



Department of Transportation
Federal Aviation Administration
Aircraft Certification Service
Washington, D.C.

TSO-C85b

Effective
Date: mm/dd/07

Technical Standard Order

Proposed

Subject: SURVIVOR LOCATOR LIGHTS

1. **PURPOSE.** This technical standard order (TSO) is for manufacturers applying for a TSO authorization (TSOA) or letter of design approval (LODA). In it, we (the Federal Aviation Administration, or FAA) tell you what minimum performance standards (MPS) your survivor locator lights must first meet for approval and identification with the applicable TSO marking.
2. **APPLICABILITY.** This TSO affects new applications submitted after its effective date.
 - a. All prior revisions to this TSO are no longer effective. Generally we will not accept applications after the effective date of this TSO. However, we may do so up to six months after it, if we know that you were working against the earlier MPS before the new change became effective.
 - b. Survivor locator lights approved under a previous TSOA may still be manufactured under the provisions of their original approval.
 - c. Major design changes to survivor locator lights approved under this TSO will require a new authorization. See Title 14 of the Code of Federal Regulations (14 CFR) § 21.611(b).
3. **REQUIREMENTS.** New models of survivor locator lights identified and manufactured on or after the effective date of this TSO must meet the MPS qualification and documentation requirements in SAE International Aerospace Standard (AS)4492, *Survivor Locator Lights*, dated January 1995, reaffirmed November 2004, as amended by appendix 1 of this TSO.
 - a. **Functionality.** This TSO's standards apply to battery-powered emergency lights intended to be fitted to individual and multiplace flotation devices to mark the location and help marshal aviation accident survivors in bodies of water.
 - b. **Functional Qualification.** Demonstrate the required performance under the test conditions in SAE AS4492 and appendix 1 of this TSO.

c. **Deviations.** We have provisions for using alternate or equivalent means of compliance to the criteria in the MPS of this TSO. If you invoke these provisions, you must show that your equipment maintains an equivalent level of safety. Apply for a deviation under 14 CFR § 21.609 before submitting your data package.

4. **MARKING.**

a. Mark at least one major component permanently and legibly with all the information in 14 CFR § 21.607(d), except for 14 CFR § 21.607(d)(2). Use the name, type, and part number. Do not use the optional model number.

b. Also, mark the following permanently and legibly, with at least the manufacturer's name, subassembly part number, and the TSO number:

- (1) Each component that is easily removable (without hand tools),
- (2) Each interchangeable element, and
- (3) Each subassembly of the article that you determined may be interchangeable.

c. When applicable, identify the equipment as an incomplete system or state that the article performs functions beyond those described in paragraph 3.a of this TSO.

5. **APPLICATION DATA REQUIREMENTS.** As a TSO manufacturer-applicant, you must give the FAA aircraft certification office (ACO) manager responsible for your facilities a statement of conformance, as specified in 14 CFR § 21.605(a)(1) and one copy each of the following technical data to support our design and production approval. (Under 14 CFR § 21.617(a)(2), LODA applicants submit the same data through their civil aviation authority:)

a. Operating instructions and equipment limitations in an installation/instruction manual (IM), sufficient to describe the equipment's operational capability. Describe any deviations in detail. If needed, identify equipment by part number, version, revision, and criticality level of software/hardware, classification for use, and environmental categories.

b. Installation procedures and limitations in an IM, sufficient to ensure that the survivor locator lights, when installed according to the installation procedures, still meet this TSO's requirements. Limitations must identify any unique aspects of the installation. Finally, the limitations must include a note with the following statement:

The conditions and tests for TSO approval of this article are minimum performance standards. Those installing this article, on or in a specific type or class of aircraft, must determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be

installed only according to 14 CFR part 43 or the applicable airworthiness requirements.

- c. Schematic drawings of the installation procedures.
- d. Wiring diagrams of the installation procedures.
- e. List of components, by part number, that make up the survivor locator lights complying with the standards prescribed under this TSO. Include vendor part number cross-references, when applicable.
- f. A component maintenance manual (CMM), covering periodic maintenance, calibration, and repair, for the continued airworthiness of installed survivor locator lights. Include recommended inspection intervals and service life. Describe the details of deviations granted, as noted in paragraph **5.a** of this TSO.
- g. Material and process specifications list.
- h. The quality control system (QCS) description required by 14 CFR §§ 21.143 and 21.605(a)(3), including functional test specifications. The QCS should ensure that you will detect any change to the equipment that could adversely affect compliance with the TSO MPS, and reject the item accordingly. (Not required for LODA applicants.)
- i. Manufacturer's TSO qualification test report.
- j. Nameplate drawing with the information required by paragraph **4** of this TSO.
- k. List of all drawings and processes (including revision level) that define the article's design. For a minor change, follow the directions in 14 CFR § 21.611(a). Show any revisions to the drawing list only on our request.

6. MANUFACTURER DATA REQUIREMENTS. Besides the data given directly to us, have the following technical data available for review by the responsible ACO or civil aviation authority:

- a. Functional qualification specifications for qualifying each production article to ensure compliance with this TSO.
- b. Equipment calibration procedures.
- c. Corrective maintenance procedures within 12 months after TSOA or LODA.
- d. Schematic drawings.
- e. Wiring diagrams.

f. Material and process specifications.

7. **FURNISHED DATA REQUIREMENTS.** If furnishing one or more articles manufactured under this TSO to one entity (such as an operator or repair station), provide one copy of the data in paragraphs 5.a through 5.f of this TSO. Add any other data needed for the proper installation, certification, use, or for continued airworthiness, of the survivor locator light.

8. **HOW TO GET REFERENCED DOCUMENTS.**

a. Order RTCA documents from RTCA Inc., 1828 L Street NW, Suite 805, Washington, D.C. 20036. Telephone (202) 833-9339, fax (202) 833-9434. You can also order copies online at www.rtca.org.

b. Order SAE documents from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001. Telephone (724) 776-4970, fax (724) 776-0790. You can also order copies online at www.sae.org.

c. Order copies of 14 CFR parts from the Superintendent of Documents, Government Printing Office, P.O. Box 37154, Pittsburgh PA 15250-7954. Telephone (202) 512-1800, fax (202) 512-2250. You can also order copies online at www.access.gpo.gov. Select "Access," then "Online Bookstore." Select "Aviation," then "Code of Federal Regulations."

d. You can find a current list of technical standard orders and advisory circulars on the FAA Internet website Regulatory and Guidance Library at www.airweb.faa.gov/rgl. You will also find the TSO Index of Articles at the same site.

David W. Hempe
Manager, Aircraft Engineering Division
Aircraft Certification Service

**APPENDIX 1. FAA MINIMUM PERFORMANCE STANDARD
FOR SURVIVOR LOCATOR LIGHTS**

The applicable standard is SAE AS4492, *Survivor Locator Lights*, dated January 1995, reaffirmed November 2004. We modified it by adding the following:

- 1.** The locator light and battery pack must be constructed of materials that are in compliance with 14 CFR part 25.853(a). See 14 CFR part 25, appendix F for part I (a)(1)(v).
- 2.** Insulation on electrical wire that is connected to the locator light and battery pack must be self-extinguishing in compliance with 14 CFR part 25.869(a)(4). See 14 CFR part 25 for part I(a)(3).
- 3.** Replace any reference to RTCA DO-160C with RTCA DO-160E, *Environmental Conditions and Test Procedures for Airborne Equipment*, dated December 9, 2004, or the most current revision.