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SUBJECT : HIGH INTENSITY RUNWAY LIGHTING SYSTEM

1. PURPOSE. This advisory circular describes standards for the design, installation, and maintenance of high intensity runway lighting systems.
2. CANCELLATIONS. The following advisory circulars and technical standard order are cancelled:
 - a. AC 150/5340-13, High Intensity Lighting System, dated March 30, 1965.
 - b. AC 150/5340-2, Airport Lighting Control, dated November 4, 1963.
 - c. TSO-N1c, Runway and Landing Strip Lighting, dated May 15, 1957.
3. REFERENCES. The publications listed under Bibliography, Appendix 1, provide guidance and detailed information.
4. EXPLANATION OF REVISIONS. In addition to minor changes in the text and figures, the following types of material are added:
 - a. Configuration details for high intensity runway lighting systems.
 - b. Criteria for control circuit selection.
 - c. Guidance information for the inspection of high intensity runway lighting systems.
 - d. Additional design and installation details.
 - e. Provisions for connections of runway visual range (RVR) equipment in high intensity runway lighting circuits.

5. HOW TO GET THIS CIRCULAR. Obtain additional copies of this circular, AC 150/5340-13A, High Intensity Runway Lighting System, from the Federal Aviation Administration, Distribution Unit, HQ-438, Washington, D.C. 20590.

A handwritten signature in cursive script, reading "Chester G. Bowers". The signature is written in dark ink and is positioned above the printed name and title.

Chester G. Bowers, Director
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1. INTRODUCTION. High intensity runway lights are used to outline the edges of paved runways during periods of darkness and low visibility conditions. The light fixtures are elevated units. Each unit has a specially designed lens which projects two main light beams. These beams are toed-in 3-1/2 degrees toward the runway centerline and elevated 5 degrees above the horizontal. Lower values of light are emitted from other sections of the lens. In general, high intensity runway lights are installed on designated instrument runways or on runways that are approved for straight-in approach procedures. At airports where traffic congestion exists and visibility conditions less than visual flight rules (VFR) are prevalent, high intensity runway lights may be installed on noninstrument runways.
2. BACKGROUND. Originally there were three types of high intensity runway light fixtures used for airport lighting installations. They were the Specification L-818, L-819, and L-820 fixtures. Now, only the L-819 (AC 150/5345-9A) fixtures are approved for new installations. The L-818 and L-820 fixtures are no longer manufactured by previous suppliers. This publication presents guidance for the design, installation, and maintenance of high intensity runway lighting systems using L-819 fixtures.
3. CONFIGURATION.
 - a. General. A basic runway lighting system consists of two straight lines of runway edge lights defining the lateral limits of the runway. The longitudinal limits of the runway are defined by two straight lines of threshold lights. The runway edge lights are aviation white, except that aviation yellow is substituted for aviation white on the last 2,000 feet of an instrument runway for indicating the caution zone. The threshold lights are aviation green.
 - b. Edge Lights.
 - (1) Each line of the runway lights is located not more than 10 feet from the edge of the full strength pavement which is designated for runway use.
 - (2) The longitudinal spacing of the light fixtures is not in excess of 200 feet. A light on one side of the runway is located with respect to its companion light on the opposite side so that a line joining the two is at a right angle to the runway centerline.

- (3) The location of the first runway edge light is measured from the threshold lights. The spacing of the lighting fixtures is uniform except where the spacing must be interrupted at intersections. When a runway is intersected by other pavements, it may be lighted by either of the following methods:
 - (a) A semiflush light in accordance with AC 150/5345-19, Type I unit, may be installed in the paved area of the intersection in order to maintain the uniform spacing.
 - (b) Elevated lights may be uniformly spaced within the individual sections of the runway. In addition, single elevated lights may be added to avoid gaps in excess of 400 feet where the matching of lights on opposite sides of the runway cannot be accomplished.

c. Threshold Lights.

- (1) The threshold lights are located on a line not less than 2 nor more than 10 feet from the designated threshold of the runway. If a situation exists that makes the installation of the lights between the specified limits impractical, the threshold lights may be installed not more than 50 feet from the designated threshold of the runway.
- (2) The threshold lighting consists of two groups of lights located symmetrically about the runway centerline. Each group contains not less than four lights uniformly spaced if the runway width is 100 feet or greater. In this case, a gap of at least 80 feet is provided between the two groups of lights. If the runway width is less than 100 feet, each group contains not less than three lights uniformly spaced. A gap of at least 40 feet is provided between the two groups of lights when the runway width is less than 100 feet. In either of the above cases, the outermost threshold light in each group is located in line with the rows of runway edge lights.

d. Relocated Threshold.

- (1) The lighting of relocated thresholds is more than simply relocating lights. Consideration must be given to all phases of operations on a runway before determining the lighting requirements.