



# Federal Aviation Administration

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## Memorandum

Date: May 16, 2016

To: Manager, Project Support Branch, ACE-112

From: Manager, Small Airplane Directorate, ACE-100

Prepared by: Jeff Pretz, Regulations and Policy, ACE-111

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Seabird Aviation Australia Pty., Ltd, Models Seeker SB7L-360A and SB7L-360A2, Fuel Quantity Indication, FAA Project #'s: TC00381CE-A and AT00698CE-A

ELOS Memo#: TC00381CE-A-P-3

Regulatory Ref: 14 CFR 23.1337(b)(1) at amendment 23-51

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This memorandum informs the certificate management aircraft certification office of an evaluation made by the Accountable Directorate on the establishment of an equivalent level of safety finding for the Models Seeker SB7L-360A and SB7L-360A2 airplanes.

### **Background:**

The Seabird Seeker fuel system includes a main tank and a 2-liter reservoir tank. The reservoir tank resides between the main fuel tank and engine. Seabird states the § 23.959(a) unusable fuel quantity is 1 liter for the main tank and 2 liters for the reservoir tank. The fuel quantity indicator in the main tank is only capable of measuring down to 6 liters total fuel in the main tank and does not measure any quantity in the reservoir tank. This leaves 5 liters of useable fuel in the main fuel tank once the quantity reaches the minimum measureable fuel quantity. Section 23.1337(b)(1) requires a means to indicate the usable fuel quantity in each tank and that the indicator reads zero when the quantity remaining in the fuel tank reaches the unusable quantity determined under § 23.959(a).

For this project, the fuel quantity indication requirements of § 23.1337(b)(1) were updated to the latest amendment (23-51). However, the latest amendment for § 23.1553 requiring a red radial at the § 23.1337(b)(1) calibrated zero indication, remains at amendment 23-0. The original amendment of § 23.1553 (23-0) only required a red arc if the unusable fuel quantity exceeds 1 gallon or 5 percent of the total tank capacity. The Seabird Seeker unusable fuel quantity is less than 1 gallon and less than 5 percent of the total capacity, therefore no red arc is required per § 23.1553. Regardless of the wording in the earlier amendment, application of a red radial is

required at the unreadable quantity indication along with the proposed placard to meet the requirements for granting of this ELOS.

These two airplane models are FAA validations of the same model numbers from Australia. The Civil Aviation Safety Authority (CASA) of Australia issued an ELOS on Issue Paper No: Seabird -1233/01 Revision 0 dated 17 February 2016 for this regulation.

**Applicable regulations:**

14 CFR 23.959(a), 23.1337(b)(1)

**Regulation requiring an ELOS finding:**

14 CFR 23.1337(b)(1)

**Description of compensating design features or alternative Methods of Compliance (MoC) which allow the granting of the ELOS (including changes, limitations, or equipment needed for equivalency):**

Seabird proposed a design that indicates the required § 23.1337(b)(1) zero fuel quantity by placing a red radial at the 6-liter indication on the fuel quantity indicator, which leaves 5 liters of usable fuel and 1 liter of unusable fuel in the main tank. In addition, a placard will be placed on the fuel quantity indicator stating 5 liters of usable fuel remains in the tank when the indicator reaches the red arc.

**Explanation of how design features or alternative Methods of Compliance (MoC) provide an equivalent level of safety intended by the regulation:**

The following guidance related to § 23.1337, is cited from Advisory Circular (AC) [AC 23-17C](#), page 270 and states:

“The rule requires that fuel quantity be calibrated as zero when only unusable fuel (as determined under § 23.959) is left in the tank. Some fuel tank system designs can result in a lowest reading obtainable in level flight being greater than the unusable fuel supply. In this case, an ELOS is acceptable by placing a red radial at the “lowest reading obtainable in level flight,” and mounting a placard stating the amount of usable fuel remaining at the red radial.”

The Seabird design is acceptable with the issuance of an ELOS to § 23.1337(b)(1) per FAA guidance provided in [AC 23-17C](#).

**FAA approval and documentation of the ELOS finding:**

The FAA has approved the aforementioned equivalent level of safety finding in project issue paper P-3. This memorandum provides standardized documentation of the ELOS finding that is non-proprietary and can be made available to the public. The Accountable Directorate has assigned a unique ELOS Memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS Memorandum number must be listed in the Type Certificate

Data Sheet under the Certification Basis section (TCs & ATCs) or in the Limitations and Conditions section of the STC. An example of an appropriate statement is provided below.

An Equivalent Level of Safety Finding has been made for the following regulation:

14 CFR 23.1337, Powerplant instruments installation, paragraph (b)(1) at amendment 23-51 (documented in ELOS Memo TC00381CE-A-P-3)

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Pat Mullen, Acting Manager, Small Airplane Directorate,  
Aircraft Certification Service

May 16, 2016

Date

ELOS Originated by: Project Support Branch	Manager, Project Support Branch: Jacqueline Jambor	Routing Symbol: ACE-112
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