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ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: SPECIFICATION FOR L-807 EIGHT-FOOT AND TWELVE-FOOT UNLIGHTED OR EXTERNALLY LIGHTED WIND CONE ASSEMBLIES

1. PURPOSE. This circular describes the subject specification requirements for a hinged steel pole support, an anodized tapered aluminum hinged base pole support, and an "A" frame fixed support with a pivoted center pipe support. This specification is for guidance to the public.
2. CANCELLATION. The following advisory circulars are cancelled:
 - ✓ a. AC 150/5345-14, Specification for L-827 "A" Frame Hinged Support for 12-Foot Wind Cone, dated 2/13/64.
 - ✓ b. AC 150/5345-27, Specification for L-807 Eight-Foot Illuminated Wind Cone, dated 2/10/65.
3. SCOPE OF SPECIFICATION. The specification requirements are for an 8-foot or a 12-foot unlighted or lighted wind cone assembly. The unit consists essentially of either a hinged steel pole support, an anodized tapered aluminum hinged base support, or an "A" frame fixed base support with a pivoted center pipe support; a shaft assembly with bearing supports; a lighted assembly for externally illuminating the cone; and an obstruction light.
4. REFERENCES. The following specifications of the issue in effect on the date of application for qualification (Paragraph 10) apply to this circular. In case of a conflict, this circular shall govern.
 - a. Copies of the following Federal specifications and standards may be obtained from the appropriate Regional General Service Administration Office:
 - (1) QQ-A-200/8c - Aluminum Alloy Bar, Rod, Shapes, Tube and Wire, Extruded and Structural, Shapes 6061.

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- (2) QQ-A-200/9b - Aluminum Alloy Bar, Rod, Shapes, Tube and Wire, Extruded, 6063.
 - (3) QQ-A-591 - Aluminum - Alloy Die Castings.
 - (4) QQ-A-601 - Aluminum - Alloy Sand Castings.
 - (5) QQ-P-416b - Plating, Cadmium (Electrodeposited).
 - (6) QQ-S-775 - Steel, Sheets, Carbon, Zinc-Coated.
 - (7) TT-R-191 - Red Lead, Dry and Paste-In-Oil.
 - (8) TT-P-465 - Pigment, Zinc-Yellow (Zinc Chromate), Dry.
 - (9) TT-P-641 - Primer, Paint; Zinc Dust-Zinc Oxide (For Galvanized Surfaces).
 - (10) Federal Standard No. 595, Colors.
 - (11) J-C-30 - Cable and Wire, Electrical (Power, Fixed Installation).
 - (12) CCC-C-432b - Cloth, Sheeting, Cotton (unbleached, and bleached and dyed).
 - (13) CCC-C-443c - Cloth, Cotton, Duck (single and plied filling yarns, flat).
- b. Copies of Military specifications may be obtained from the Armed Services Electro-Standard Agency, Fort Monmouth, New Jersey 08852.
- (1) MIL-A-6625a - Anodic Coatings for Aluminum and Aluminum Alloys.
 - (2) MIL-W-45205 - Welding, Gas, Metal, Arc and Gas Tungsten-Arc, Aluminum Alloys, Readily Weldable for Structures Excluding Arms.
 - (3) MIL-L-7830B - Light, Marker, Boundary and Obstruction, Airfield Lighting.

- c. Copies of Federal Aviation Administration (FAA) AC 150/5345-2, Specification for L-810 Obstruction Light, and additional copies of this circular may be obtained from the Department of Transportation, Distribution Unit, TAD-484.3, Washington, D.C. 20590.

5. EXPLANATION OF REVISION. This specification was revised to incorporate all wind cone support assemblies under one specification and to provide detail requirements for a new anodized tapered aluminum hinged base wind cone assembly.

6. SIZE AND TYPE.

- a. Size. The wind cone support assemblies may be built in two sizes; one to support an 18-inch diameter, 8-foot long fabric wind cone, and one to support a 36-inch diameter, 12-foot long fabric wind cone.
- b. Types. The wind cone support assemblies may be built in three types. Each type shall be designed to permit lowering of the wind cone assembly from the ground or from a platform at the base elevation for cleaning, relamping, and servicing.
 - (1) Type I. This wind cone support consists of a hinged steel pole designed for use with an 8-foot fabric wind cone. See Figure 1.
 - (2) Type II. This wind cone support consists of an anodized tapered aluminum hinged base pole designed for use with either an 8-foot or a 12-foot fabric wind cone. See Figure 2.
 - (3) Type III. This wind cone support consists of an "A" frame fixed support with a pivoted pipe support designed for use with a 12-foot fabric wind cone. See Figure 3.

7. PERFORMANCE REQUIREMENTS.

- a. Cone Movement. 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. Illumination. The lighting fixture assembly shall consist of not less than two lamps and shall provide illumination of not less than the minimum horizontal foot-candle values shown in Figure 4.

- c. Height and Servicing. The wind cone shall be supported by the pole assembly, so that 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 the 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. Operating Conditions. Each type of wind cone support assembly, when installed with the wind cone assembly, shall be designed and constructed for continuous service under the following conditions:
 - (1) Temperature. Any ambient temperature from a minimum of -45 degrees Fahrenheit to a maximum of +125 degrees Fahrenheit at sea level.
 - (2) Weather. Continuous operation under normal weather conditions.
 - (3) Wind. Wind velocities up to 75 miles per hour shall not cause any discernible permanent deformation of any part of the unit.

8. DETAIL REQUIREMENTS.

- a. Cone Fabrication. Fabricate the cone to have essentially the shape of a truncated cone when completely air filled. Provide suitable means 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 points where the cone is subject to abrasion from metal parts, reinforce the nylon fabric with nylon fabric meeting the requirements of Paragraph 8h(1), and the cloth fabric with cotton duck meeting the requirements of Paragraph 8h(2). The effective length and the throat end opening diameter of the fabric cones are as follows:
 - (1) Eight-Foot Cone. Eight feet in length and 18 inches in diameter for the throat end opening.
 - (2) Twelve-Foot Cone. Twelve feet in length and 36 inches in diameter for the throat end opening.

