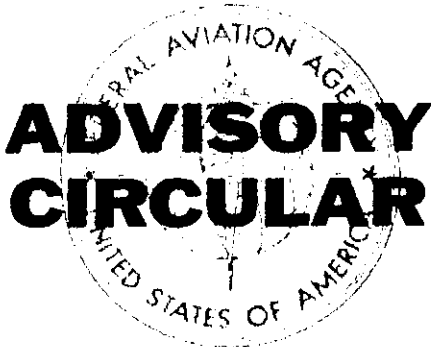


Federal Aviation Agency



AC NO: 121- 8 CERTIFICATION AND OPERATIONS AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT
EFFECTIVE : 9/19/66

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SUBJECT : ADDITIONAL AIRPORT AIDS - RUNWAY MARKING AND LIGHTING -
AIR CARRIER TURBOJET OPERATIONS



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1. PURPOSE. This Advisory Circular emphasizes to air carriers, airport operators, municipalities, and FAA field personnel the importance of runway markings and approach slope guidance in assisting pilots of turbojet airplanes to touchdown at the proper point on a runway.
 2. REFERENCE. AC 150/5340-1A Marking of Serviceable Runways and Taxiways.
 3. DISCUSSION.
 - a. The landing of turbojet airplanes requires a stabilized approach at programmed speeds and rates of descent. Success in touching down at the proper point on the runway depends on maintaining the proper approach (glide) slope, airspeed, and rate of descent to the point at which the airplane attitude is changed for touchdown.
 - b. The electronic and visual glide slopes provided by the Instrument Landing System (ILS), Visual Approach Slope Indicator (VASI), and Abbreviated Visual Approach Slope Indicator (AVASI) assist the pilot in maintaining the desired approach slope until the airplane is close enough to the runway for the pilot to rely on visual cues from the runway surface and its marking and lighting.
 - c. During the final portion of the approach the pilot makes corrections to both the descent path and the directional path by visual reference to the runway centerline and the touchdown area. He seeks to touchdown at a point close enough to the threshold to permit maximum use of the runway length for stopping, but at a sufficient distance from the threshold to preclude a short landing. A clearly marked aiming point on the runway 1000 feet from the threshold will greatly assist pilots of turbojet airplanes, particularly the larger turbojets where the pilot is a considerable distance forward of and above the main gear.
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- d. While an aiming point marked with paint is useable during daylight hours, safety of operations would be further enhanced by providing in-runway lighting at the 1000-foot aiming point for use during night operations. The Agency is investigating the feasibility of in-runway lighting which could serve as a lighted aiming point and provide visual glide slope guidance to the pilot. If available, such lighting fixtures would be superior to VASI or AVASI as a lighted aiming point since the pilots' visual scan is focused to an increasing degree on the centerline portion of the runway as the airplane approaches the threshold.
- e. With the growing use by air carriers of smaller jet airplanes capable of operating on shorter runways, service will be extended to many airports not equipped with runway markings, ILS, VASI, or AVASI. Many of these airports will not have excess runway length available. The provision of a runway centerline mark, an aiming point which is both definitive and self-evident, and approach slope guidance will serve to reduce the undershoot/overshoot problem at these airports. Under conditions of restricted visibility, those aids which also provide precise lateral guidance (e.g. ILS localizer) will assist pilots in landing on or near the runway centerline at the proper touchdown point.
- f. Advisory Circular No. 150/5340-1A contains standard runway markings for basic, instrument, and all-weather runways and illustrations of these markings.

4. 1000-FOOT AIMING POINT MARKINGS.

- a. Pilots landing turbojet airplanes on an all-weather type runway have a distinctive aim point at the 1000-foot point on the runway; namely that portion of the all-weather marking consisting of three longitudinal stripes, each 75 feet long and 6 feet wide, located on either side of the centerline marking.
- b. On other runways this type of pattern at the 1000-foot point, would be extremely beneficial as an aiming point. While the length of the individual stripes should be 75 feet, their width may be reduced (to no less than 2 feet) to provide the proper visual perspective in relation to the width of the centerline stripe and the spacing between the stripes. The advantage of such a pattern on any runway used by turbojet airplanes, is that turbojet pilots normally aim for this marking pattern when landing on all-weather runways.

- c. The effectiveness of runway markings will be diminished or lost when the runway is covered with snow or slush or when worn. Accordingly, airport operators are urged to continue their efforts in the effective removal of snow and slush, and in the maintenance of runway marking conspicuity.
5. HOW TO GET THE REFERENCED ADVISORY CIRCULAR. Copies of AC 150/5340-1A, Marking of Serviceable Runways and Taxiways, may be obtained from the Federal Aviation Agency, Distribution Unit, HQ-438, Washington, D. C. 20553.


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