T-3773 13,000 CANCELLATION. See AC-150/5345-27A

Federal Aviation Agency

ADVISORY CIRCULAR

CHANGE

AC NO: 150/5345-27 CH 1	
AIRPORTS	
EFFECTIVE:	
10/28/66	

SUBJECT: CH 1 TO ADVISORY CIRCULAR 150/5345-27
SUBJ: SPECIFICATION FOR L-807 EIGHT-FOOT ILLUMINATED WIND CONE

1. PURPOSE. This advisory circular change transmits page changes to the subject advisory circular. This change provides for a new Alloy 360 in the die casting process.

2. EXPLANATION OF CHANGE. Alloy 360 has been added to page 4, paragraph 7h, line 3.

3. PAGE CONTROL CHART.

Remove Page	Dated	Insert Page	Dated
3	2/10/65	3	2/10/65
4	2/10/65	4	10/28/66

Cole Morrow, Director
Airports Service

Federal Aviation Agency

ADVISORY CIRCULAR

AC NO:	AC 150/5345-27
	AIRPORTS
EFFECTIVE:	2/10/65

SUBJECT: SPECIFICATION FOR L-807 EIGHT-FOOT ILLUMINATED WIND CONE

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1. PURPOSE. This circular describes the subject specification requirements for an illuminated wind cone. The specification is for the guidance of the public, and its use is required for project activity under the Federal-aid Airport Program.

2. CANCELLATION. This advisory circular replaces Federal Aviation Agency Specification L-807, "Specification for Eight-Foot Illuminated Wind Cone", dated March 1, 1962, without substantive change.

3. SCOPE OF SPECIFICATION. The specification requirements are for an illuminated wind cone. The unit shall consist essentially of a hinged steel pole, a shaft assembly with bearing supports, a fabric cone, a metal framework support between the shaft assembly and throat of the fabric cone, a lighting fixture assembly for externally illuminating the cone, and an obstruction light.

4. APPLICABLE SPECIFICATIONS AND STANDARD. The following specifications and standard of the issue in effect on the date of application for qualification (see paragraph 9), apply to this circular. This circular shall govern in case of conflict.

   a. Federal Specifications and Standard.

      (1) QQ-A-591-Aluminum Alloy Die Castings.

      (2) QQ-A-601-Aluminum-Alloy Sand Castings.

      (3) QQ-I-716-Iron and Steel; Sheet, Zinc-Coated (Galvanized).

      (4) QQ-P-416-Plating, Cadmium (Electrodeposited).

      (5) TT-R-191-Red Lead, Dry and Paste-In-Oil.

(6) TT-P-465-Pigment, Zinc-Yellow (Zinc Chromate), Dry.

(7) TT-P-641-Primer, Paint; Zinc-Dust-Zinc Oxide (For Galvanized Surfaces).

(8) J-C-103-Cable, Power, Electrical, (Rubber-Insulated, General Purpose) and Wire Electrical, (Rubber-Insulated, General Purpose).

(9) Federal Standard No. 595-Colors.

b. FAA Specification. Specification for L-810 Obstruction Light (AC 150/5345-2).

5. SOURCE OF APPLICABLE SPECIFICATIONS AND STANDARDS.

a. Obtain copies of Federal specifications and standard from the Business Service Centers of the General Services Administration Regional Offices.

b. Obtain copies of FAA specifications from the Federal Aviation Agency, Distribution Section, HQ-438, Washington, D. C. 20553.

6. PERFORMANCE REQUIREMENTS.

a. The fabric wind cone shall move freely about the vertical shaft and shall indicate the true direction of the wind for all velocities in excess of three miles per hour.

b. The lighting fixture assembly shall consist of not less than two lamps and shall provide illumination not less than the minimum horizontal foot-candle values shown on Figure 1.

c. The wind cone shall be supported by the steel pole and shaft assembly so the center of the cone throat is at an elevation of not less than 16 feet above the base of the pole. The pole assembly shall be hinged or otherwise constructed in a manner that will permit the wind cone, external lighting assembly and obstruction light to be lowered for cleaning, relamping, and servicing from the ground or from a platform at the base elevation, and at a distance of not more than six feet from the center of the pole.

d. The entire 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.