- b. Metal Framework Fabric Cone Supports. Construct the metal framework to hold the fabric cone in an open position under all wind conditions and to provide the means for supporting the cone to the wind cone assembly support. Construct the metal framework from one of the metals specified in Paragraphs 8b(1), (2), and (3), so that the unsupported throat of the 8-foot cone is not less than 18 inches from the support shaft, and so that the 12-foot cone is not less than 30 inches from the support shaft. When this framework is assembled to the cone, it shall perform the function of a wind vane.
- (1) Metal Sheet Steel Construction. The metal framework shall consist of a sheet steel cylinder assembly, hot-dipped galvanized, arranged for attachment to the two ball bearing housings. An outer clamping ring shall be provided for securing the fabric cone.
- (2) Tubular Aluminum Construction. This aluminum framework shall consist of a round tubular aluminum cylinder assembly, anodized, arranged for attachment to the two ball bearing housings. Accomplish all fabrication of the aluminum cylinder by means of continuous welds. Provide solid nylon tie strap fasteners for each grommet, plus two spare tie fasteners.
- (3) Metal Steel Strap Construction. This metal framework shall consist of a cylindrical assembly of steel straps, hot-dipped galvanized, arranged for attachment to the two ball bearing housings. An outer clamping ring shall be provided for securing the fabric cone.
- c. Obstruction Light. The obstruction light unit shall consist of a single multiple fitting and a globe conforming to AC 150/5345-2, Specification for L-810 Obstruction Light, or MIL-L-7830B. Mount the obstruction light so that 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.
- d. Wind Cone Lighting Assembly. A sufficient amount of No. 14 AWG minimum size flexible rubber insulated weatherproof wire, conforming to Federal Specification J-C-30, Type RHH, shall be supplied to make all connections from the conduit entrance in the base of the metal pole support to the lamp holders of the lighting fixture assembly. Make provisions for utilizing the metal supporting members as a raceway for the wiring.

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- e. Lighting Fixtures. Use the following lighting fixtures for the 8-foot and 12-foot wind cone assemblies:
- (1) Eight-Foot Lighting Assembly. Use lighting fixtures designed for 150 watts, 115 volts, PS-25 bulbs, and medium screw-base lamps.
 - (2) Twelve-Foot Lighting Assembly. Use lighting fixtures designed for 200 watts, 115 volts, PS-30 clear bulb, and medium screw-base lamps.
- f. Parts List, Drawings, and Installation Instructions. Furnish a complete parts list and installation instructions with each unit. Provide sufficient drawings or illustrations to indicate clearly the method of installation.
- g. Bearings. Provide two high grade commercial type bearings for each wind cone assembly. The bearings shall be of the ball bearing type. Each bearing support shall be fitted with a minimum of two hardened steel socket set screws, 3/8-inch NC of the Loc-wel vibration-proof type. Fit each bearing support with a standard grease fitting. Where it is required, provide bearing covers for each bearing so that the effects of rain, snow, ice, dust, etc., may be held to a minimum. Each bearing shall be designed to be attached to the vertical wind cone extension shaft support as specified below:
- (1) Type I - 1-inch extra strong standard pipe support.
 - (2) Type II - 2-inch OD with 0.25-inch wall thickness, 42-inch long bearing support tube, welded into the top of the main support aluminum pole.
 - (3) Type III - 1-1/2-inch double extra strong standard pipe support.
- h. Cone Fabric. Make the cone of fabric conform to either of the following requirements:
- (1) Nylon Fabric. Make the cone of natural colored nylon and stitch it with heavy-duty nylon thread. The nylon fabric shall conform to the following requirements:
 - (a) Yarn - bright high tenacity nylon.
 - (b) Weight Per Square Yard - 3.5-ounce minimum to 4.5-ounce maximum.

- (c) Count - 65 x 55 minimum.
 - (d) Tensile Strength - 200 pounds warp by 170 pounds filling minimum.
 - (e) Torque Tear Test - 11 pounds warp by 10 pounds filling minimum.
 - (f) Porosity - not to exceed 30 cubic feet per minute.
- (2) Cloth. Make the cloth cones of cotton sheeting, to conform with Federal Specification CCC-C-432b, reinforced with cotton duck, to conform with Federal Specification CCC-C-443c for a 9-ounce, Type I, single filling, Class A, gray duck.
- (3) Cloth Cone Mildew Processing. Process each assembled cloth cone with zinc naphthenate by either a solvent, emulsion, or ammonia process. Apply the processing material with such a concentration to assure a deposit of not less than 1.5 percent metallic zinc, based on the weight of the material. The processing shall conform to the following requirements:
- (a) Application. Apply the processing material to penetrate the material so that the fibers are impregnated and not just merely coated on the outer surface.
 - (b) Results. The processing shall produce a treated cloth that is neither greasy nor sticky at all temperatures which may be experienced under the normal conditions of storage.
 - (c) Effect. The processing material shall be nontoxic. The treated fabric shall be noninjurious when handled and shall have no deteriorating effect on wood or metal with which it may come in contact.
 - (d) Protection. Protect against mildew, mold, and fungus attacks.
 - (e) Flexibility. Shall not materially affect the flexibility of the cloth.
 - (f) Weight. Shall not add any hygroscopic qualities to the cloth or increase the weight thereof of more than 1.5 percent.

