

Federal Aviation Agency



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SUBJECT : SPECIFICATION FOR L-840 LOW INTENSITY RUNWAY,
LANDING STRIP AND TAXIWAY LIGHT

1. **PURPOSE.** This circular describes the subject specification requirements and is published by the Federal Aviation Agency for the guidance of the public. The use of this specification is required for project activity under the Federal-aid Airport Program.
2. **CANCELLATION.** This advisory circular replaces FAA Specification L-840, "Low Intensity Runway, Landing Strip, and Taxiway Light," dated November 15, 1960. No substantive changes have been made to the prior specification in placing it in the Advisory Circular System.
3. **DESCRIPTION OF PUBLICATION.** The specification requirements presented are for a low intensity elevated light for use on runways, landing strips, and taxiways.
4. **APPLICABLE SPECIFICATIONS.** The following specifications and standard, as referred to hereinafter, of the issues in effect on the date of application for qualification (paragraph 9) are applicable to this specification. In case of conflict between this specification and the applicable specifications, this specification shall govern.
 - a. **Federal Specification.** Copies of the Federal specification may be obtained from the appropriate Regional General Services Administration office.
 - (1) QQ-A-601 - Aluminum Alloy Sand Castings.
 - b. **Federal Standard.** Copies of the Federal standard may be obtained as indicated in paragraph 4a.
 - (1) Federal Standard 595, Colors.

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- c. Military Specifications. Copies of the Military specifications may be obtained from Armed Service Electro-Standards Agency, Fort Monmouth, New Jersey.
- (1) MIL-C-7989 - Cover, Light-Transmitting, For Aeronautical Lights.
 - (2) MIL-C-25050 (ASG) - Colors, Aeronautical Lights and Lighting Equipment, General Requirements For.
5. WORKMANSHIP. Workmanship shall be in accordance with highest quality commercial practice covering this class of work.
6. PERFORMANCE REQUIREMENTS.
- a. The light shall be designed to provide a light distribution of at least 15 candlepower through 360° of azimuth from 0° to 15° above the horizontal, and an average of at least 5 candlepower for all angles greater than 15° above the horizontal, when tested as described in paragraph 8a.
 - b. When color is specified, the candlepower values shall be not less than those obtained by multiplying the values of the above paragraph by the following:
 - (1) Blue - .022
 - (2) Green - .150
 - c. All current carrying parts shall be insulated for at least 250 volts and shall have a current carrying capacity of at least 6 amperes.
 - d. The unit shall be designed and constructed for continuous service under the following operating conditions:
 - (1) Temperature. Any ambient temperature from a minimum of -45°F to a maximum of +120°F at sea level.
 - (2) Weather. Continuous outdoor operation under all normal weather conditions, including wind velocities up to 100 miles per hour.
7. DETAIL REQUIREMENTS.
- a. General. The unit shall consist essentially of an optical system, lamp and socket mounted in a metal fitting, connecting leads, and a mounting stake. The unit is designed to be supplied directly from a multiple circuit having a nominal voltage of 120 volts.

- b. Optical System. The optical system shall consist of a glass lens assembly and may include a reflector or baffle shield. Glass lenses shall be fabricated from glass conforming to Specification MIL-C-7989, Class A or B. Color lenses or color screens shall conform to Specification MIL-C-25050, Type I, of the grade having the highest practical transmission.
- c. Socket. The socket shall be the intermediate base type and shall be mounted rigidly in the metal fitting. The socket shall have a rating of not less than 250 volts, 75 watts.
- d. Lamp. The fixture shall be designed to utilize a 15 watt, 115-125 volt, 15T7N clear appliance lamp designed for severe vibration service.
- e. Fitting. All metal parts of the fitting shall be fabricated from nonferrous metal or from ferrous metal suitably treated to resist corrosion. Copper bearing hardware in contact with aluminum shall be cadmium, nickel, or zinc plated. Aluminum sand castings shall conform to Federal Specification QQ-A-601, Alloy 43, 356, or 214. A means for drainage shall be provided in the bottom of the fitting to drain condensation and water. The lamp shall be positioned rigidly in the socket with respect to the lens assembly to provide the light distribution specified herein. The fitting shall support the lens assembly and a natural or synthetic rubber gasket shall be provided for seating the lens. Suitable means shall be provided for holding the lens assembly securely in place on the metal fitting. The lens assembly shall be removable without the use of tools. The fitting shall be provided with a slip fitter to receive the mounting stake and means shall be provided to securely fasten the stake in place. A suitable grounding lug shall be provided on the outside of the fitting for a #12 AWG conductor.
- f. Leads. Two connecting leads of not less than 30 inches in length shall be supplied to connect the fixture to the supply wires. The leads shall consist of single conductor, 300 volt minimum, #16 AWG stranded wire with thermoplastic insulation. Each lead shall be in two parts, one to be attached to the socket terminals, the other part for attachment to the supply wire. A suitable disconnecting connector shall join the two parts.
- g. Mounting Stake.
 - (1) The mounting stake shall be designed to receive the fitting. The overall length of the stake shall be such as to provide a minimum of 16 inches below ground. When mounted in place, the above ground height to the top of the unit shall not exceed 14 inches. The stake may be in two parts and shall provide for a breakoff point produced by scoring or other suitable