(3) Wind. Velocities up to 75 miles an hour shall not cause any discernible permanent deformation of any part of the unit.

7. DETAIL REQUIREMENTS.

a. Cone Fabric. The cone shall be made of natural colored nylon and stitched with heavy-duty nylon thread. The nylon fabric shall meet the following requirements:

(1) Yarn. Bright high tenacity nylon.

(2) Weight Per Square Yard. 3.5 ounces minimum, to 4.5 ounces maximum.

(3) Count. 65 x 55, minimum.

(4) Tensile Strength Per Inch. 200 pounds warp x 170 pounds filling, minimum.

(5) Tongue Tear Test. 11 pounds warp x 10 pounds filling, minimum.

(6) Porosity. Not to exceed 30 cubic feet per minute.

b. Cone Fabrication. The cone shall be fabricated to have essentially the shape of a truncated cone when completely air filled, with an effective length of 8 feet. The opening of the throat end shall have a diameter of 18 inches and an opening at the other end of 8 inches in diameter. Suitable means shall be provided for attaching the cone to the metal framework which supports the throat of the cone so that it may be readily removed and replaced for maintenance purposes without requiring special tools or stitching. At the point of attachment and at all other points where the cone is subject to abrasion from metal parts, it shall be reinforced with natural colored nylon fabric meeting the requirements in paragraph 7a.

c. Metal Framework Support. A metal framework shall hold the throat of the cone in an open position under all wind conditions and provide the means for supporting the cone to the shaft assembly. The metal framework support shall be constructed so that the unsupported throat of the cone is not less than 18 inches from the shaft. This framework shall also perform the function of a wind vane when assembled to the cone.

d. Shaft Assembly. The metal framework support for the cone shall be mounted on the shaft assembly by means of high grade commercial type ball or roller bearing assemblies or by means of oilless type bearings. The bearings and cone support shall permit the cone to swing freely under all conditions. The bearings shall be suitably shielded, housed or otherwise protected to prevent the entrance of moisture and dirt into the moving parts. A slip fitter with hardened steel set screws shall be provided for attaching the shaft assembly to the steel pole.

e. Lighting Fixture Assembly. The lighting fixture assembly shall be mounted on and above the shaft assembly and shall provide at least the minimum foot-candles of illumination on the cone specified in Figure 1. The lighting fixture shall be designed to emit no light above the horizontal. The total wattage of lamps used (excluding obstruction light) shall not exceed 600 watts. The lamps shall be medium screw base type and shall have a rated life of at least 750 hours.

f. Obstruction Light. The obstruction light shall consist of a single multiple fitting and globe conforming to FAA AC 150/5345-2 "Specification for L-810 Obstruction Light". The obstruction light unit shall be mounted so it is not obscured by any part of the lighting fixture assembly when viewed from any position above the level of the obstruction light fitting.

g. Hinged Steel Pole. The hinged steel pole shall support the shaft assembly, the fabric cone and its metal framework support, the lighting fixture assembly and the obstruction light. The base of the pole shall have an anchor plate with not less than four bolt holes for installing the wind cone in place. Four anchor rods, at least 26 inches long, shall be furnished as a part of the unit. The design for the lowering device shall be such that the entire assembly can be raised by a 100 pound pull. Positive mechanical locking means and means for padlocking shall be provided to prevent lowering of the wind cone by other than authorized persons. A one inch I.P.S. female thread for conduit shall be provided in the side of the pole near the base for a wiring entrance. A suitable operating chain properly attached for raising and lowering the hinged assembly shall be provided.

h. Materials. Aluminum sand castings shall conform to Federal Specification QQ-A-601, Alloy 43 or 214, and aluminum die castings * to Federal Specification QQ-A-591, Alloy 13, A13, or 360. The pole and*

shaft assembly shall be of steel and have its exterior surfaces painted for corrosion protection. The metal supporting members and lighting fixture mounting shall be of nonferrous metal or ferrous metal treated after fabrication by galvanizing or zinc plating in accordance with Federal Specification QQ-I-716. All copper or copper alloy parts installed in contact with aluminum alloy shall be nickel or cadmium plated in accordance with Federal Specification QQ-P-416, Class 1, Type I.

