FAA-E-2351a
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SUPERSEDING
FAA-E-2351, 9/17/68

# DEPARTMENT OF TRANSPORTATION
## FEDERAL AVIATION ADMINISTRATION
## SPECIFICATION

LAMP, PAR-64, VASI

## 1. SCOPE

1.1 Scope.- This specification covers prefocused halogen cycle, PAR-64 lamps for use in Visual Approach Slope Indicator (VASI) Systems.

1.2 Classification.- Two types of lamps are covered by this specification as follows:

| Type | Rating | Designation |
|---|---|---|
| I | 6.6 amps, 300 watts | Q6.6A/PAR 64/3P |
| II | 6.6 amps, 200 watts | Q6.6A/PAR 64/2P |

## 2. APPLICABLE DOCUMENTS

2.1 FAA and Military documents.- The following FAA and Military documents, of the issue in effect on date of invitation for bids or request for proposals, form a part of this specification and are applicable except as modified hereinafter.

2.1.1 FAA drawings.-

| | |
|---|---|
| C-5407-9 | Lamp, Incandescent, PAR-64 Bulb |
| C-5407-10 | VASI Lamp Test Simulator |
| D-5556-1 | Visual Approach Slope Indicator, General Assembly Details |
| D-5556-16 | PAR-64 Lamp and Mounting Details |

2.1.2 Military Specifications.-

| | |
|---|---|
| MIL-L-6363 | Lamp, Incandescent, Aviation Service, General Specification for |
| MIL-E-17555 | Electronic and Electrical Equipment and Associated Repair Parts, Preparation for Delivery of |

(Copies of this specification and drawings, other applicable FAA specifications and single copies of Military specifications may be obtained from the Contracting Officer in the office issuing the invitation for bids or request for proposals. Request should fully identify material desired, i.e., specification, amendment and drawing numbers and date. Requests should cite the invitation for bids, request for proposals, or the contract involved, or other use to be made of the requested material. Mail requests for multiple copies of Military specifications, if found acceptable, will be forwarded to a Military supply depot for filling; hence, ample time should be allowed.)

2.2 Conflict.- In case of conflict between this specification and the specifications referenced in paragraph 2.1.2, this specification shall govern.

## 3. REQUIREMENTS

3.1 Equipment to be furnished by contractor.- The equipment furnished by the contractor shall be VASI lamps, meeting all requirements of this specification, in the type and quantities specified in the contract schedule. The housing for mounting of the lamp and other appurtenances are not required to be furnished under this specification.

3.2 Functional requirements.- These lamps will normally be mounted within 50 feet of the edge of runways serving all types of aircraft. The lamp is required to function in continuous outdoor service when mounted in a lamp housing depicted on FAA Drawing D-5556-1 referred to in paragraph 2.1.1 for information only.

3.3 Lamp design and construction.- The lamps shall be of the prefocused halogen cycle type and shall meet the requirements of Specification MIL-L-6363 for Type I lamps except that the maximum operating ambient temperature shall be 131°F in lieu of 120°F (modifies paragraphs 1.2, 3.6.7, and 4.8.8 of MIL-L-6363). Where Specification MIL-L-6363 refers to "the applicable Military Standard (MS) or drawing", such designation shall be interpreted as reference to this specification. The lamp bulbs and bases shall conform to FAA Drawing C-5407-9.

3.4 Lamp Ratings.- The lamps shall have the following ratings:

| | Type I | Type II |
|---|---|---|
| Designation | Q6.6A/PAR 64/3P | Q6.6A/PAR 64/2P |
| Power | 300 watts | 200 watts |
| Current | 6.6 amperes | 6.6 amperes |
| Bulb | PAR-64 | PAR-64 |
| Base | Mogul End Prong | Mogul End Prong |
| Life | 2000 hours | 2000 hours |
| Color temperature | 3000°K | 3000°K |

3.5 Photometric Requirements.- The lamps, when installed in the VASI lamp test simulator as shown on drawing C-5407-10, shall meet the following light output requirements in the vertical plane containing the optical axis:

a. A minimum intensity of 23,000 candelas (for the 300 watt lamp) or 15,500 candelas (for the 200 watt lamp) shall be obtained in each of the two peaks of the beam, one above and one below the optical axis.

b. The intensity throughout the region from 2½ degrees above to 2½ degrees below the optical axis shall be not less than 11,000 candelas (for the 300 watt lamp) or 7,500 candelas (for the 200 watt lamp).

c. The beam axis, defined as measured midway between the upper and lower edges of the vertical distribution curve at the candela values specified in (b) above, shall coincide with the optical axis within ± ½ degree.

