



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 206H/T206H, 14 CFR 23.971,
Fuel Tank Sump; ACE-02-03

Date: December 3, 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 fuel tank sump requirements of 14 CFR 23.971.

Background

On 31 August 2001, representatives of the FAA and Cessna met at Cessna's Single Engine Engineering facilities to discuss proposed changes to the Model 206H/T206H fuel system per ECR 046069, specifically with regard to acceptable means of showing compliance to paragraph 23.971. With ECR 046069, Cessna incorporates a fuel system into the Model 206H/T206H similar to that approved on the Model 182T/T182T (see FAA Letter dated 22 February 2001, "Subject: Cessna Aircraft Company Position in Support of FAA Specific Finding to the Requirements of 14 CFR part 23.971 for the Model 182T/T182T"). The fuel system incorporates a fuel return line from the fuel servo of the aircraft back to the appropriate tank(s) for vapor suppression during extended hot weather ground operations. With the Model 182T/T182T, a means of compliance previously used on the Model 177 was repeated for demonstration of compliance with 23.971. The means of compliance involved tank fluid retention measurements, and an evaluation of tank sump and fuel strainer capacities in order to insure that the total fuel system would preclude introduction of water contaminants to the engine, assuming that proper POH/AFM preflight procedures were followed. During the subject meeting, the FAA stated that compliance was based upon 23.971 (a) and (b), and that the compliance finding was contingent upon the combined tank sump and fuel strainer capacities exceeding the anticipated worst-case fluid retention quantities of both tanks together. This approach was also to be utilized for approval of the 206H/T206H fuel system.

Although no ELOS was required for the Models 177 or 182T/T182T, the FAA stated their belief that the most straightforward means of compliance substantiation would be by ELOS where the Model 206H/T206H is concerned. The FAA felt that an ELOS would result in fewer questions in the future, as well as formally providing the FAA's reasoning for the compliance finding.

Applicable Regulations

14 CFR 23.971

Applicant's Position

Based upon concurrence reached at the referenced meeting, substantiation is hereby provided that the tank/fuel system configuration defined by ECR 046069 meets the stated requirements for an ELOS finding on the Model 206H/T206H where compliance with 23.971 per Amendment 23-N/C is concerned. Included as an attachment, please find Cessna Single Engine Propulsion Group Memorandum 417-04-01-04 dated 10 October 2001, providing compliance details for the new 206H/T206H fuel system configuration. In accordance with agreements reached in the referenced meeting, the substantiation provided is based upon ground tests accomplished both on the Model 206H and the Model 182T. That part which rests upon similarity to the 182T is based upon a determination by Cessna's Single Engine Project and Propulsion Groups that the 206H/T206H tank configuration incorporated with ECR 046069 is the same as, or more conservative than that of the 182T/T182T where tank drainage and sump capacities are concerned.

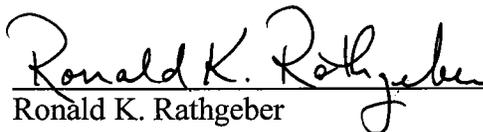
Based upon the substantiation provided, and in accordance with agreements reached during the referenced meeting, Cessna requests an Equivalent Level of Safety finding on the Model 206H/T206H fuel system for compliance with 14 CFR 23.971 per Amendment 23-N/C.

FAA's Position

The applicants substantiating data identified in their Memorandum 417-04-01-04 dated 10 October 2001 was submitted to the FAA by their letter dated 19 October 2001 identified as L417-02-01-342. The L417-02-01-342 letter stated: "That substantiation provided is based upon ground tests accomplished both on the Model 206H and the Model 182T. That part which rests upon similarity to the 182T is based upon a determination by Cessna's Single Engine Project and Propulsion Groups that the 206H/T206H tank configuration incorporated with ECR 046069 is the same as, or more conservative than that of the 182T/T182T where tank drainage and sump capacities are concerned." The FAA understands from review of this letter and supporting data as well as the discussions of 31 August 2001 referenced in the 19 October 2001 letter that the fuel tank interior ribs have the same, or larger cutouts as those demonstrated on the tests witnessed by the FAA for the Cessna Models 182T/T182T.

Recommendation

FAA recommends that a Equivalent Level of Safety finding be issued to Cessna Aircraft Co. on their Models 206H/T206H airplanes for 14 CFR FAR Part 23.971 when those airplanes are configured according to Cessna ECR 046069.

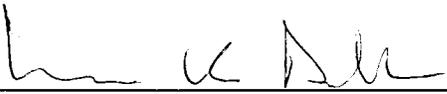


Ronald K. Rathgeber

Manager

Wichita Aircraft Certification Office

Concurrence:



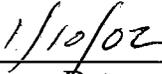
Manager, Standards Office, ACE-110



Date



Manager, Small Airplane Directorate, ACE-100



Date