- (g) Treated Surfaces. Shall not deposit substances that will crack, peel, bleach, or flake from the treated surface.
 - (h) Flammability. Shall not increase the flammability of the cloth.
 - (i) Life. Shall not breakdown under general conditions of use, shall not wash out or dissolve under exposure to the elements, and shall not decompose under storage conditions.
- (4) When it is requested, a cotton fabric wind cone meeting the requirements of this specification may be impregnated with a day-glo blaze, orange paint-like substance that will not stick in hot or wet weather, and supplied in lieu of the natural colored cotton fabric wind cone.
- i. Processing Compound Chemical Requirements. Zinc salts shall be of a good commercial technical grade. Naphthenic acid shall be of the group of cyclopentane carboxylic acids as occurring in petroleum, having an acid number not less than 180 on the oil-free basis, and shall not contain more than 25 percent unsaponifiable matter. The zinc naphthenate shall be manufactured by a standard commercial method generally used in the manufacture of this compound, and all chemical reactions shall be complete.
 - j. Eight-Foot and Twelve-Foot Wind Cone Assemblies.
 - (1) Type I, Hinged Steel Pole.
 - (a) Steel Pole. Design the hinged steel pole to provide a height of at least 16 feet from the ground to the center of the cylindrical cone support. The hinged steel pole shall support the lighting assembly and the obstruction light. Supply and anchor the plate on the base of the pole with not less than four bolt holes for installing the wind cone assembly in place. Furnish four anchor rods at least 30 inches long as a part of the unit. Design the lowering device so that the entire assembly can be raised by a 100-pound pull. Furnish positive mechanical locking means and means for padlocking to prevent the lowering of the wind cone assembly by unauthorized persons. Provide a one-inch I.P.S. female thread for conduit in the side of the pole near the base for wiring entrance. Provide a suitable operating chain that is properly attached for raising and lowering the hinged assembly.

- (b) Shaft Assembly. Mount the metal framework support for the fabric cone on the shaft assembly by means of a high grade commercial type bearing. Design the bearings and fabric cone support to permit the cone to swing freely under all conditions. Suitably shield, house, or otherwise protect the bearings to prevent the entrance of moisture and dirt into the moving parts. Provide a slip fitter with hardened steel set screws for attaching the shaft assembly to the top of the steel pole.
- (c) Lighting Fixture Assembly. The lighting fixture assembly consists of the following listed components. When the components are assembled, the assembly shall be mounted on and above the wind cone assembly vertical shaft support to provide at least the foot-candles of illumination specified in Figure 4. Design the lighting fixtures to omit light above the horizontal. Do not exceed 600 watts for the lamp load (excluding the obstruction light) for the 8-foot wind cone.
- 1 Splice Box, Gasket, and Cover. Use a cast iron outlet fitting with four 1/2-inch pipe tap hubs on the side, spaced 90 degrees apart for horizontal supports; a 1-inch pipe tap hub in the center of its bottom, for attaching to the vertical light assembly support; and a cast iron cover plate with a 1/2-inch pipe tap hub in its center for the vertical support of the obstruction light.
 - 2 Standard Pipe Nipple. Use a 1/2-inch by 1-inch long pipe nipple to extend the obstruction light vertically above the wind cone assembly.
 - 3 Lighting Fixture Horizontal Supports. Use four 1/2-inch extra strong pipe taper, threaded at both ends to extend the light fixtures horizontally above the wind cone assembly.
- (d) Materials. Aluminum sand castings shall conform to Federal Specification QQ-A-601, Alloy 43 or 214. Aluminum die castings shall conform to Federal Specification QQ-A-591, Alloy 13, A13, or 360. Construct the pole and shaft assembly of steel and paint the exterior surfaces to prevent corrosion. Construct the metal supporting members and lighting fixture mountings of nonferrous metal or ferrous metal, treated after fabrication by galvanizing or zinc plating in accordance with Federal Specification QQ-S-775. 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 1.

- (e) Paint. Apply one prime, one body, and one finish coat of paint to the exterior surfaces of metal parts of the wind cone assembly, except the reflecting surfaces of the light fixture. Use primary paint of red lead in oil or zinc chromate for bare metal surfaces and zinc dust-zinc oxide for galvanized metal surfaces conforming, respectively, to Federal Specifications TT-R-191, TT-P-465, and TT-P-641. Use paint for body and finish coats that is ready-mixed, nonfading Aviation Orange, conforming to Federal Standard No. 595, Colors, Table X, Aviation Orange No. 12197.

(2) Type II, Anodized Tapered Aluminum Pole.

- (a) Pole Shaft. Construct the pole shaft assembly of a seamless tapered extrusion of high-strength aluminum alloy, measuring 4-1/2 inches OD at the top and 6 inches OD at the base, and having an 0.188-inch minimum wall thickness. Weld the pole shaft into the base casting at its lower end by a single continuous weld and 4 plug welds 3/4 of an inch in diameter. Form the welds so that they are not visible from the outside of the pole.

The overall length of the pole including the base shall be 16 feet. Fit the pole shaft at its upper end with a bearing support tube, which measures 2 inches OD with a 0.250-inch wall thickness and 42 inches long, of extruded aluminum alloy. Weld the bearing support tube into the top of the pole by means of a 2-1/2-inch long filler ring, using 2 continuous welds and 2 plug welds 5/8 of an inch in diameter. Construct the filler ring of aluminum alloy. Thread the bearing support tube 1-1/2 inches I.P.S. at its upper end and install a standard 1-1/2-inch I.P.S. aluminum pipe cap.

- (b) Hinged Base. The hinged base shall consist of a pole base casting and a base plate casting. Make the castings from a high-strength ductible aluminum-magnesium alloy. Join the castings with a 3/4-inch diameter hinge pin of aluminum and 2 steel flat socket cap screws 3/4-inch NC by 1-1/2 inches long. Include cap screws of the Loc-wel type, with tamper proof "pin-in-hex-hole" head, and a matching key for lowering the pole for servicing. Provide ample wiring space at the base of the hinged base pole so

that no wiring hand-hole will be necessary. Use a 5/16-inch NC Loc-wel type socket set screw to retain the hinged pin.

