SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE STANDARD

SAE J222 | REV. DEC94

Issued 1970-12
Revised 1994-12

Superseding J222 DEC91

Submitted for recognition as an American National Standard

PARKING LAMPS (FRONT POSITION LAMPS)

1. ***Scope***—This SAE Standard provides test procedures, requirements, and guidelines of parking lamps (front position lamps).

2. ***References***

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J567—Lamp Bulb Retention System
SAE J575—Tests for Motor Vehicle Lighting Devices and Components
SAE J576—Plastic Materials for Use in Optical Parts Such as Lenses and Reflectors of Motor Vehicle Lighting Devices
SAE J578—Color Specification
SAE J759—Lighting Identification Code

(R) **2.2 Related Publications**—The following publications are provided for information purposes only and are not a required part of this document.

(R) 2.2.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J592—Clearance, Side Marker, and Identification Lamps
SAE J585—Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width
SAE J586 FEB84—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 J594—Reflex Reflectors
SAE J1395 APR85—Front and Rear Turn Signal Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width
SAE J1398 MAY85—Stop Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width
SAE J1957—Central High Mounted Stop Lamp Standard for Use on Vehicles Less than 2032 mm Overall Width
SAE J2040—Tail Lamps (Rear Position Lamps) for Use on Vehicles 2032 mm or More in Overall Width
SAE J2042—Clearance, Sidemarker, and Identification Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width

(R) 2.2.2 FEDERAL PUBLICATION—Available from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

FMVSS No. 108—Turn Signal Geometric Visibility Requirements (56 FR 64733-64737)

2.3 Definitions

2.3.1 PARKING LAMPS—Whether separate or in combination with other lamps, parking lamps are located on both the front left and right of the vehicle which show to the front and are intended to mark the vehicle when parked. In addition, these front lamps serve as a reserve front position indicating system in the event of headlamp failure.

3. Lighting Identification Code—Parking lamps may be identified by the code "P" in accordance with SAE J759.

4. Tests

4.1 SAE J575 is a part of this report. 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 PHOTOMETRY TEST—In addition to the test procedures in SAE J575, the following apply:

4.1.5.1 Photometric measurements shall be made with the light source of the lamp at least 3 m from the photometer. The H-V axis shall be taken as parallel to the axis of reference of the lamp as mounted on the vehicle.

4.1.6 WARPAGE TEST FOR DEVICES WITH PLASTIC COMPONENTS

4.2 Color Test—SAE J578 is a part of this report.

5. Requirements

5.1 Performance Requirements—A device, when tested in accordance with the test procedures specified in Section 4, shall meet the following requirements.

5.1.1 VIBRATION—SAE J575.

5.1.2 MOISTURE—SAE J575.

5.1.3 DUST—SAE J575.

5.1.4 CORROSION—SAE J575.

5.1.5 PHOTOMETRY—In addition to the photometric requirements in SAE J575, the following apply:

5.1.5.1 The lamp under test shall meet the photometric performance 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.

TABLE 1—PHOTOMETRIC REQUIREMENTS[1,2]

Zone	Test Points (Degrees)	Minimum Luminous Intensity (Candela)
1	10U - 5L	2.4
	5U - 20L	2.4
	5D - 20L	2.4
	10D - 5L	2.4
2	5U - 10L	3.0
	H - 10L	3.0
	5D - 10L	3.0
3	5U - V	16.8
	H - 5L	16.8
	H - V	16.8
	H - 5R	16.8
	5D -V	16.8
4	5U - 10R	3.0
	H - 10R	3.0
	5D - 10R	3.0
5	10U - 5R	2.4
	5U - 20R	2.4
	5D - 20R	2.4
	10D - 5R	2.4

1 The measured values at each test point shall not be less than 60% of the minimum values in Table 2.

2 Ratio requirements of 5.1.5.2 apply.

TABLE 2—PHOTOMETRIC DESIGN GUIDELINES[1]

Test Points (Degrees)	Test Points (Degrees)	Minimum Luminous Intensity (Candela)
10U, 10D	5L, 5R	0.8
5U, 5D	20L, 20R	0.4
5U, 5D	10L, 10R	0.8
5U, 5D	V	2.8
H	10L, 10R	1.4
H	5L, 5R	3.6
H	V	4.0

1 Ratio requirements of 5.1.5.2 apply.

5.1.5.2 When a parking lamp is combined with the turn signal lamp, the signal lamp shall not be less than three times the luminous intensity of the parking lamp at any test point on or above horizontal; except that at H-V, H-5L, H-5R, and 5U-V, the (turn signal) lamp shall not be less than five times the luminous intensity of the parking lamp.