i. Paint. One prime, one body and one finish coat of paint shall be applied to the exterior surfaces of metal parts of the wind cone assembly except the reflecting surface of the lighting fixture(s). Priming paints shall be red lead in oil or zinc chromate for bare metal surfaces and zinc dust-zinc oxide for galvanized metal surfaces conforming respectively to Federal Specification TT-R-191, TT-P-465 and TT-P-641. Paint for body and finish coats shall be ready mixed, bright, nonfading Aviation Orange, conforming to Federal Standard No. 595, Colors, Table X, Aviation Orange No. 12197.

j. Wiring. A sufficient amount of #14 AWG flexible rubber, insulated weather-proof wire, conforming to Federal Specification J-C-103, Type RH or RW, shall be supplied to make all connections from the conduit entrance in the base of the pole to the lampholders of the lighting fixture assembly. Provisions shall be made for utilizing the metal supporting members of the unit as a raceway for the wiring.

k. Parts List and Installation Instructions. A complete parts list and installation instructions shall be furnished with each unit. Sufficient drawings or illustrations shall be provided to indicate clearly the method of installation.

8. APPROVAL TESTING. One sample production unit submitted for approval shall be subjected to and checked for compliance with tests described below:

a. The optical performance of the unit shall be determined by photometric readings taken with the lamps operating at stabilized voltage and results corrected to the rated lumen output of the lamps.

b. The ability of the unit to withstand a wind velocity of 75 miles per hour without discernible permanent deformation shall be determined by applying a static load of 75 pounds on the shaft assembly at a point 16 feet above the base elevation of the pole for a period of 10 minutes. This test shall be made with the unit completely assembled and rigidly held in position at the base of the pole.

c. The movement of the cone about the shaft assembly shall be tested for conformance with the requirements of paragraph 6a. The performance will be considered satisfactory if the wind cone lines up within plus or minus 5° the true wind direction. In lieu of the actual determination of this "wind-vaning" characteristic, the performance will be considered satisfactory if the wind cone moves freely about the shaft when a force of 30 ounce-inches is applied to the cone or metal framework support. The weight shall be applied at a point 5 inches out from the center of the vertical shaft assembly. If used, this test shall be run in at least four equidistant positions in azimuth around the shaft and the results shall be averaged.

9. QUALIFICATION. The manufacturer shall furnish a production sample to an independent testing laboratory, acceptable to the Federal Aviation Agency, Airports Service, Washington, D. C. 20553, to be tested as described in paragraph 8 to obtain certification regarding the ability to manufacture a wind cone meeting the requirements of this specification. The manufacturer shall furnish two copies of the test report to the Federal Aviation Agency, Airports Service, Washington, D. C. 20553, for review and approval consideration. The cost of testing shall be borne by the manufacturer offering the equipment for approval.

a. If the manufacturer has satisfactory laboratory facilities, the tests may be performed at the factory and such tests shall be witnessed by a representative of the Airports Service, Washington, D. C. The manufacturer shall furnish written reports of these tests.

b. In addition to the test performed by the independent laboratory or the manufacturer, the manufacturer shall:

(1) Furnish a certification from the fabric manufacturer that the nylon used meets the requirements of paragraph 7a.

(2) Furnish parts lists, drawings and installation instructions to the Airports Service, Washington, D. C. 20553, for review and approval.

c. Additional inspections and tests will be made as deemed necessary by the Airports Service, Washington, D. C. 20553, to determine compliance with this specification.

d. Upon approval of the independent laboratory's or the manufacturer's test reports and the additional data required in paragraph 9b, which have shown satisfactory conformance to specification

requirements, the Airports Service will list the name of the qualified manufacturer and a description of their wind cone in Advisory Circular No. 150/5345-1, "Approved Airport Lighting Equipment".

e. At any time after approval has been granted under the above conditions, a certified copy of factory test reports on the latest production run of wind cones produced under this specification shall be made available by the manufacturer upon written request from the Federal Aviation Agency, Airports Service, Washington, D. C. 20553

10. HOW TO GET THIS CIRCULAR. Obtain additional copies of this circular, AC 150/5345-27, "Specification for L-807 Eight-Foot Illuminated Wind Cone", from the Federal Aviation Agency, Distribution Section, HQ-438, Washington, D. C. 20553.