- (c) Padlock Bracket. Fit the hinged base with a padlock bracket made of an aluminum alloy with a 1/4-inch minimum thickness. Attach it to the keyed base by a continuous weld.
- (d) Pole Rest. Equip the pole shaft with a pole rest, so that the wind cone frame may be kept off the ground when lowering for servicing. Design the pole rest of telescoping tubular construction, using 1-1/2-inch and 2-inch I.P.S. aluminum pipe. Attach it to the pole by means of a pivot casting continuously welded to the pole. Make the pole rest so that it will pivot freely by means of a 1/2-inch diameter stainless steel hex-head cup screw 1/2-inch NC by 3 inches with a stainless steel nylon hex-nut. Fit the pole rest with a 3/8-inch thick bottom plate and a suitable neoprene bumper to prevent the contact of the pole rest with the pole.
- (e) Tag Line. Fit the pole shaft with a tag line to serve as a safety cord for lowering of the pole by a two-man team. Use a tag line of braided nylon cord, 3/8-inch diameter by 35 feet long, and knot it into an eye at the top of the pole. Design the eye of 3/8-inch diameter aluminum alloy with both legs continuously-welded to the pole shaft. Install a cleat at the 3-foot 3-inch level of the pole, for storage of the tag line. Cut the cleat of "Almag-35," and continuously weld it to the pole.
- (f) Bearing Covers. Provide a bearing cover for each bearing, so that the effect of rain, snow, ice, dust, etc., may be held to a minimum. Make the bearing cover flexible, so that the ice formations will be reduced by normal vaning of the wind cone assembly. Make the bearing cover of transparent unbreakable butyrate plastic, 0.031-inch minimum thickness, so that the bearings may be inspected without the removal of the cover. Secure the cover in place by means of a standard all-stainless steel hose clamp, size 2-inch by 2-1/4-inches in diameter.
- (g) Anchorage. Use 4 steel anchor bolts 3/4-inch NC by 36 inches long. Provide 8 hex-nuts 3/4-inch NC for setting the pole level and plumb. Minimum size of the concrete foundation shall be 15 inches square by 5 feet deep. Furnish a complete drawing for making the foundation.

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- (h) Fasteners. All of the hinged-base screws and bearing screws used shall conform to the "Loc-wel" type having nylon inserts to prevent loosening from vibration. All screws, nuts, lockwashers, etc., shall be of steel cadmium plate for compatibility with aluminum in accordance with Federal Specification QQ-P-416b.
- (i) Welding. For all welds use the inert gas-shielded metal arc process in accordance with Specification MIL-A-45205 and use a consumable electrode wire of aluminum alloy 4043. All welds must be of the highest strength, neat appearing, and completely homogeneous, without flux, slag, or cracks.
- (j) Anodizing. Anodize all aluminum surfaces of the unit for maximum corrosion protection in accordance with Military Specification MIL-A-8625a. Anodize the wind cone pole assembly in natural aluminum color, or in one of the ten architectural colors available at the option of the purchaser.
- (k) Name Plate. Attach a name plate to the pole at a point 48 inches above the base. Include on the name plate the model number, the manufacturer's name and address, and the procedures for lowering the pole for servicing. Construct the name plate of anodized aluminum, 0.006 of an inch thick, with a self-adhesive back.
- (l) Lighting Fixture Assembly. The lighting fixture assembly shall consist of the following components. When the components are assembled, the assembly shall be mounted on and above the wind cone vertical support to provide at least the foot-candles of illumination specified in Figure 4. Do not exceed 600 watts for the total lamp load (excluding the obstruction light) for the 8-foot wind cone, and do not exceed 800 watts for the total lamp load (excluding obstruction light) for the 12-foot wind cone.
 - 1 Standard Aluminum Pipe Reducer. Use a 1-1/2-inch to 1-1/4-inch aluminum pipe reducer to attach the lighting assembly 1-1/4-inch vertical support to the 1-1/2-inch wind cone vertical support.
 - 2 Lighting Assembly Vertical Support. Use a 1-1/4-inch standard aluminum conduit vertical support threaded at both ends to extend the light fixtures vertically above the wind cone assembly.

3 Splice Box, Gasket, and Cover. Use a cast aluminum outlet fitting with four 3/4-inch tap hubs threaded for aluminum conduit on the side, spaced 90 degrees apart for horizontally extending the light fixtures, and a cast aluminum cover plate with a 3/4-inch tap hub threaded for aluminum conduit for extending vertically the obstruction light.

4 Standard Aluminum Nipple. Use a 3/4-inch by 1-inch long aluminum nipple to extend the obstruction light vertically above the wind cone assembly.

5 Lighting Fixture Supports.

a Use a 3/4-inch standard aluminum conduit horizontal support, threaded at both ends, to extend the light fixtures horizontally above the wind cone.

b Other methods of supporting the lamps above the wind cone to provide the minimum foot-candle values shown in Figure 4 may be used provided it conforms to the requirements of Paragraph 8j(2)(1).

(m) Materials. Construct the components listed below from the material specified or an approved equal:

1 Tapered Anodized Aluminum Pole Shaft Assembly. Use seamless tapered extrusion of high-strength aluminum alloy 6063-T6 conforming to Federal Specification QQ-A-200/9b.

2 Bearing Support Tube. Use extruded aluminum alloy 6061-T6 conforming to Federal Specification QQ-A-200/8c.

3 Filler Ring. Use aluminum alloy 6061-T6 conforming to Federal Specification QQ-A-200/8c.

4 Hinged Pole Base and Base Plate Casting. Use high-strength ductible aluminum magnesium alloy "Almag-35" conforming to Federal Specification QQ-A-601b.

