(R) MOTORCYCLE HEADLAMPS—SAE J584 DEC83

SAE Standard

Report of the Lighting Committee, approved January 1949, completely revised by the Motorcycle Committee December 1983. Rationale statement available.

1. Scope—This SAE Standard provides design parameters and general requirements for motorcycle headlamps.

2. Definition—A motorcycle headlamp is a major lighting device used to provide general illumination ahead of the vehicle. For definition and classes of motorcycles, see SAE J213.

3. Laboratory Requirements

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

3.1.1 Section 2 —Samples for Test
3.1.2 Section 2.2—Bulbs
3.1.3 Section 3 —Laboratory Facilities
3.1.4 Section 4.1—Vibration Test
3.1.5 Section 4.2—Moisture Test
3.1.6 Section 4.3—Dust Test
3.1.7 Section 4.4—Corrosion Test
3.1.8 Section 4.6—Photometry
3.1.9 Section 4.8—Warpage Test on Devices with Plastic Components

3.2 Plastic Materials—Any plastic material used in optical parts shall comply with the requirements set forth in SAE J576.

3.3 Color Test—Color of the light from a motorcycle headlamp shall be white, as defined in SAE J578.

3.4 Aiming Adjustment Tests

3.4.1 A minimum aiming adjustment of 4 deg in each direction from the vertical and horizontal planes shall be provided.

3.4.2 Headlamps with independent vertical and horizontal aiming adjusting mechanisms:

3.4.2.1 The headlamp unit mounting shall be provided with independent vertical and horizontal aiming adjustments. The adjustment mechanisms shall be designed so that neither the vertical nor horizontal aim will deviate more than 100 mm (4 in) from the horizontal or vertical planes, respectively, at a distance of 7.6 m (25 ft) through an angle of ±4 deg.

3.4.2.2 When adjusting screws are employed, they shall be equipped with self-locking devices which operate satisfactorily for a minimum of 10 adjustments on each screw, over a length of screw thread of ±3 mm (⅛ in).

3.4.3 Headlamps with ball and socket or equivalent adjustment means need not conform with 3.4.2.

3.5 Inward Force Test—The mechanism, including the aiming adjusters, shall be designed to prevent the unit from receding permanently by more than 2.5 mm (0.1 in) into the lamp body or housing when an inward force of 222 N (50 lbf) is exerted at the geometric center of the outer surface of the lens.

3.6 Clarity of Hot Spot Definition—The geometric center of the high intensity zone of the upper beam of the multiple beam headlamps shall be deemed sufficiently defined for the purpose of service aiming if it can be set by three experienced observers on a vertical screen at 7.6 m (25 ft) within a maximum vertical deviation of ±0.3 deg and within a maximum horizontal deviation of ±0.4 deg. The aim for each observer shall be taken as the average of at least three observations.

3.7 Beam Aim During Photometric Test

3.7.1 The upper beam of a multiple beam headlamp shall be aimed photoelectrically so that the center of the zone of highest intensity falls 0.4 deg vertically below the lamp axis and is centered laterally. The center of the zone of highest intensity shall be established by the intersection of a horizontal plane passing through the point of maximum intensity, and the vertical plane established by balancing the photometric values at 3 deg left and 3 deg right.

3.7.2 The beam of a single beam Class C (moped) lamp shall be aimed photoelectrically so that the center of the zone of highest intensity falls 1.5 deg vertically below the lamp axis and is centered laterally. The center of the zone of highest intensity shall be established by the intersection of a horizontal plane passing through the point of maximum intensity, and the vertical plane established by balancing the photometric values at 3 deg left and 3 deg right.

3.8 Photometric Design Requirements

3.8.1 Test Procedures—Photometric tests shall be made with photometer at a distance of at least 18.3 m (60 ft) from the unit. The bulb or unit shall be operated at 6.4 V for a 6 V system and 12.8 V for a 12 V system during the test.

3.8.2 Design Intensity Requirements— The beam or beams from the unit shall be designed to conform to the intensity specifications in Tables 1, 2, or 3. A tolerance of ±0.25 deg in location may be allowed for any test point.

4. Optional Systems—One or two 178 mm (Type 2D1) or 142 × 200 mm (Type 2B1) sealed beam units meeting the requirements, including aim, of SAE J579 may be used on Class A, B, C, and D motorcycles. One 146 mm (Type 1C1) and one 146 mm (Type 2C1), or one 100 × 165 mm (Type 1A1) and one 100 × 165 mm (Type 2A1) sealed beam units meeting the requirements, including aim, of SAE J579 may be used on Class A, B, C, and D motorcycles.

TABLE 1—CLASS A AND D MOTORCYCLE

Upper Beam

Test Points (Deg)	Min. cd	Max. cd
2U–V	1000	
1U–3L and 3R	2000	
H–V	12 500	
1/2D–V	20 000	
1/2D–3L and 3R	10 000	
1/2D–6L and 6R	3300	
1/2D–9L and 9R	1500	
1/2D–12L and 12R	800	
1D–V	17 500	
2D–V	5000	
3D–V	2500	
3D–9L and 9R	1500	
3D–12L and 12R	300	
4D–V	1500	
Anywhere		7500 75 000

Lower Beam

Test Points (Deg)	Min. cd	Max. cd
1-1/2U–1R to R		1400
1U–1-1/2L to L		700
1/2U–1-1/2L to L		1000
1/2U–1R to 3R		2700
1-1/2D–9L and 9R	700	
2D–V	7000	
2D–3L and 3R	4000	
2D–6L and 6R	1500	
2D–12L and 12R	700	
3D–6L and 6R	800	
4D–V	2000	
4D–4R		12 500

TABLE 2—CLASS B, C AND E MOTORCYCLE

Upper Beam

Test Points (Deg)	Class B		Class C and E	
	Min. cd	Max. cd	Min. cd	Max. cd
1U–3L and 3R	2000		1000	
H–V	10 000		5000	
1/2D–V	20 000		7500	
1/2D–3L and 3R	5000		3000	
1/2D–6L and 6R	2000		800	
1D–V	15 000		5000	
2D–V	5000		3000	
3D–V	2500		1000	
3D–6L and 6R	800		500	
4D–V		7500		7500
Anywhere		75 000		75 000

Lower Beam

Test Points (Deg)	Class B		Class C and E	
	Min. cd	Max. cd	Min. cd	Max. cd
1-1/2U–1R to R		1400		1400
1U–1-1/2L to L		700		700
1/2U–1-1/2L to L		1000		1000
1/2U–1R to 3R		2700		2700
2D–V	5000		4000	
2D–3L and 3R	3000		3000	
2D–6L and 6R	1500		1500	
3D–6L and 6R	800		800	
4D–V	2000		2000	
4D–4R		12 500		12 500

TABLE 3—CLASS C AND E MOTORCYCLE

Single Beam

Test Points (Deg)	Min. cd	Max. cd
1-1/2U–1R to 3R		1400
1U–1-1/2L to L		700
1/2U–1-1/2L to L		1000
1/2U–1R to 3R		2700
2D–V	4000	
2D–3L and 3R	3000	
2D–6L and 6R	1500	
4D–V	1000	
4D–4R		12 500