



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: **ACTION:** Requesting Review of and Concurrence With,
Equivalent Level of Safety (ELOS), Cessna Aircraft
Company Model 182T/T182T, 14 CFR 23.1401,
Anticollision Light System. ACE-01-03

Date: February 20, 2001

FEB 23 2001

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

Reply to Scott West
Attn. of: 316-946-4146

To: Manager Small Airplane Directorate, ACE-100

This memorandum is to document concurrence with an equivalent level of safety for the anticollision light requirements of 14 CFR 23.1401.

Background

Original application for type certification of the Model 182 was made on 11 July 1955. The anticollision light utilized for the early Model 182 series aircraft was therefore in compliance with the requirements for a red rotating beacon in effect at the time per CAR 3, paragraph 3.705. Strobe lights were later installed on the aircraft which are in agreement 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 FAR 23 per Amdt. 23-6 as a baseline, with paragraph 23.1401 applicable as it originally appeared in FAR 23. The requirements surrounding anticollision lights had changed significantly in-between the original CAR 3 certification basis and the new FAR 23 certification basis, such that the red rotating beacon installation's ability to meet the newer rule was unproven. After a review, the strobe light installation certified many years before was considered to be more readily employable for compliance. With the Model 182T/T182T, the wing tip fairings were streamlined, and substantiation reports written for the new installation. At that time, it was discovered that the color of the strobe lights (aviation white) did not meet the requirement for aviation red anticollision lights as found in the certification basis of the aircraft, and a later amendment level which would have allowed the use of white anticollision lights could not be incorporated into the certification basis due to an attendant four-fold increase in required light emission intensities.

Applicable Regulations

14 CFR 23.1401

Mike
Stewart

Applicant's Position

Cessna holds that the white anticollision light installation on the Model 182T/T182T meets or exceeds the safety level provided by FAR 23.1401 per Amdt. 23-N/C. The installation is shown to be directly compliant aside from color alone.

The 182T/T182T system components are approved for installation on other Cessna aircraft via STCs and attendant PMA approvals owned by Whelen Engineering, Inc. The STC and PMA approvals apply to Model 182 series aircraft, as well as other models with similar certification bases to the 182T/T182T. The FAA has therefore reviewed and approved the operation and use of the strobe element, the lens, and the power supply utilized in the 182T/T182T as parts of anticollision light systems on many other aircraft, and has issued STCs and PMA authorizations as necessary.

The strobe light intensities of the Model 182T/T182T installation meet or exceed all minimum intensity requirements of FAR 23.1401 per Amdt. 23-N/C, the anticollision light regulatory requirement per the certification basis of the aircraft. The FAA has issued STCs for installation of the components on many different aircraft; therefore, the 182T/T182T system components have already received FAA approval in other anticollision light systems. Furthermore, FAA issuance of those same STCs and PMAs for acceptance of the components on applicable aircraft also prove prior FAA acceptance of the use of aviation white lenses in lieu of the aviation red lenses on other aircraft.

Attached are selected pages from Whelen which summarize the eligibility of Supplemental Type Certificates SA615EA/SA800EA, and a copy of a PMA approval letter which show that the "HT" series power supply (Whelen P/N 7000617, 01-0770006-17) used in the Model 182T/T182T strobe light system is approved as part of anticollision light system installations on many Cessna single engine aircraft, including all versions of the Model 182 series prior to restart. Along with these pages are written explanation sheets from Whelen's Fred Frazier which provide synopsis information. Also attached are written explanations and assembly drawings from Whelen which show that the primary components of the P/N 70818 series strobe light assembly utilized on the Model 182T/T182T are the same A612 lens (Whelen P/N 68-2290005-34) and HV1-634-W flashtube assembly (Whelen P/N 36-0141759-01) also utilized in Whelen's A625 series strobe light head assemblies, included in the attached STC and PMA documents. The primary difference between the assemblies included in the STC and PMA paperwork and the installation components in question is that the base of the unit utilized on the 182T/T182T is designed to fit its faired wing tip installation.

Further considerations:

At its next revision (Amendment 23-11, effective 11 August 1971), paragraph 23.1401 was revised to allow for the use of either aviation red or aviation white anticollision lights.

FAA Advisory circular AC20-30B dated 20 July 1981 specifically allows for the use of white anticollision lights for aircraft with certification bases using amendments 23-N/C through 23-11, and 14 CFR 91.205(c)(3) also provides a general exemption for the use of aviation white

anticollision lights on aircraft whose type certificates were issued or applied for prior to 11 August 1971, the date of effectivity for Amendment 23-11 discussed above.

The anticollision light installation on the Models 182T and T182T is shown to comply with installation requirements via Cessna Report 172-96-001 Revision B.

Due to the fact that the FAA has already provided acceptance of the use of white anticollision lights on aircraft via FAA regulations, advisory material, and the issuance of STCs and PMA approvals, due to the fact that these same STC approvals also attest to the technical acceptability of the system components utilized on the 182T and T182T for aircraft with the same anticollision light certification basis requirements, and due to the fact that the system installation is shown to meet the installation requirements of the Models 182T/T182T, Cessna maintains that an equivalent level of safety has been well-established for the anticollision light system utilized on both models.

FAA's Position

The FAA agrees that the current Cessna Model 182T/T182 anticollision light configuration has been analyzed and provides an equivalent level of safety as that required by 14 CFR 23.1401 through Amendment 23-10.

Recommendation

The certification basis for the Cessna Models 182T/T182T will include an Equivalent Level of Safety finding for 14 CFR 23.1401.

Gerald M. Baker

Gerald M. Baker
Manager
Wichita Aircraft Certification Office

Concurrence:

[Signature]

For _____
Manager, Standards Office, ACE-110

2-21-2001

Date

James R. Moore

For _____
Manager, Small Airplane Directorate, ACE-100

2-21-2001

Date