Cole Morrow, Director
Airports Service

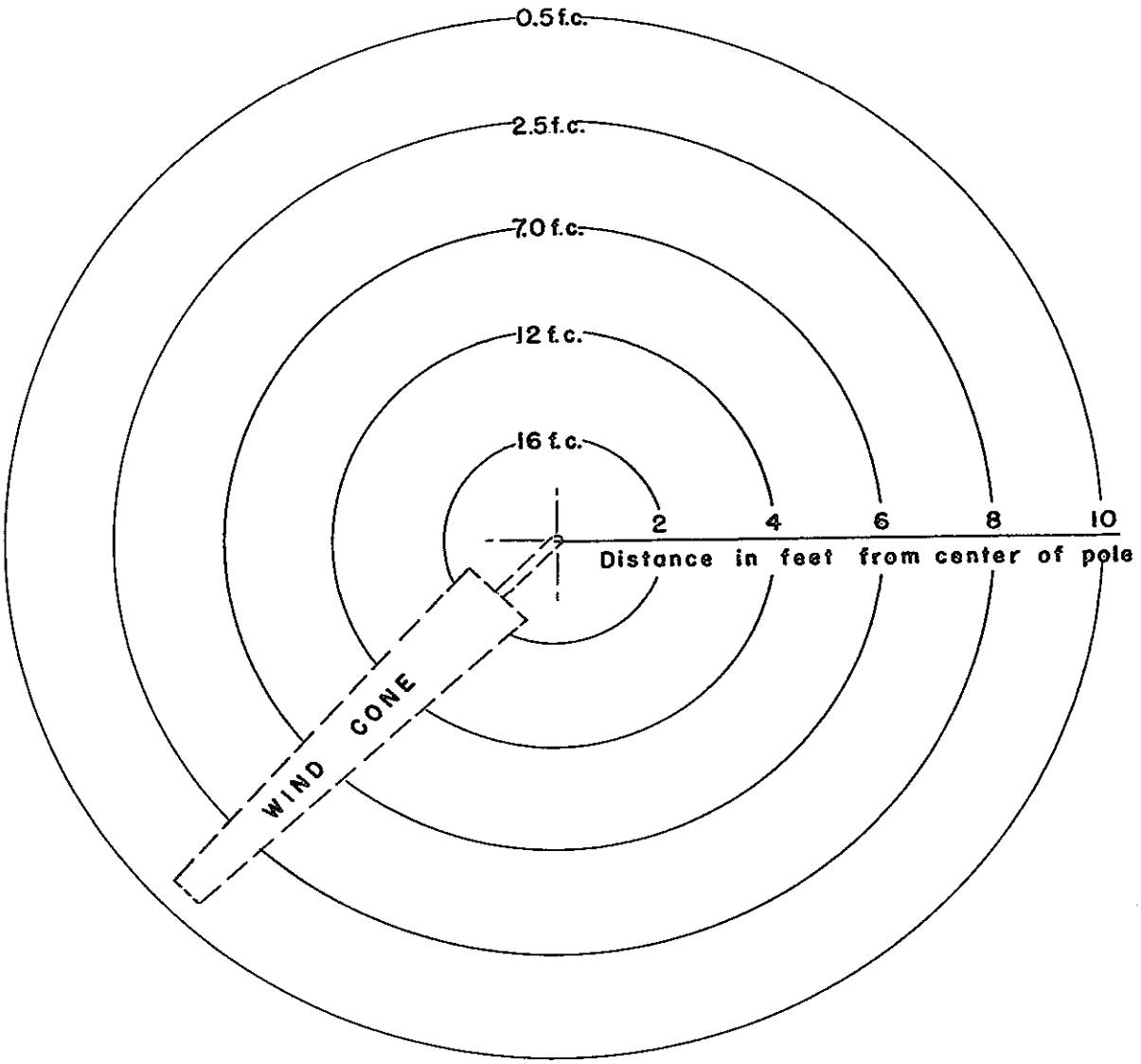

FIGURE 1. HORIZONTAL ILLUMINATION IN FOOT-CANDLES ON HORIZONTAL PLANE THROUGH CENTER OF CONE