Backup Lamps (Reversing Lamps) — SAE J593 AUG81

SAE Standard
Last Revised August 1981

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PREPRINT

BACKUP LAMPS (REVERSING LAMPS)—SAE J593 AUG81 SAE Standard

Report of the Lighting Committee, approved August 1947, last revised August 1981. Rationale statement available.

φ *1. Scope*—This Engineering Design Standard provides test methods and engineering requirements for motor vehicle backup lamps. It is intended for use in conjunction with the service performance specification, SAE J256 (March, 1978).

2. Definition—Backup lamps are devices used to provide illumination behind the vehicle and to provide a warning signal to pedestrians and other drivers when the vehicle is backing up or is about to back up.

3. Laboratory Requirements

φ 3.1 **General Requirements**—The following Sections from SAE J575 (September, 1977) are a part of this standard:

Section 2 — Samples for Test
Section 2.2 — Bulbs
Section 2.3 — Test Fixtures
Section 3 — Laboratory Facilities
Section 4.1 — Vibration Test
Section 4.2 — Moisture Test
Section 4.3 — Dust Test
Section 4.4 — Corrosion Test
Section 4.6 — Photometry
Section 4.8 — Warpage Test on Devices with Plastic Components

φ 3.2 All glass sealed units designed for use as a backup lamp when tested without the other parts of the lamp assembly need comply only with Sections 2, 3, and 4.6 of SAE J575 (September, 1977).

φ 3.3 **Color Test**—The color of the light from a backup lamp shall be white, in accordance with SAE J578 (September, 1978), and normally shall be established by visual appraisal.

A backup lamp may project incidental red, yellow, or white light through reflectors or lenses that are adjacent, close to, or a part of the lamp assembly. If a lamp has portions of its lens which project nonwhite light, that light shall be regarded as incidental if, quantitatively, it does not exceed 20% of the total device output at all specified test points; the lamp shall also meet the photometric requirements of this standard with white light alone.

φ 3.4 **Plastic Materials**—Any plastic materials used in optical parts shall comply with the requirements in SAE J576 (June, 1976).

3.5 **Photometric Test**

φ 3.5.1 Photometric tests shall be made with the photometer at a distance of at least 3 m from the lamp. The H-V axis shall be taken as parallel with the longitudinal axis of the vehicle.

3.5.2 The light from a single lamp, when used in a two-lamp system, shall meet the photometric requirements shown in Table 1.

TABLE 1 — PHOTOMETRIC MINIMUM CANDELA REQUIREMENTS[a]

Test Points	45L	30L	10L	V	10R	30R	45R
10U	—	—	10	15	10	—	—
5U	15	—	20	25	20	—	15
H	15	25	50	80	50	25	15
5D	15	25	50	80	50	25	15

[a]The maximum per lamp at H and above shall be 300 cd for a two-lamp system and 500 cd for a single lamp system.

3.5.3 When only one backup lamp is used on the vehicle, it shall meet twice the photometric requirements of Table 1.

3.5.4 When two asymmetrical lamps of the same or symmetrically opposite design are used, the reading along the vertical axis and the averages of the readings for the same angles left and right of vertical for one lamp shall be used to determine compliance with the requirements of Table 1. If two lamps of differing designs are used, they shall be tested individually and the values added to determine that the combined units meet twice the candlepower requirements of Table 1. φ

4. Installation Requirements—The following requirements apply to the device as used on the vehicle and are not part of the laboratory test requirements and procedures:

4.1 The backup lamp shall be lighted only when the ignition switch is energized and reverse gear is engaged. φ

4.2 **Definition—Point of Visibility**—Any point on the lens surface that is within an area inscribed by a 25 mm dia. circle, the center of which is also the light source center. The 25 mm dia. circle and the light source center are horizontal and longitudinal projections on the lens surface. φ

4.3 Backup lamps shall be mounted on the rear so that the point of visibility of at least one of the lamps is visible from any eye point elevation from at least 1.8–0.6 m above the horizontal plane on which the vehicle is standing; and from any position in the area, rearward of a vertical plane perpendicular to the longitudinal axis of the vehicle, 0.9 m to the rear of the vehicle and extending 0.9 m beyond each side of the vehicle. φ

The φ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.