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UNITED STATES ARMY AVIATION BOARD
Fort Rucker, Alabama

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ATBG-SEC-AVN-1561

1
2 MAR 61

SUBJECT: Service Test of Marking Light Kit, Landing and Drop Zone.

12 5p

TO: President
US Army Airborne and Electronics Board
Fort Bragg, North Carolina

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1. References.

a. Letter, ATDEV-6 400.114, Headquarters, USCONARC, 3 August 1960, subject: "Service Test of Marking Light Kit, Landing and Drop Zone."

b. Plan of Test, Project Number AB 6660, "User Test of Marking Light Kit, Landing and Drop Zone," Headquarters, US Army Airborne and Electronics Board, 14 October 1960.

2. Purpose. The purpose of this letter is to provide a report of this Board's portion of the service test of the Marking Light Kit, Landing and Drop Zone, Project AB 6660.

3. Scope. Testing was conducted by the US Army Aviation Board in conjunction with the US Army Aviation School and the 21st Aviation Company, 2d Battle Group, 31st Infantry. The testing was conducted under the following weather conditions with the lights installed on a tactical type airfield.

Sky Conditions

Forward Visibility

Clear

10 miles plus

Scattered clouds at 10,000 feet

7 miles

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D. I. Pecker
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ATBG-SEC AVN 1561

SUBJECT: Service Test of Marking Light Kit, Landing and Drop Zone

Sky Conditions

Forward Visibility

Scattered clouds at 15,000 feet
with higher thin overcast

7 to 10 miles

Scattered clouds at 5,000 feet
with higher overcast

7 miles

4. Test Nr 11.

a. Purpose. ^X The Marking Light Kit was tested to determine the suitability of the test item for marking landing strips, landing points (Heliports) and parking areas for Army aircraft. ✕

b. Results of Test.

(1) Distance and altitude from which the test item can be seen when arranged to designate a landing strip and a heliport - The distance at which the airfield lighting system could be seen under the test conditions was approximately six miles at altitudes up to 25,000 feet. However, identification of the light pattern as a runway or heliport (see inclosure 1) was difficult at a distance of more than four miles. Altitude did not significantly influence the range at which the pattern could be distinguished.

(2) The time required to install the test item in the configuration of a landing strip and a heliport under simulated tactical conditions - The installation was initiated and completed both during daylight and darkness.

(a) Three men (one experienced in airfield lighting installations) using a 1/4-ton truck averaged one hour and thirty minutes to complete a landing strip layout (inclosure) including taxiways and threshold lights (34 lights) utilizing auxiliary power. For battery operation, the installation time averaged 30 minutes.

(b) One man can mark a heliport (eight lights, utilizing auxiliary power) in approximately 15 minutes; in battery operation, he can complete the installation in approximately 10 minutes.

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ATBG-SEC AVN 1561

SUBJECT: Service Test of Marking Light Kit, Landing and Drop Zone

(3) The ground-to-ground visibility of the test item when arranged to designate an aircraft parking area - The ground-to-ground visibility of the test item when arranged to designate an aircraft parking area was adequate. The lights (white, amber, red, green, and blue) were discernible at a distance of more than one mile.

(4) Stability of the test item when subject to the downwash of landing helicopters - The test lights on battery operation were subjected to the downwash of a hovering H-37 Helicopter, and no movement of the lights or other adverse effects were noted. When using auxiliary power, however, the lights were displaced or overturned by the downwash unless connecting wires were buried or staked down.

(5) Adequacy of the test item when used to designate a heliport - The test item was adequate in this respect.

5. Shortcomings. It would be desirable to have the following shortcomings corrected as practical, either concurrently with the elimination of any discrepancies that may have been determined, or in production engineering, or by product improvement.

<u>Shortcoming</u>	<u>Suggested Corrective Action</u>
a. Bulb can be burned out by advancing the inverter control knob beyond the capacity of the bulb filament.	Provide a means, such as a mechanical stop, to preclude inadvertently overloading the bulb filament.
b. Bulb replacement required after each 10 hours operation is excessive for airfield operation.	Provide a more rugged bulb having a longer life.
c. AC operation requires one inverter for each eight lights.	Provide inverter capable of operating a minimum of 16 lights to reduce the necessity of an extensive power line arrangement when installing a complete airfield lighting facility.

ATBG-SEC AVN 1561

SUBJECT: Service Test of Marking Light Kit, Landing and Drop Zone

Shortcoming

Suggested Corrective Action

d. The diameter of the wire guides for connecting the WD-1/TT to the light and the inverters is excessive, making it difficult to seat the wire on the contact points.

Reduce the diameter of the guides.

e. Scale for selecting the light intensity is difficult to read.

Light intensity should be controlled by detent-type selection.

f. The battery in the light will discharge if the selector knob is left in the "charge" position and the battery is not being charged.