5 Hinge Pin. Use aluminum alloy 6061-T6 conforming to Federal Specification QQ-A-200/8c.

6 Padlock Bracket. Use aluminum alloy 6063 conforming to Federal Specification QQ-A-200/9b.

7 Pole Rest. Use aluminum pipe, schedule 80, alloy 6061-T6 conforming to Federal Specification QQ-A-200/8c.

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- 8 Pivot Casting. Use high-strength ductible aluminum magnesium alloy "Almag-35" conforming to Federal Specification QQ-A-601b.
- 9 Tag Line Eye. Use aluminum alloy 6061-T6 conforming to Federal Specification QQ-A-200/8c.
- 10 Tag Line Cleat. Use high-strength aluminum magnesium alloy "Almag-35" conforming to Federal Specification QQ-A-601b.

(3) Type III, "A" Frame Fixed Hinged Support.

- (a) "A" Frame. Construct the "A" frame section of the hinged support of 3-inch seamless steel pipe, with cross members of 6-inch, 8.2-pound channel iron welded to the steel pipe as shown in Figure 3. Weld a braced sheet steel footing to each leg of the "A" frame. Insert a 1/2-inch diameter U-bolt through the lower channel cross member to rigidly hold the pivot center pipe support in a vertical position. Mount a 1-inch, Type C Condulet, or equal, with gasketed cover on one leg of the "A" frame near the pipe support hinge. The 1-inch power supply conduit shall be furnished by others. Provide a cable connector with rubber bushing for cable 1/2-inch to 5/8-inch outside diameter in the top of the Condulet and in the wall of the pipe support to provide entrance for a loop of No. 14 AWG minimum size, two conductors, 600-volt, Type SO Flexible rubber covered cable. Furnish a 25-foot length of the above mentioned cable with the support. Arrange the cable connectors so the loop of flexible cable will not foul when the hinged support is lowered or raised. Arrange the base of the "A" frame to be mounted with 3/4-inch anchor bolts embedded in concrete footing.
- (b) Center Pipe Support. Construct the pivot support of 3-inch standard seamless steel pipe, mounted on the "A" frame in accordance with Figure 3. Weld a sleeve for receiving the 1-1/2-inch wind cone assembly in the top of the pipe support. Use six 3/8-inch set screws to project through the pipe support and sleeve to rigidly hold the wind cone shaft in place. Provide a cable connector, as mentioned in Paragraph 8j(3)(a), in the pipe support near the pivot point for the flexible cable wiring entrance. Provide four 3/8-inch diameter bars, 12 inches long, extending through the pipe support at the lower end, to hold a cast concrete counterweight or metal counterweight. Mount the counterweight provided by others on the pipe support at the time

of installation. Provide a 9/16-inch hole at the lower end of the pipe support for attaching the operating chain. Furnish 12 feet of No. 10 AWG galvanized coil chains and two 1/2-inch diameter by 2-inch bolts with 2 nuts and washers.

- (c) Guy Brackets. Provide 2 guy brackets, as shown in Figure 3. Construct the guy brackets so that they will be rigidly held to the "A" frame by means of the hinge bolt.
- (d) Shaft Assembly. Mount the metal framework support for the fabric cone on the shaft assembly by means of a high grade commercial type bearing. Design the bearings and fabric cone support to permit the cone to swing freely under all conditions. Suitably shield, house, or otherwise protect the bearings to prevent the entrance of moisture and dirt into the moving parts. Provide a slip fitter with hardened steel set screws for attaching the shaft assembly to the top of the steel pole.
- (e) Lighting Fixture Assembly. The lighting fixture assembly shall consist of the following listed components. When the components are assembled, the assembly shall be mounted on and above the wind cone vertical support to provide at least the foot-candles of illumination specified in Figure 4. Design the lighting fixtures to emit no light above the horizontal. Do not exceed 800 watts with total lamp load (excluding the obstruction light) for the 12-foot wind cone.
 - 1 Standard Pipe Reducer. Use a 1-1/2-inch to 1-inch pipe reducer to attach the lighting assembly 1-inch vertical support to the 1-1/2-inch wind cone vertical support.
 - 2 Lighting Assembly Vertical Support. Use a 1-inch double extra strong pipe taper threaded at both ends to extend the lighting fixtures vertically above the wind cone assembly.
 - 3 Splice Box, Gasket, and Cover. Use a cast iron outlet fitting with four 3/4-inch pipe tap hubs on the side, spaced 90 degrees apart for horizontally extending the light fixtures; a 1-inch pipe tap hub in the center of its bottom for attaching to the light assembly vertical extension support; and a cast iron cover plate with a 3/4-inch pipe tap hub in the center for the vertical support of the obstruction light.

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- c. Cone Movement. Test the cone movement about the vertical shaft support assembly for conformance with the requirements of Paragraph 7. The performance shall be considered satisfactory if the wind cone lines up within plus or minus 5 degrees of the true wind direction. In lieu of the actual determination of the wind-vaning characteristic, the performance shall 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. Apply the weight at a point 5 inches out from the vertical support shaft assembly. If used, run this test in at least 4 equidistant positions in azimuth around the shaft and average the results.

