SAE International

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J1623 FEB2008

Issued 1994-12
Revised 2008-02

Superseding J1623 FEB1994

All-Terrain Vehicle Headlamps

RATIONALE

Because of drawing reproduction and possible confusion and for clarity, Figure 1 – SAE J577 Vibration Test Machine drawing has been removed. Only the vibration requirements are shown.

Aiming adjustment tests were added to help insure amiability of the head lamp and insure the lamps are secure during operation of the machine.

Visual service aiming was added to include beam definition. This will allow the beam to have adequate definition so that it can be visually aimed at the factory and in the field.

Photometric intensities in Tables 1 and 2 were left as is after the Special Purpose Vehicle Committee reviewed the necessity to have them changed. It was decided that the intensities were sufficient for the present.

FOREWORD

This SAE Recommended Practice is intended as a guide toward standard practice, but may be subject to frequent change to keep pace with experience and technical advances. Hence, its use where flexibility of revision is impractical is not recommended.

1. SCOPE

This SAE Recommended Practice provides test procedures and performance requirements for all-terrain vehicle headlamps.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J575 Test Methods and Equipment for Lighting Devices and Components for Use on Vehicles Less than 2032 mm in Overall Width

SAE J577 Vibration Test Machine and Operation Procedure

SAE J578 Color Specification

3. DEFINITIONS

3.1 All-Terrain Vehicle (ATV)

An all-terrain vehicle is any motorized off-highway vehicle 1270 mm (50 in) or less in overall width, with an unladen dry weight of 275 kg (600 lb) or less, designed to travel on four low-pressures tires, having a seat designed to be straddled by the operator and handlebars for steering control, and intended for use by a single operator and no passenger. Width and weight shall be exclusive of accessories and optional equipment.

3.2 All-Terrain Vehicle (ATV) Headlamp

An all-terrain vehicle headlamp is one or more lamps used as the major lighting device to provide general illumination ahead of an all-terrain vehicle. The photometric requirements stated in Tables 1 and 2 represent the total headlamp illumination requirement for an ATV.

3.2.1 If multiple headlamps are used to meet this document, the combination of lamps, as mounted on the ATV, shall meet the requirements when treated as one lamp.

3.2.2 The headlamp shall not be obstructed by any part of the ATV throughout the photometric test angles unless the lamp is designed to comply with all photometric requirements with these obstructions considered.

4. GENERAL REQUIREMENTS

4.1 The following sections from SAE J575 are a part of this document:

a. Definitions

b. Bulbs

c. Vibration

d. Moisture Test

e. Dust Test

f. Corrosion Test

g. Photometry Test

h. Warpage Test Devices with Plastic Components

Color Test – Light shall be white as per SAE J578.

Sealed Beam headlamps need not comply with Sections 4.3 and 4.4 of SAE J575.

5. VIBRATION TEST

5.1 Scope

This test evaluates the ability of the sample device to resist damage from vibration-induced stresses. This test is not intended to test the vibration resistance of bulbs or the internal components of sealed-beam units.

5.2 Test Equipment

Any vibration test machine which provides the displacement and frequency specified in 5.3 may be used.

5.3 Test Procedure

A sample unit shall be mounted to a vibration test machine and vibrated at12.5 Hz through a distance of 3.2 mm.

5.4 Test Duration

The test shall be continuous for 1 h.

5.5 Requirements

Upon completion of test procedure 5.3 and 5.4, any unit showing evidence of material physical weakness, lens or reflector rotation, displacement, cracking or rupture of parts except bulb failure(s) shall be considered to have failed. Any rotation of a lens or reflector that occurs does not constitute failure of the test if the device still meets the photometric requirements with the component(s) in their rotated, post-vibration test position.

6. AIMING ADJUSTMENT TESTS

6.1 A minimum aiming adjustment of ±4 degrees shall be provided in the vertical plane from a basic aiming position of 1/2D-V (±0.5 degrees) with the machine on a hard surface and the suspension adjusted to the manufacturer's recommended setting and the machine loaded to simulate an 80 kg (175 lb) operator at the designated seating position.

6.2 The mechanism, including the aiming adjustment, shall be so designed as to prevent the unit from receding into the lamp body or housing when an inward force of 222 N (50 lb) is exerted at the geometric center of the outer surface of the lens.

6.3 When adjusting screws are employed, they shall be equipped with self-locking devices which will operate satisfactorily for a minimum of 10 adjustments on each screw, over a length of screw thread of ± 3.175 mm (± 3 mm)

6.4 Headlamp Mounting

The headlamp shall be mounted on the ATV as high as practicable above the surface of the ground and below the operator's line of sight.

In order to facilitate setting and maintaining the proper adjustment of the headlamp on ATVs in use, the following requirements for a headlamp design and mounting shall be adopted and followed in general practice and be equally applicable to new designs of headlamps and mountings. Headlamps and headlamp mountings shall be designed and constructed so that:

6.4.1 The axis of the light beam may be adjusted conveniently by on person using ordinary tools, up and down from the designed setting, in the amount determined by practical operating conditions.

6.4.2 When the headlamp is secured, the aim will not be disturbed under ordinary conditions of operation.

6.5 Visual Service Aiming

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/technicians on a vertical screen at 7.6 m (25 ft) within a maximum vertical deviation of ±0.2 degrees {25.4 mm (1 in)} and within a maximum horizontal deviation of ±0.4 degrees {50.5 mm (2 in)) The aim for each observer/technician shall be taken as the average of at least three observations.

6.6 Beam Aim During Photometric Test

The upper beam of a multiple beam headlamp shall be aimed photo electrically so that the center of the zone of highest intensity falls 0.5 deg vertically below the lamp axis and is centered laterally. The beam of a single beam headlamp shall be aimed so that the zone of highest intensity falls 1.5 degrees vertically below the lamp axis and is centered latterly. 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 degrees left and 3 degrees right. The single beam head lamp shall meet the candela requirements of Table 2.

6.7 Requirements

The headlamp shall be operated at its design voltage during the photometric test. When treated as one lamp, the beam or beams from the headlamp, when aimed as described in 6.5, shall meet the candela requirements in Table 1 and 2, or in the case of a single beam, Table 2. These test points shall be measured by a photometer positioned at a minimum distance of 18.3 m (60 ft) from the test headlamp. A tolerance of 0.25 degrees in location may be allowed for any test point.

7. PHOTOMETRIC TEST

7.1 Scope

This test evaluates the ability of the headlamp or headlamps to meet the applicable luminous intensity requirements in Tables 1 and 2.

7.2 Beam Aim

If the test unit is equipped with upper- and lower-beam patterns, the upper beam shall be aimed so that the center of the zone of highest intensity falls at 1/2D-V. If the test unit has a single beam, the beam shall be aimed so that the zone of highest intensity falls at 1-1/2D-V. 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 degrees left and 3 degrees right.

7.3 Requirements

The headlamp shall be operated at its designed voltage during the photometric test. When treated as one lamp, the beam or beams from the headlamp shall be designed to conform to the applicable luminous intensity requirements in Tables 1 and 2, measured by a photometer positioned at least 18 m from the headlamp. A tolerance of 0.25 degree in location may be allowed for any test point.