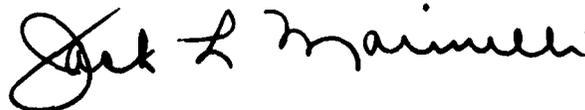
Placard each light to caution operating personnel of this condition, and include this information in the operating instructions.

6. Conclusions.

a. The Marking Light Kit, Landing and Drop Zone, is suitable for marking landing strips, landing points, and parking areas for Army aircraft during air-landed operations.

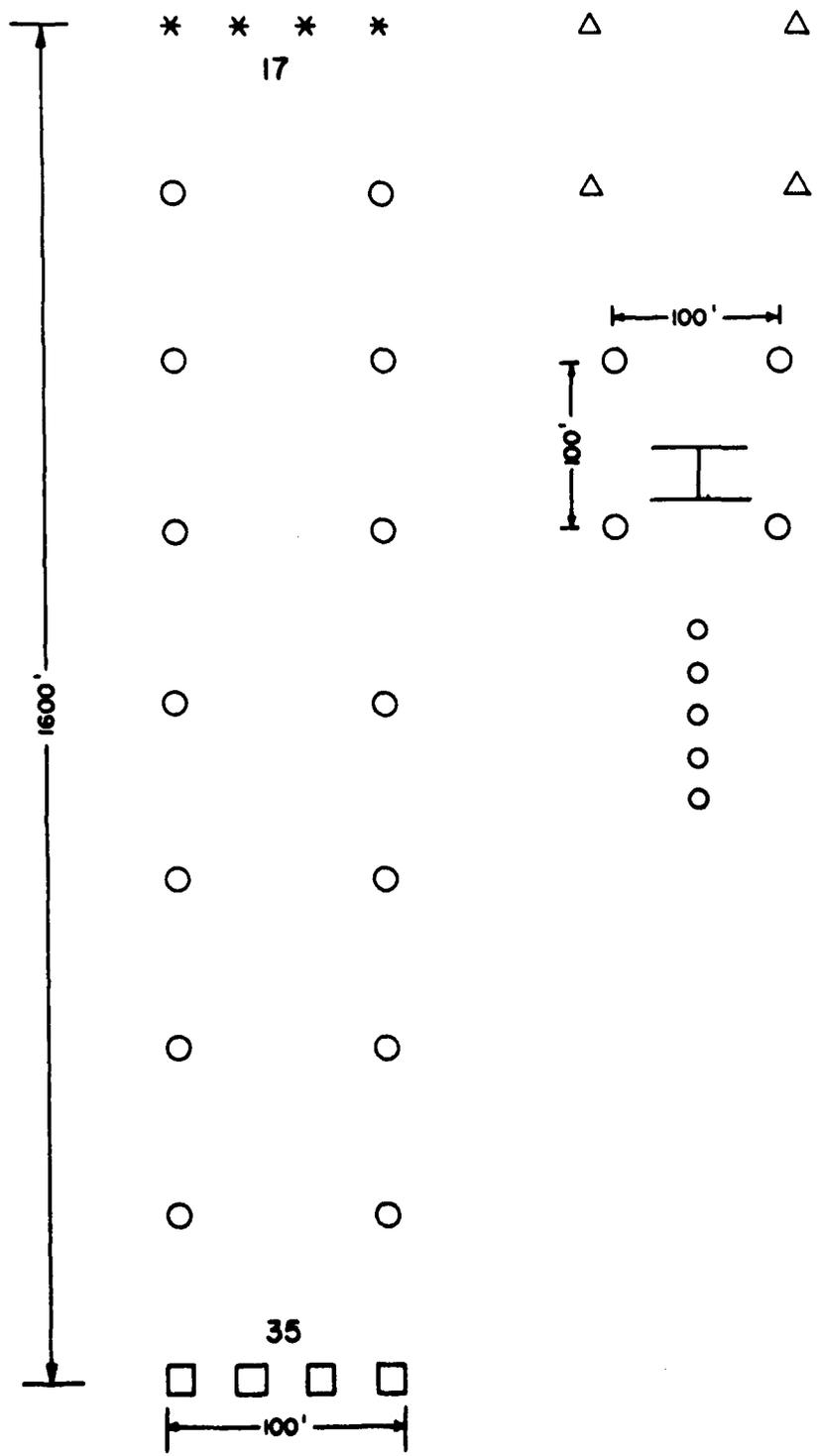
b. The shortcomings listed in paragraph 5 should be corrected.

7. Coordination. This report has been coordinated with the US Army Aviation School.



1 Incl
Lighting Diagram

JACK L. MARINELLI
Colonel, Artillery
President



NOT TO SCALE
 ○ WHITE LIGHT
 □ GREEN LIGHT
 * RED LIGHT
 Δ BLUE LIGHT

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