10. QUALIFICATION.

- a. Independent Laboratory. The manufacturer shall furnish a production sample to an independent testing laboratory, acceptable to the Federal Aviation Administration, Airports Service, Washington, D.C. 20590, to be tested as described in Paragraph 9, to obtain a certification regarding the ability to manufacture a wind cone assembly meeting the requirements of this specification. The manufacturer shall furnish 2 copies of the test report to the Federal Aviation Administration, Airports Service, Washington, D.C. 20590, for review and approval consideration. Upon approval of test reports which show satisfactory certification of compliance, the Airports Service shall list the name of the qualified manufacturer and a description of their wind cone assembly in AC 150/5345-1B, Approved Airport Lighting Equipment. The cost of testing shall be borne by the manufacturer offering the equipment for approval.
- b. Manufacturer's Facilities. If the manufacturer has satisfactory laboratory facilities, tests may be performed at the factory and such tests shall be witnessed by a representative of the Airports Service, Washington, D.C. Written reports of these tests shall be submitted by the manufacturer.
- c. Additional Information Required. In addition to the tests performed, the manufacturer is required to provide the following:
 - (1) Certification. Furnish a certification from the fabric manufacturer that the nylon or cotton fabric meets the requirements of Paragraph 8h.
 - (2) Parts List, Drawings, and Installation Instructions. Furnish a parts list, drawings, and installation instructions to the Airports Service, Washington, D.C. 20590, for review and approval.

- (3) Additional Inspections. Additional inspections and tests are to be made as required by the Federal Aviation Administration, Airports Service, Washington, D.C. 20590.
- d. Certified Factory Tests. Any time after approval has been granted under the above conditions, a certified factory test report on the latest production model 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.



Chester G. Bowers
Director, Airports Service

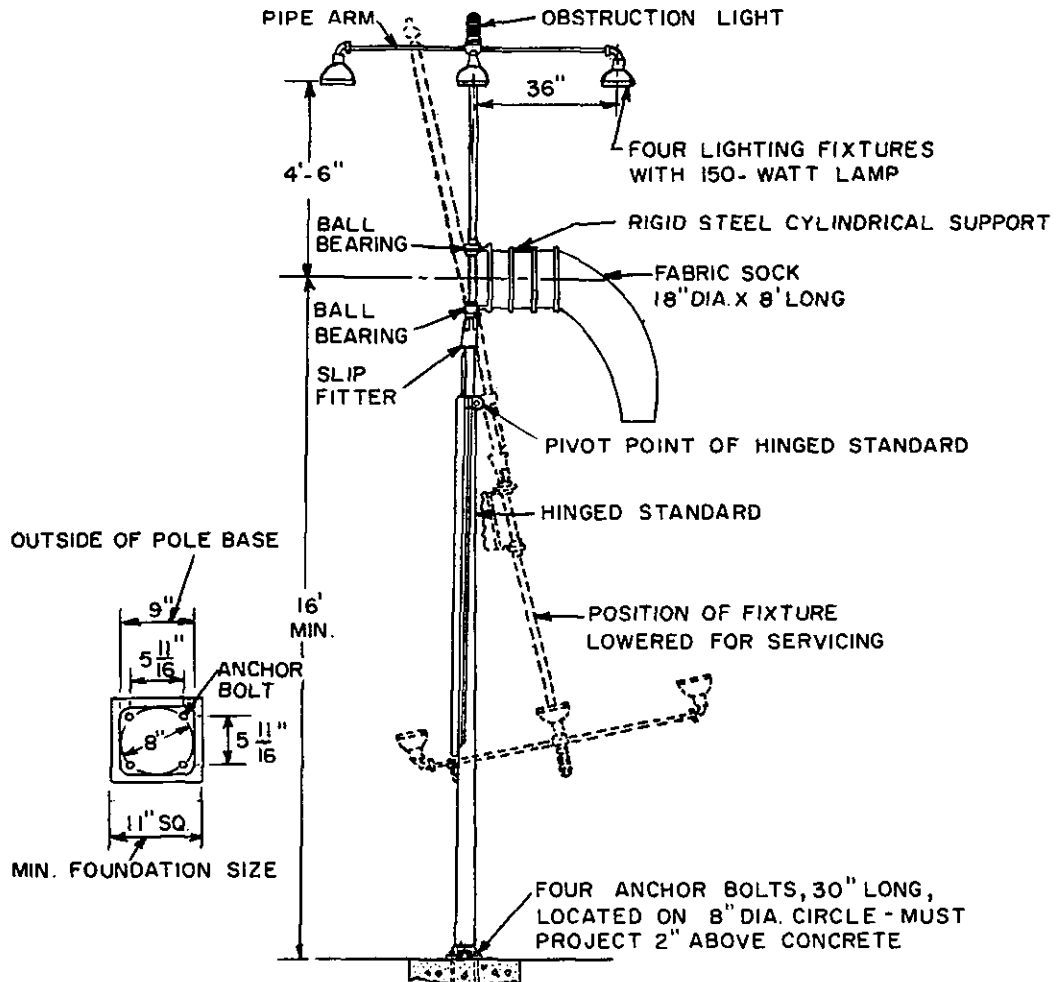
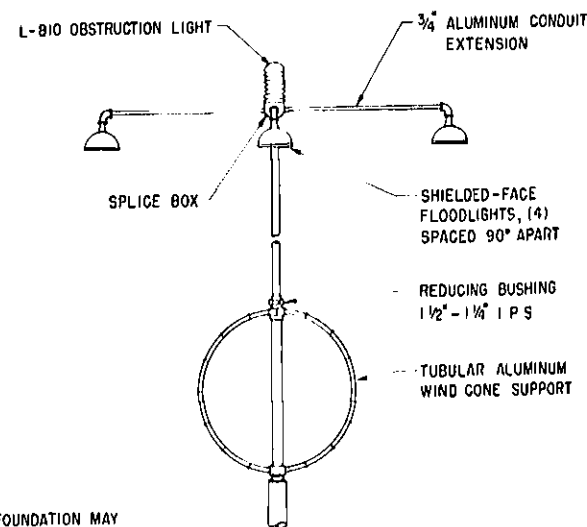
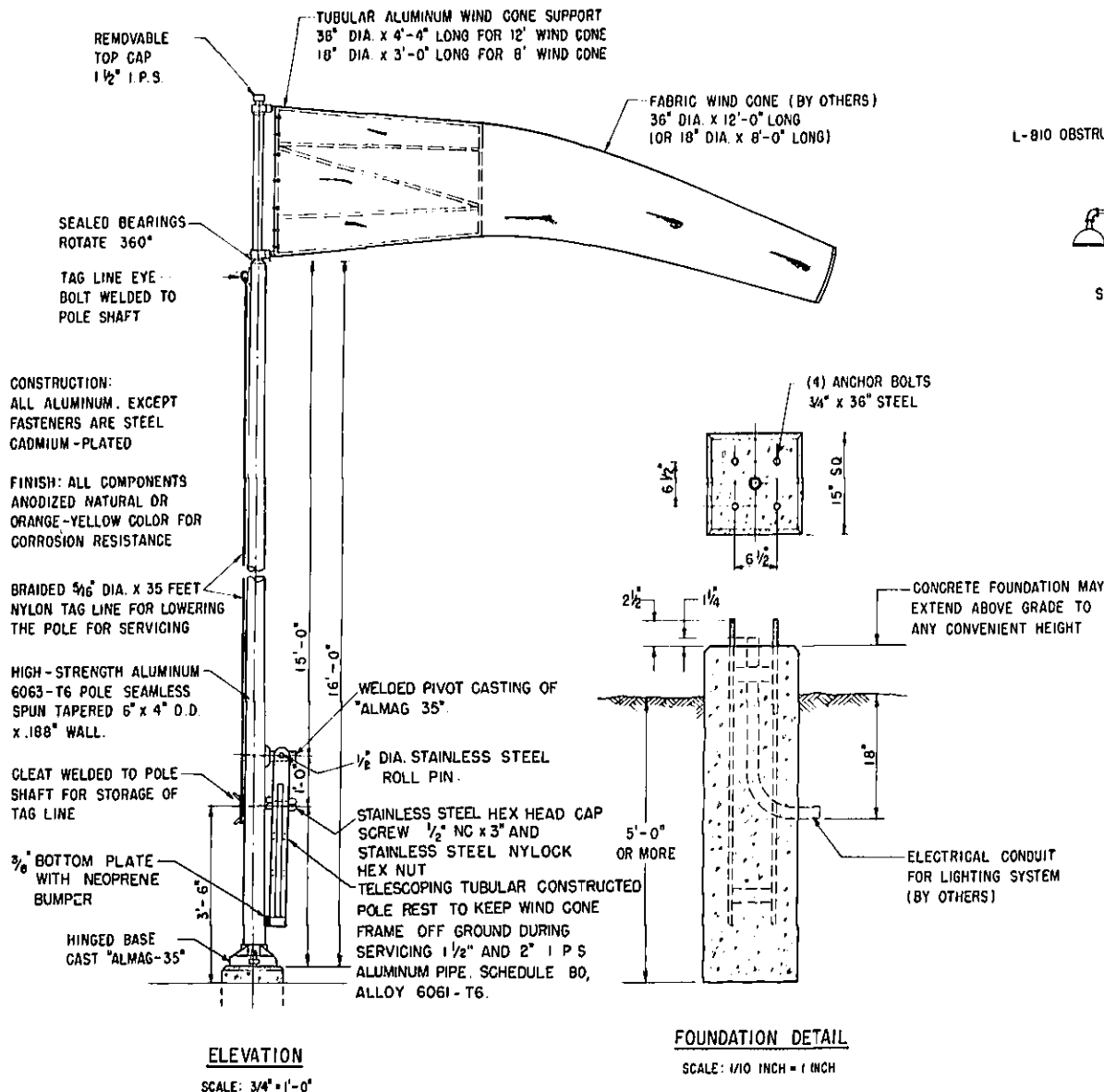
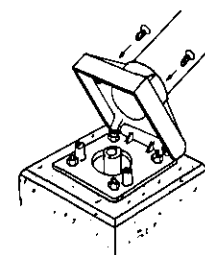


