HQ-650

Federal Aviation Agency

ADVISORY CIRCULAR

AC NO:	AC 150/5345-12A
	AIRPORTS
EFFECTIVE:	5/12/67

SUBJECT: SPECIFICATION FOR L-801 BEACON

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1. PURPOSE. This circular describes the subject specification requirements and is published by the Federal Aviation Administration for the guidance of the public.

2. CANCELLATION. AC 150/5345-12, Specification for L-801 Beacon for Small Airports, dated February 3, 1964, is cancelled.

3. REFERENCES.

   a. The following military specifications, as referred to hereinafter, of the issue in effect on 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. Copies of these specifications may be obtained from the Armed Services Electro-Standards Agency, Fort Monmouth, New Jersey 07703.

      (1) MIL-C-25050 - Colors, Aeronautical Lights and Lighting Equipment, General Requirements for.

      (2) MIL-C-7989 - Covers, Light-Transmitting for Aeronautical Lights, General Specification for.

   b. Copies of AC 150/5345-38, Changes to Airport Lighting Equipment, and additional copies of this circular, AC 150/5345-12A, Specification for L-801 Beacon, may be obtained from the Federal Aviation Administration, Distribution Unit, HQ-438, Washington, D.C. 20590.

4. EXPLANATION OF REVISION. Light shields have been added on each side of the light source to eliminate stray light.

5. DESCRIPTION OF PUBLICATION. The specification requirements are for a light duty rotating beacon. This beacon consists essentially of a double-ended light projector and optical system mounted on a vertical shaft, an electrical motor-driven mechanism for rotating the projector and optical system, and a spare lamp or lamps, arranged to burn automatically upon failure of the first lamp or lamps.

6. PERFORMANCE REQUIREMENTS.

a. The minimum beam candela of the clear beams shall be 100,000 at an angle of 6^{o} above the horizontal.

b. When color is specified, the candela values shall not be less than those obtained by multiplying the clear candela value specified in paragraph 6a above by the following:

(1) Yellow - .400

(2) Green - .150

(3) Red - .130

c. The minimum beam spread for each beam at 10 percent of the minimum beam candela specified in paragraphs 6a and 6b above shall be 5.0^{o} vertical and horizontal.

d. The speed of rotation shall be 6 rpm plus or minus 1/2 rpm.

e. The unit shall be designed and constructed for continuous service under the following conditions:

(1) Temperature. Any ambient temperature from a minimum of $-45^{o}F$ to a maximum of $+120^{o}F$ at sea level.

(2) Weather. The design and construction of the housing, the base, and all other exposed parts of the beacon shall be such that no water will enter either the housing or the base in any weather condition except a flood which would immerse the beacon or a hurricane in which the wind velocity exceeds 75 miles per hour.

7. DETAIL REQUIREMENTS.

a. Optical System. The optical system shall be designed to project two beams of light 180^{o} apart. In addition, the optical system shall be arranged so that at no time during the complete cycle of operation shall the light output be less than two candela between 6^{o} above the horizontal and the zenith. The cover glass, lenses, and color screens shall be fabricated from heat-resistant glass conforming to

Military Specification MIL-C-7989, Class B. Color lenses or color screens shall conform to Military Specification MIL-C-25050, Type I, of the grade having the highest practical transmission. The beams shall be capable of vertical adjustment from 0^{o} to 12^{o} above the horizontal with specified minimum beam candela of 6^{o} . For any vertical adjustment between 0^{o} and 6^{o} , and between 6^{o} and 12^{o} , the specified minimum beam candela shall not decrease by more than 30 percent.

b. Light Shield. The beacon shall have light shields to allow two 80^{o} beams 180^{o} apart with 100^{o} shielding on each side to eliminate stray light.

c. Lamps. The beacon shall use standard commercially available lamps with a minimum rated life of 500 hours. If low voltage lamps are used, a suitable transformer with 115 volt primary shall be supplied.

* d. Optional Requirement. The beacon, upon request, shall be provided with the following:

(1) Lamp Changer. The beacon shall have a spare lamp or lamps arranged to burn automatically upon failure of the first lamp or lamps. The beacon may use either a single optical system with an automatic lampchanger or may use two separate optical systems, each with its own lamp or lamps and an automatic changeover relay.

(2) Telltale Circuit. The beacon shall be provided with an auxiliary circuit from which to operate a telltale device to indicate failure of the first lamp or lamps. *

e. Power Supply. The beacon shall be designed to utilize a 115 volt, 60 cycle, AC power supply.

f. Rotating Mechanism. The beacon shall be motor-driven with an adequate capacity to maintain the required speed of rotation at ambient temperatures of from $-45^{o}F$ to $+120^{o}F$. A universal type motor will not be acceptable. The beacon shall operate without excessive friction in the motor, gears, vertical shaft bearings, housings, or
* any other part. The total motor input power required to maintain rotation at normal speed shall not exceed 200 watts at an ambient temperature of $+70^{o}$. There shall be no evidence of vibrations of * the lamp filaments with the lamps in place.

8. TESTING.

a. Qualification Testing.

(1) Each beacon shall be subjected to the tests described below and to the applicable detail requirements under paragraph 7.

(a) The optical performance of the beacon shall be determined by photometric readings taken after the beacon has reached stable operating temperature.

(b) The manufacturer shall provide certification from the lens manufacturer that the glassware meets the color and heat-resistant properties specified in paragraph 7a.

(c) The weatherproof requirement of the unit shall be determined as follows. The beacon shall be operated for at least 10 minutes and then a stream of water, from a hose of not less than 0.5 inch nor more than 0.75 inch nominal inside diameter, shall be played on the unit from a distance of not less than 15 feet nor more than 20 feet. The pressure shall be sufficient to throw the water 15 feet above the nozzle. The stream shall be directed against the side and top of the fixture for a period of not less than 2 minutes. The fixture shall be considered weatherproof if it continues to operate satisfactorily during and after this test and there is no breakage of lamps or plastic, or no excessive amount of water collects in the bottom portion of the beacon.

(2) Additional inspection and tests will be made as deemed necessary by the Federal Aviation Administration, Airports Service, Washington, D.C. 20590, to determine compliance with this specification.

9. QUALIFICATION.

a. The manufacturer shall furnish a sample beacon to a disinterested testing laboratory to be tested as described herein to obtain certification regarding the ability to manufacture beacons meeting the requirements of this specification. The disinterested testing laboratory shall be a laboratory acceptable to the Federal Aviation Administration, Airports Service, Washington, D.C. 20590. The manufacturer shall furnish two copies of the testing laboratory's reports to the Airports Service for review and approval consideration. Upon approval of the test reports which show satisfactory certification of compliance, the Airports Service will list the name of the qualified manufacturer and a description of their beacon in AC 150/5345-1A, Approved Airport Lighting Equipment. The cost of testing shall be borne by the manufacturer offering the material for qualification.

b. Parts lists and installation instructions shall be submitted to the Federal Aviation Administration, Airports Service, Washington, D.C. 20590, for review and approval.

c. A certificate of compliance from the lens manufacturer that the lens conforms to the detail requirements specified in paragraph 7 shall be submitted to the Federal Aviation Administration, Airports Service, Washington, D.C. 20590, for review and approval.

d. At any time after approval has been granted under the above conditions, a certified copy of the factory test reports on the latest production run of any beacon produced under this specification shall be made available by the manufacturer upon written request by the Federal Aviation Administration, Airports Service, Washington, D.C. 20590.

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