



Federal Aviation Administration

Memorandum

Date: August 6, 2013

To: Manager, Small Airplane Directorate, ACE-100

From: Manager, Wichita Aircraft Certification Office, ACE-115W

Prepared by: Craig Henrichsen, Aerospace Engineer, Wichita ACO, ACE-119W

Subject: Extension of Equivalent Level of Safety (ELOS) ACE-01-03 to include the Cessna Model J182T with the SMA Model SR305-230-E Compression Ignition Engine.

ELOS Memo #: ACE-01-03A

Regulatory Ref: 14 CFR 23.1401, Amendment 23-0

This memorandum requests your office to review and concur with extending ELOS finding ACE-01-03, to include the Cessna Aircraft Company Model J182T with a Whelen Model 70818 series anti-collision light with lens cover.

Background:

As indicated in the project notification letter submitted early last year, Cessna Aircraft Company (CAC) has applied to the Wichita Aircraft Certification Office (ACO) to amend the Type Certificate (TC) for the Model 182 (3A13) to include the Model J182T. The Model J182T will be similar to the Model T182T, except it will include all the design change required to support the installation of a SMA Model SR305-230-E Compression Ignition engine and a Hartzell Propeller Model HC-()3YR-1C/7690J. The request for the issuance of the following ELOS is based on the national policy memo's listed above or unique design aspects being incorporated into the Model J182T by the CAC. This ELOS finding request is needed, so that the proposed installation can meet the "intent" of the requirements defined in Title 14 of the Code of Federal Regulations (14 CFR) part 23.

To achieve this goal, a 14 CFR 21.101 analysis identified the following ELOS finding. CAC requests the Federal Aviation Administration acceptance and issue of this ELOS finding. The original application for type certification of the Model 182 was made on July 11, 1955. The anti-collision light utilized for the early Model 182 series airplanes complied with the red rotating beacon requirements in effect at the time [Civil Air Regulations (CAR) part 3, paragraph 3.705]. Strobe lights were later installed on the airplane in accordance with the guidance provided in FAA Advisory Circular (AC) 20-30. When the Model 182S was certified in the fall of 1996, an

updated certification basis was voluntarily adopted utilizing part 23, amendment 23-6, as a baseline, § 23.1401, amendment 23-0. The requirements surrounding anti-collision lights had changed significantly in-between the original CAR 3 certification basis and the new part 23 certification basis, such that the red rotating beacon installation's ability to meet the newer requirement was unproven.

Applicable Regulation:

14 CFR 23.1401

Regulations Requiring an ELOS Finding:

14 CFR 23.1401

Description of Compensating Design Features:

Cessna holds that the white anti-collision light installation on the Model J182T meets, or exceeds the safety level provided by § 23.1401, Amendment 23-0. The installation is shown to be directly compliant, except for color.

The strobe light intensities of the Model J182T installation meet or exceed all minimum intensity requirements of § 23.1401, amendment 23-0, and the anti-collision light regulatory requirement per the certification basis of the airplane. The part numbers used in the Model J182T installation are: Whelen; 01-0770006-17 power supply and 01-0770818-00 strobe light, and are the same as used on the Cessna Models 182T/T182T.

Description / Explanation of Compensating Features

These are areas of no change where the ELOS still is applicable for this engine.

Cessna Aircraft's Position

The exterior lighting for the Model J182T is unchanged from the T182T. A majority of the aircraft remains unchanged between the Model T182T and the J182T. Therefore, there are numerous areas of "no change" or where the ELOS methodology / reasoning are independent of the type of power-plant installed or fuel used. CAC believes that the ELOS finding to the regulation listed above remain unchanged, since these are area of no change between the Model T182T and the J182T.

Federal Aviation Administration Approval:

The FAA agrees the current Cessna Model J182T anti-collision light configuration has been analyzed and provides an equivalent level of safety required by § 23.1401, amendment 23-0.

Earl Lawrence

1-14-14

Manager, Small Airplane Directorate
Aircraft Certification Service

Date

ELOS Originated by: Wichita ACO	Wichita ACO Manager: Margaret Kline	Routing Symbol: ACE-115W
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