FIGURE 1. TYPE I, EIGHT-FOOT WIND CONE ASSEMBLY



WIND CONE ASSEMBLY &
LIGHTING ASSEMBLY



PATENTED HINGED BASE
FOR SERVICING
FROM THE GROUND

FIGURE 2. TYPE II, TAPERED ANODIZED ALUMINUM HINGED BASE WIND CONE ASSEMBLY

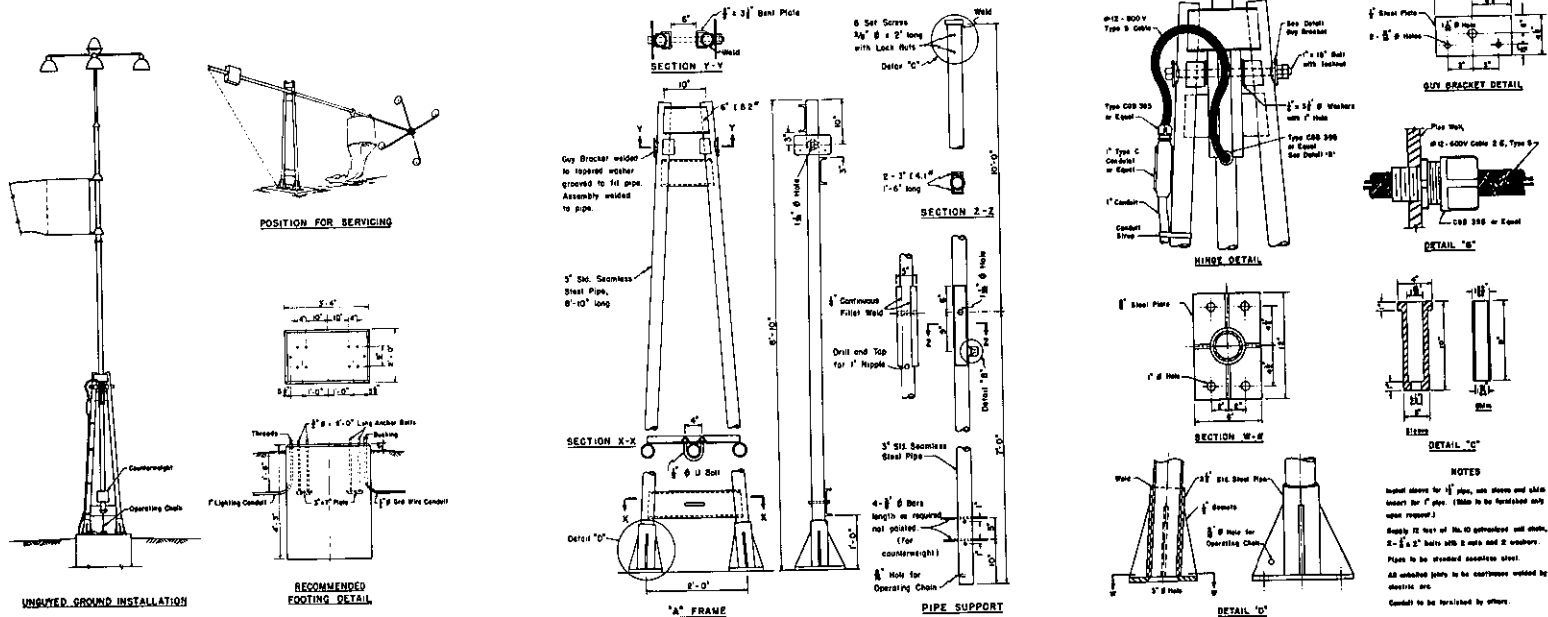


FIGURE 3. WIND CONE ASSEMBLY MOUNTED ON "A" FRAME SUPPORT

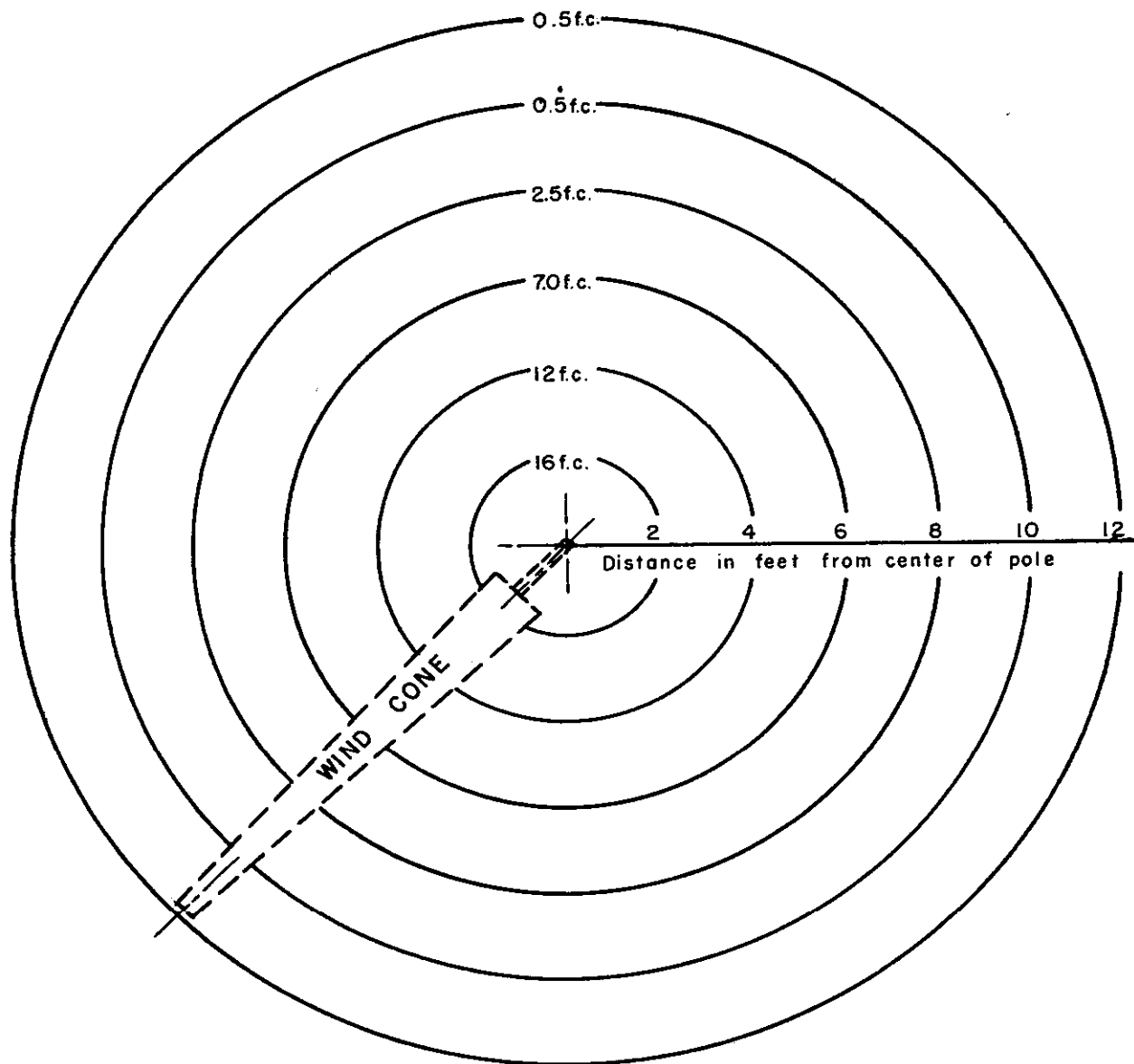


FIGURE 4. HORIZONTAL ILLUMINATION IN FOOT-CANDLES ON
HORIZONTAL PLAN THROUGH CENTER CONE