5.1.6 WARPAGE—SAE J575.

5.1.7 COLOR—The color of the light from a parking lamp shall be white or yellow as specified in SAE J578.

5.2 Materials Requirements—Plastic materials used in optical parts shall meet the requirements of SAE J576.

5.3 Design Requirements

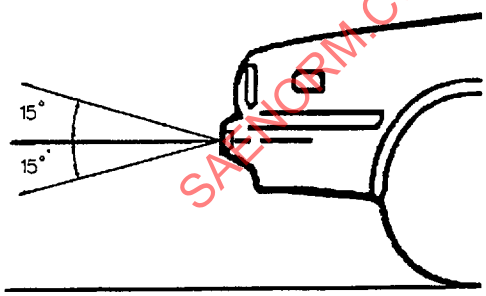
5.3.1 If a turn signal lamp is optically combined with the parking lamp and a two-filament replaceable bulb is used, the bulb shall have an indexing base and the socket shall be designed so that bulbs with nonindexing bases cannot be used. Removable sockets shall have an indexing feature so that they cannot be reinserted into lamp housings in random positions, unless the lamp will perform its intended function with random light source orientation.

(R) **5.4 Installation Requirements**—Parking lamps shall meet the following requirements as installed on the vehicle.

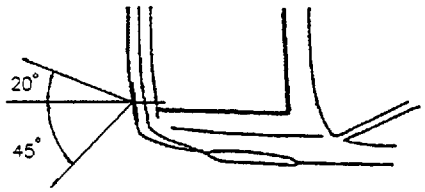
5.4.1 Each parking lamp shall be designed to comply with all photometric requirements of Table 1 with all vehicular obstructions considered.

5.4.2 Each parking lamp shall be designed to comply with one of the following visibility requirements:

a. Each lamp must provide a minimum of 13 cm^2 of unobstructed projected area when the light emitting surface area of the lens, excluding reflex reflector area, is projected parallel to a horizontal plane in any direction from 45 degrees outboard to 20 degrees inboard of the vehicle longitudinal axis, and parallel to a longitudinal, vertical plane in any direction from 15 degrees above to 15 degrees below the horizontal (see Figure 1).



Vertical Angles

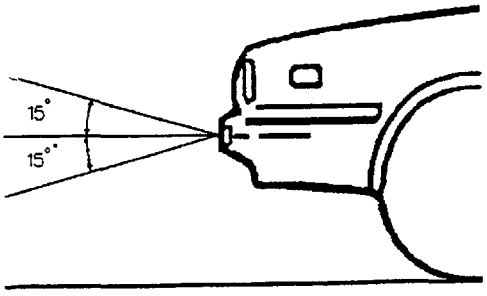


Horizontal Angles**

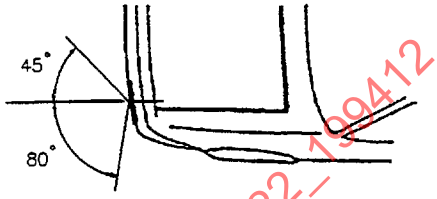
FIGURE 1—GEOMETRIC VISIBILITY—DESIGN METHOD

b. Each lamp must provide a luminous intensity not less than 0.05 cd throughout the photometric pattern defined by the corner points specified in Figure 2:

15 degrees above horizontal, 45 degrees inwards and 80 degrees outwards
15 degrees below horizontal,* 45 degrees inwards and 80 degrees outwards



Vertical Angles



Horizontal Angles**

* The downward angle may be reduced to 5 degrees if the lower lighted edge of the lamp is less than 750 mm above the ground.

** Left side shown; right side symmetrically opposite.

FIGURE 2—GEOMETRIC VISIBILITY—PHOTOMETRIC METHOD

6. Guidelines

6.1 Photometric Design Guidelines for parking lamps, when tested in accordance with 4.1.5 of this report, are contained in Table 2.

6.2 Installation Guidelines—The following guidelines apply to parking lamps as used on the vehicle and shall not be considered part of the requirements.

6.2.1 Parking lamps on the front of the vehicle should be spaced as far apart laterally as practicable so that the signal will be clearly visible and its intent clearly understood.

6.2.2 The luminous intensity of incandescent filament bulbs will vary with applied voltage. The electrical wiring in the vehicle should be adequate to supply design voltage to the lamp filament.

6.2.3 Performance of lamps may deteriorate significantly as a result of dirt, grime, and/or snow accumulation on their optical surfaces. Installation of lamps on vehicles should be considered to minimize the effect of these factors.

6.2.4 Where it is expected that lamps must perform in extremely severe environments, such as in off-highway, mining, fuel haulage, or where it is expected that they will be totally immersed in water, the user should specify lamps specifically designed for such use.

7. Notes

7.1 **Marginal Indicia**—The (R) 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.

PREPARED BY THE SAE SIGNALING AND MARKING DEVICES STANDARDS COMMITTEE
AND THE SAE LIGHTING COORDINATING COMMITTEE

APPENDIX A

A.1 As a matter of additional information, attention is called to SAE J567 for requirements and gages used in socket design.