



TURN SIGNAL LAMPS — SAE J588e

SAE Standard

Report of the Lighting Division approved February 1927 and last revised by Lighting Committee August 1970.

1. **Scope**—This standard provides test methods and requirements for turn signal lamps.

2. **Definitions**

2.1 **Turn Signal Lamps**—The signaling elements of a turn signal system which indicate a change in direction by giving a flashing light on the side toward which the turn will be made. (For flashing rate and "on" period, see SAE J590.)

2.2 **Multiple Compartment Lamp**—A device which gives its indication by two or more separately lighted areas which are joined by one or more common parts such as a housing or lens.

2.3 **Multiple Lamp Arrangement**—An array of two or more separated lamps on each side of the vehicle which operate together to give a signal.

3. **Laboratory Requirements**

3.1 A multiple compartment lamp or multiple lamps may be used

to meet the photometric requirements of a turn signal lamp. If a multiple compartment or multiple lamps are used and the distance between the optical axes (filament centers) does not exceed 22 in. for two compartment or lamp arrangements and does not exceed 16 in. for three compartment or lamp arrangements, then the combination of the compartments or lamps must be used to meet the photometric requirements for the corresponding number of lighted sections (Table 1). If the distance between optical axes exceeds the above dimensions, each compartment or lamp shall comply with the photometric requirements for one lighted section (Table 1).

For vehicles of 80 in. or more in overall width, a maximum of two lamps and/or compartments per side may be mounted closer together than 22 in. providing that each compartment and/or lamp meets the single compartment photometric requirements listed in Table 1 and has a minimum effective projected luminous lens area of 12 sq in. Each lamp and/or compartment utilized in this manner shall meet the one lighted section value for all functions for which it is designed.

3.2 The effective projected luminous area of a single compartment lamp measured on a plane at right angles to the axis of a lamp must be at least 8.0 sq in. for a rear lamp and at least 3.5 sq in. for a front lamp.

3.3 If a multiple compartment lamp or multiple lamps are used to meet the photometric requirements of a rear turn signal lamp, the effective projected luminous lens area of each compartment or lamp shall be at least 3½ sq in. provided the combined area is at least 8 sq in.

3.4 The flashing signal from a double-faced signal lamp shall not be obliterated when subjected to external light rays from either in front or behind, at any and all angles.

3.5 The following sections from SAE J575 are a part of this standard:

- 3.5.1 Section B—Samples for Test
- 3.5.2 Section C—Lamp Bulbs
- 3.5.3 Section D—Laboratory Facilities
- 3.5.4 Section E - Vibration Tests
- 3.5.5 Section F—Moisture Test
- 3.5.6 Section G—Dust Test
- 3.5.7 Section H—Corrosion Test
- 3.5.8 Section J—Photometry
- 3.5.9 Section L—Warpage Test on Devices with Plastic Lenses

3.6 **Plastic Materials**—Any plastic materials used in optical parts shall comply with the requirements set forth in SAE J576.

3.7 **Color Test**—The color of the light from turn signal lamps shall be red or yellow (amber) to the rear and yellow (amber) to the front of the vehicle. (See SAE J578.)

3.8 If the turn signal is optically combined with the tail lamp and a two-filament 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.

3.9 **Photometric Requirements**

3.9.1 Rear signals from double-faced turn signal lamps need only meet the candlepower requirements in Table 1 from directly to the rear to the left for a left lamp and from directly to the rear to the right for a right lamp. (The intent of the foregoing sentence is to permit the manufacturer to provide glare protection for the driver.)

3.9.2 All beam candlepower measurements shall be made with the incandescent filament(s) of the signal lamp(s) at least 10 ft from the photometer screen. The H-V axis shall be taken as parallel to the longitudinal axis of the vehicle. When compartments or lamps are photometered together, the H-V axis shall intersect the midpoint between the optical centers (filament).

3.9.3 Beam candlepower measurements of multiple compartment lamp or multiple lamp arrangements shall be made by either of the following methods:

TABLE 1—MINIMUM DESIGN CANDLEPOWER REQUIREMENTS

Test Points, deg		Red Lighted Sections			Yellow Lighted Sections		
		1	2	3	1	2	3
10U and 10D	10L	10	12	15	25	30	35
	V	25	30	35	60	75	90
	10R	10	12	15	25	30	35
5U and 5D	20L	10	12	15	25	30	35
	10L	30	35	40	75	88	100
	5L	50	60	70	125	150	175
	V	70	82	95	175	205	235
	5R	50	60	70	125	150	175
	10R	30	35	40	75	88	100
H	20R	10	12	15	25	30	35
	20L	15	18	20	35	45	50
	10L	40	47	55	100	120	140
	5L	80	95	110	200	240	275
	V	80	95	110	200	240	275
	5R	80	95	110	200	240	275
Maximum—Rear Lamps Only	10R	40	47	55	100	120	140
	20R	15	18	20	35	45	50
Maximum—Rear Lamps Only		300	360	420	750	900	1050

NOTES:

1. Specifications are based on laboratories using accurate, rated bulbs during testing.
2. Lamps designed for use in both 6V and 12V systems shall be tested with 12V bulbs. Lamps designed to operate on the vehicle through a resistor or equivalent shall be photometered with the listed design voltage of the design source applied across the combination of resistance and filament.
3. A multiple device signaling unit gives its indication by two or more separately lighted sections which may be separate lamps, or areas that are joined by common parts. The photometric values are to apply when all sections which provide the same signal are considered as a unit except when the dimensions between optical centers exceed those dimensions given in paragraph 3.1. For a separate lamp arrangement, where lamps are interchangeable, each lamp should be of approximately the same performance.
4. When a tail lamp or parking lamp is combined with the turn signal lamp, the signal lamp shall not be less than three times the candlepower of the tail lamp or parking lamp at any test point on or above horizontal; except that at H-V, H-5L, H-SR, and 5U-V, the signal lamp shall not be less than five times the candlepower of the tail lamp or parking lamp. If a multiple compartment or multiple lamp arrangement is used and the distance between optical axes for both the tail lamp (parking lamp) and the turn signal is within the dimensions specified in paragraph 3.1, the ratio of the turn signal to the tail lamp (parking lamp) shall be computed with all the compartments or lamps lighted. If a multiple compartment or multiple lamp arrangement is used and the distance between optical axes for one of the functions exceeds the dimensions specified in paragraph 3.1, the ratio shall be computed for only those compartments or lamps where the tail lamp (parking lamp) and turn signal are optically combined.
5. Lamps intended for the rear of a vehicle shall not exceed the listed maximum candlepower at night over any area larger than that generated by a 1/4 deg radius.
6. If yellow is used as a rear turn signal and the stop lamp is turned off on the signaling side, the minimum values shall be 0.7 times the values shown.