigue damage that would reduce their service life.

The actual reduction in fatigue life will depend on a number of factors such as; take-off weight, time at the weight above the certificated weight, landing weights, atmospheric conditions, aircraft configuration, loading condition, etc. Therefore, it is not possible to generically provide the appropriate fatigue factoring and or inspections for each operation to reduce the potential for the airframe or lifed aeronautical products to fail in service.

4. Recommendations

CASA recommends that operators who have operated their single engine agricultural aircraft above the certificated maximum take-off weight via any of the CASA exemptions have the airframe life and / or lifed aeronautical products fatigue lives reassessed for those times the aircraft was operated at those higher operating weights.

The assessment will need to be conducted by a suitably qualified person and any regulatory approvals that are required for changes in approved data should be made by an appropriate Civil Aviation Safety Regulation (CASR) 21M authorised person. A list of these authorised persons can be found by using the search engine proved at http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90506.

Any structural inspections, especially those related to life limited aeronautical products, that are developed and approved as a result of the fatigue life assessment conducted, are to be included in the aircraft's maintenance program or schedule along with those published by the aircraft manufacturer in their maintenance data for the aircraft that are not altered as a result of the assessment.

5. Reporting

All defects found as a result of conducting any fatigue inspections or reduction in fatigue life should be reported via the CASA Service Difficulty Reporting system.

6. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

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