3.6 Marking.- The lamp designation, plus rated current and wattage, shall be marked on the back top side of the reflector.

3.7 Weight.- The weight of the lamp shall be held to the minimum consistent with good design and service requirements.

## 4. QUALITY ASSURANCE PROVISIONS

4.1 General.- The quality assurance provision of MIL-L-6363 shall apply except as modfied hereinafter for qualification tests.

4.2 Qualification tests.- The qualification tests requirement of MIL-L-6363 shall apply with the exception of shock (4.8.10), humidity (4.8.11), and salt spray (4.8.12). In addition to the applicable tests of MIL-L-6363, the following test shall be performed as part of the qualification test:

### 4.2.1 Photometric performance

4.2.1.1 Test equipment.- The test equipment shall include the VASI lamp test simulator shown in drawing C-5407-10. The simulator shall consist of the following:

4.2.1.1.1 VASI lamp mounting.- The VASI lamp mounting shall be equivalent to that shown on Drawing D-5556-16.

4.2.1.1.2 Simulator box.- The simulator shall be a metal box 50 inches long, 14 inches high and 27 inches wide at the slot end, tapering, in plan view, to 15 inches at the lamp end. It may be bottomless. The slot extends the width of the unit at the wide end, is 2-inches high and is centered 7-inches above the bottom of the box. A vertical cut-off is placed inside the box. Tolerances for the above dimensions shall be as shown Drawing C-5407-10.

4.2.1.1.3 Spread lens.- The spread lens shall be as shown on C-5407-10. The spread lens may be obtained on a loan basis for test purposes, upon application to Navigation Development Division, Systems Research and Development Service, Federal Aviation Administration, Washington, D.C. 20590

4.2.1.2 Photometric test procedure.- The lamp shall be installed in the VASI simulator with the all white spread lens as shown on Drawing C-5407-10 and shall be energized with the rated current. Photometric measurements shall be made at a distance of 100 feet from the aperture of the similator in a vertical plane containing the optical axis of the simulator shown on the drawing. The light output from the unit shall meet the requirement of paragraph 3.5.

4.2.2 Qualification test data.- Test data shall be obtained during the qualification tests specified above and submitted in accordance with MIL-L-6363. Each manufacturer desiring to be placed on the Qualified Products List for supplying the VASI lamps specified herein to the Government, shall in addition to the requirements of paragraph 6.3, MIL-6363, furnish a copy of the qualification test data to the Facility Installation Service.

## 5. PREPARATION FOR DELIVERY

5.1 General.- Unless otherwise specified in the contract, lamps shall be prepared for domestic shipment in accordance with the following subparagraphs.

5.2 Packaging.- Packaging shall be in accordance with Specification MIL-E-17555, Level A, Method III. Each lamp, suitably cushioned, shall be packaged in an individual fiberboard container. Unit packages shall be overpacked in intermediate containers with no more than eight (8) unit packages per container. Intermediate containers, when utilized as shipping containers shall meet the requirements of 5.3.

5.3 Packing.- Packing shall be in accordance with Specification MIL-E-17555, Level B.

5.4 Marking.- Each package, intermediate package, and each shipping container shall be durably and legibly marked with the following information:

Name: VASI lamp - Q6.6A/PAR-64/3P or Q6.6A/PAR-64/2P

Specification: FAA-E-2351a

Contract/Order No.: _____

Quantity: _____

Manufacturer's Name and Trade Mark _____

Federal Stock No. _____

## 6. NOTES

6.1 None.

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