

SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

SAE J186

**REV.
DEC89**

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Superseding J186 NOV82

(R) SUPPLEMENTAL HIGH MOUNTED STOP AND REAR-TURN SIGNAL LAMPS FOR USE ON VEHICLES LESS THAN 2032 MM IN OVERALL WIDTH

1. SCOPE:

This document provides design parameters, performance requirements, and general installation recommendations for supplemental high mounted stop and/or rear turn signal lamps, intended to supplement stop and/or rear turn signal lamps described in SAE J586 and SAE J588, for use on vehicles less than 2032 mm in overall width. Lamps for vehicles more than 2032 mm in width are covered in SAE J1432.

2. DEFINITIONS:

- 2.1 Supplemental high mounted stop and rear turn signal lamps are additional lamps that are mounted high and possibly forward of the rear mounted tail, stop, and turn signal lamps. The supplemental stop and/or turn signals may be provided by separate lamps or both functions may be combined in, and provided by, a single lamp.
- 2.2 Supplemental high mounted stop lamps are additional lamps of a stop lamp system giving a brake-actuated, steady warning light to the rear of the vehicle. They are intended to provide a signal to both the operator of the next following vehicle as well as, through intervening vehicles, to the operators of the other following vehicles.
- 2.3 Supplemental high mounted rear turn signal lamps are additional lamps of a turn signal system which indicate a change in direction by giving a flashing warning signal on the side toward which the vehicle operator intends to turn. They are intended to provide a signal of the next following vehicle as well as, through intervening vehicles, to the operators of the other following vehicles.

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3. LIGHTING IDENTIFICATION CODE:

May be U in accordance with SAE J759.

4. TEST:

4.1 SAE J575 is a part of this document. The following tests are applicable with the modifications as indicated:

4.1.1 Vibration Test:

4.1.2 Moisture Test:

4.1.3 Dust Test:

4.1.4 Corrosion Test:

4.1.5 Photometric Test:

4.1.5.1 Photometric tests shall be made with the photometer a distance of at least 3 m from the light source. The lamp axis shall be taken as the horizontal line through the light source and parallel to what would be the longitudinal axis of the vehicle if the lamp were mounted in its normal position on the vehicle.

4.1.6 Warpage Test on Devices with Plastic Components:

4.1.6.1 Cycle times for stop and turn signal lamps listed in Table 1 of SAE J575 shall be employed for supplemental high mounted stop lamps and supplemental high mounted rear turn signals respectively.

4.2 Color Test: SAE J578 is a part of this document.

5. REQUIREMENTS:

5.1 Performance Requirements: Supplemental high mounted stop and rear turn signal lamps, when tested in accordance with the following tests, with modifications indicated, shall meet the requirements indicated in SAE J575.

5.1.1 Vibration Test:

5.1.2 Moisture Test:

5.1.3 Dust Test:

5.1.4 Corrosion Test:

5.1.5 Photometric Test:

5.1.5.1 The lamp under test, when tested in accordance with 4.1, shall meet the photometric requirements contained in Table 1. The summation of the luminous intensity measurements, at the specified test points in a zone, shall be at least the value shown.

5.1.6 Warpage Test:

5.2 Color Test: The light from the supplemental high mounted stop lamps shall be red and the light from the supplemental high mounted rear turn signal lamps shall be red or yellow in conformance with SAE J578.

5.3 Material Requirements: Plastic materials used in the optical parts shall conform to the requirements in SAE J576.

5.4 Dimensional Requirements: The effective projected luminous area measured on a plane at right angles to the lamp axis shall not be less than 29 cm².

6. GUIDELINES:

6.1 Photometric design guidelines for supplemental high mounted stop and turn signal lamps, when tested in accordance with 4.1.5, are contained in Table 2.

6.2 Visibility of the signal shall not be obstructed by any part of the vehicle from 10U to 5D and from 10L to 10R, unless the lamp conforms with the cell requirements when obstruction is considered.

6.3 Supplemental turn signals shall flash simultaneously (not alternately) with the required turn signals.

6.4 No function other than red reflex reflectors shall be combined in the supplemental high mounted stop and/or turn signal lamps.

7. NOTES:

As a matter of additional information, attention is called to SAE J567 for requirements and gages to be used in the bulb retention system (socket) design.

The (R) 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.

TABLE 1 - Photometric Performance Zonal Requirements

Test Points (degrees)	Total for Zone (cd)	
	Supplemental High Mounted Stop and Red Rear Turn Signal	Supplemental High Mounted Yellow Rear Turn Signal
5U-V H-5L H-V H-5R 5D-V	67	108
5R-5U 10R-5U H-10R 10R-5D 5R-5D	54	86
5L-5U 10L-5U H-10L 10L-5D 5L-5D	54	86
10L-10U 10U-V 10R-10U	18	29
MAXIMUM	75	145

1. An adjustment in lamp orientation from design position may be made in determining conformance to Table 1, provided such adjustment does not exceed 3 deg. All zones shall comply after final re-aim.
2. The measured values at each test point shall not be less than 60% of the minimum requirements in Table 2.
3. The maximum value shall not be exceeded over an area larger than that generated by a 1/4 deg radius within a solid cone from 10L to 10R and from 10U to 5D.

TABLE 2 - Photometric Design Guidelines

Test Points (Degrees)		Red (cd)	Yellow (cd)
10U	10L	5	8
	V	10	16
	10R	5	8
5U and 5D	10L	10	16
	5L	15	24
	V	15	24
	5R	15	24
	10R	10	16
H	10L	10	16
	5L	15	24
	V	15	24
	5R	15	24
	10R	10	16
MAXIMUM		60	120

1. The listed maximum design value shall not be exceeded over an area larger than that generated by a 1/4 deg radius within a solid cone from 10L to 10R and from 10U to 5D.

RATIONALE:

This document has been changed in format to conform with the recommendations of the Engineering Advisory Committee. Test procedures, performance requirements, and design guidelines have been placed in separate sections.

The principal change is the removal of the figure defining pictorially the various test zones. This was done since the zones are also defined in Table 1 and the information was redundant.

All other changes are editorial.

RELATIONSHIP OF SAE STANDARD TO ISO STANDARD:

Not applicable.

REFERENCE SECTION:

SAE J567 NOV87, Lamp Bulb Retention System

SAE J575 DEC88, Tests for Motor Vehicle Lighting Devices and Components

SAE J576 SEP86, Plastic Materials for Use in Optical Parts Such as Lenses and Reflectors of Motor Vehicle Lighting Devices

SAE J578 MAY88, Color Specification

SAE J586 DEC89, Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width

SAE J588 NOV84, Turn Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width

SAE J759 DEC87, Lighting Identification Code

SAE J1432 OCT88, High Mounted Stop Lamps for Use on Vehicles 2032 mm or More in Overall Width.

APPLICATION:

This document provides design parameters, performance requirements, and general installation recommendations for supplemental high mounted stop and/or rear turn signal lamps, intended to supplement stop and/or rear turn signal lamps described in SAE J586 and SAE J588 for use on vehicles less than 2032 mm in overall width. Lamps for vehicles more than 2032 mm in width are covered in SAE J1432.

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