method. The location of the breakoff point shall be approximately at ground level when the unit is in place. The stake shall be made of nonferrous metal or of ferrous metal suitably protected against corrosion. As an alternate a wooden stake, with suitable preservative treatment, may be furnished.

- (2) The stake shall be designed so that it will withstand a static load of 50 pounds applied perpendicular to the axis of the stake at a point 12 inches from the breaking point and shall break when a static load of 400 pounds is applied at the same point.

- h. Painting. All exterior parts of the fixture shall be painted. Paint for finish coat shall be of a high quality enamel type suitable for the drying process used. The color shall conform to Federal Standard No. 595, Table X, Aviation Yellow No. 13538. Paint for the prime coat shall be suitable for the metal treatment involved.

- i. Parts List and Installation Instructions. A complete parts list and installation instructions shall be furnished with each new installation. The parts list and installation instructions shall also be furnished with individual assemblies shipped for maintenance or replacement purposes. Sufficient drawings or illustrations shall be provided to indicate clearly the method of installation.

8. QUALIFICATION TESTING.

- a. Optical Test. The optical performance of the unit shall be determined by photometric readings taken with a clear lens and a 15-watt multiple lamp as specified in paragraph 7d. The lamp shall be operated at, or corrected to, its rated lumen output and shall be operated on stabilized voltage.

- b. Mounting Stake Loading Test. The stake shall meet all requirements of paragraphs 7g(1) and 7g(2). The load specified in paragraph 7g(2) shall be applied no faster than 50 pounds per minute until the stake breaks.

- c. The manufacturer shall provide certification from the lens manufacturer that the lens assembly meets the transmissivity, color, and ware requirements noted in paragraph 7b.

- d. Additional inspection and tests shall be made as deemed necessary by the Federal Aviation Agency, Airports Service, Washington, D. C. 20553.

9. QUALIFICATION.

- a. The manufacturer shall furnish a unit to a disinterested testing laboratory to be tested as described in paragraph 8 to obtain certification regarding the ability to manufacture equipment meeting the requirements of this specification. The disinterested testing laboratory shall be a laboratory acceptable to the Federal Aviation Agency, Airports Service, Washington, D. C. 20553. The manufacturer shall furnish two copies of the testing laboratory's reports to the Airports Service for review and approval consideration. Upon approval of test reports which show satisfactory certification of compliance, the Airports Service will list the name of the qualified manufacturer and a description of their equipment in Advisory Circular No. 150/5345-1, "Approved Airport Lighting Equipment." The cost of the testing shall be borne by the manufacturer offering the material for qualification.
- b. Parts list and installation instructions shall be submitted to the Federal Aviation Agency, Airports Service, Washington, D. C. 20553, for review.
- c. At any time after approval has been granted under the above conditions a certified copy of factory test reports on the latest production equipment shall be made available by the manufacturer upon written request by the Federal Aviation Agency, Airports Service, Washington, D. C. 20553.

10. HOW TO GET THIS PUBLICATION.

- a. Order copies of this publication from:

Federal Aviation Agency
Distribution Section, HQ-438
Washington, D. C. 20553

- b. Identify the publication in your order as:

FAA Advisory Circular No. 150/5345-8
Specification for L-840 Low Intensity Runway,
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- c. There is no charge for this publication.


for Cole Morrow, Director
Airports Service