

**CHANGE**

AC NO: 150/5340-4C CHG 2

DATE: 8/11/78



# ADVISORY CIRCULAR

## DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

**SUBJECT:** CHANGE 2 to AC 150/5340-4C, INSTALLATION DETAILS FOR RUNWAY CENTERLINE AND TOUCHDOWN ZONE LIGHTING SYSTEMS

- PURPOSE.** This change provides for runway centerline lights in displaced areas of runways used for takeoff operations in low visibility conditions and also adds selection criteria for touchdown zone and centerline lights. The use of the asterisks indicates changes in the text.
- HOW TO OBTAIN THIS CHANGE.** Additional copies of Change 2 to AC 150/5340-4C, Installation Details for Runway Centerline and Touchdown Zone Lighting Systems, may be obtained free of charge from the Department of Transportation, Publications Section, M-443.1, Washington, D.C. 20590. FAA field personnel may obtain copies from their respective regional Distribution Officers.

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A handwritten signature in cursive script, reading "Robert J. Aaronson".

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- \* 1. INTRODUCTION. Runway centerline and touchdown zone lighting systems are designed to facilitate landings, rollouts, and takeoffs. The touchdown zone lights are primarily a landing aid while the centerline lights are used for both landing and takeoff operations.
2. SELECTION CRITERIA. Runway centerline lights and touchdown zone lights are required for Category II and Category III runways and for Category I runways used for landing operations below 2,400 feet (750 m) Runway Visual Range (RVR). Runway centerline lights are required on runways used for takeoff operations below 1,600 feet (480 m) RVR. Although not operationally required, runway centerline lights are recommended for Category I runways greater than 170 feet (50 m) in width or when used by aircraft with approach speeds over 140 knots.
3. CONFIGURATION.
- a. Runway Centerline Lighting.
- (1) Location. The lights are located along the runway centerline at 50-foot (15 m) intervals as shown in Figure 1. The line of lights is offset a maximum of 2 feet (0.6 m) to either the right or left side of the runway marking and should be to the opposite side of the centerline marking from the major taxiway turnoffs.
  - (2) Color Coding. The last 3,000-foot (900 m) portion of the lighting system is color coded to warn pilots of the impending runway end. Alternate red and white lights are installed as seen from 3,000 feet (900 m) to 1,000 feet (300 m) from the runway end, and red lights are installed in the last 1,000-foot (300 m) portion.
  - (3) Displaced Threshold. On runways having centerline lights, the centerline lights are extended into the displaced threshold area. If the displaced area is not used for takeoffs, or if the displaced area is used for takeoffs but is less than 700 feet (110 m) in length, the centerline lights are blanked out in the landing direction. For displaced threshold areas over 700 feet (110 m) in length and used for takeoffs, the centerline lights in the displaced area are circuited separately from the centerline lights in the nondisplaced runway area to permit turning "off" the centerline lights in the displaced area during landing operations. If the displaced threshold area also contains a medium intensity approach light system, the control of the approach lights and displaced threshold area centerline lights are interlocked to insure that when the approach lights are "on" the displaced area centerline lights are "off" and vice versa. If the displaced threshold area contains a high intensity approach lighting system, separate circuiting of the centerline lights in the displaced area is not required since the high intensity approach lights will "wash out" the centerline lights.

- \* b. Touchdown Zone Lighting. Touchdown zone lights consist of 2 rows of transverse light bars located symmetrically about the runway centerline as shown in Figure 2. Each light bar consists of 3 unidirectional lights facing the landing threshold. The rows of light bars extend to a distance of 3,000 feet (900 m), or one-half the runway length for runways less than 6,000 feet (1 800 m), from the threshold with the first light bars located 100 feet (30 m) from the threshold. \*

#### 4. DESIGN.

- a. Sequence of Installation. The installation of inrunway lights should be done, if possible, while the runway is under construction or when an overlay is made. This would allow for the installation of L-857 light base and transformer housings with a conduit system which is preferred. Even though lighting may not be programmed at the time of runway paving or overlay, installation of bases and a conduit system should be considered for future installation of in pavement lighting. Installation of the lighting system after paving is completed is very costly and requires a lengthy shutdown of the runway.
- b. Layout. Provide a design drawing showing the dimensional layout of the centerline and touchdown zone lighting systems prior to construction. Correlate this design with current airport drawings to utilize available ducts and utilities and to avoid conflict with existing or planned facilities.
- c. Runway Centerline and Touchdown Zone.
- (1) Light Fixtures and Wires. Design these systems for one of the conditions listed below:
- (a) In new rigid pavements and new flexible pavements, provide access to cables and transformers through the use of conduits and L-857 transformer bases. This type of installation will reduce downtime and repair costs when the underground circuits require maintenance. See Figures 3 and 6.
- (b) In pavements being overlaid, a base and conduit system as shown in Figures 3 and 6 may be used. This provides the advantages listed in (a) above.
- (c) In existing pavements, provide recesses or holes for the light fixtures and shallow sawed wireways for electrical conductors. This method does not require the installation of bases and conduits. See Figure 7.

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