SAE International™

SURFACE VEHICLE STANDARD

J280 REV. FEB2006

Issued 1972-01
Revised 2006-02

Superseding J280 JUN1984

Snowmobile Headlamps

RATIONALE

Today's manufacturing technology has developed to the state of the art to allow increases in photometric capability. This capability and the state of manufacturing indicates that the minimum high beam candlepower consistantly produces over 12 000 candela and more than 18 000 candelas. Owing to this fact, the minimum candela at ½ down in the photometric Table 1 – Upper Beam, has been raised to 18 000 candelas minimum.

The section reference numbers to the required SAE J575 tests have been renumbered to agree with the latest J575 numbers. Due to this document being widely used as an industry standard, it has been raised to an SAE standard.

The majority of testing laboratories photometer at 100 ft (30.5 m). To accommodate this, the test distance is changed to a minimum distance of 60 ft (18.3 m).

FOREWORD

This SAE Standard 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 standard provides test methods and requirements for snowmobile headlamps.

2. REFERENCES

2.1 Applicable Publication

The following publication forms a part of the specification to the extent specified herein. Unless otherwise indicated the lastest revision of SAE publications shall apply.

2.1.1 SAE Publication

Available from SAE, 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 Tests for Motor Vehicle Lighting Devices and Components

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

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

Section 3 – Definitions
Section 3.2 – Bulbs
Section 4.1 – Vibration Test
Section 4.2 – Moisture Test
Section 4.3 – Dust Test
Section 4.4 – Corrosion Test
Section 4.5 – Photometry
Section 4.6 – Warpage Test Devices with Plastic Lenses

Color Test – The light shall be white to amber.

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

3. DEFINITIONS

3.1 Snowmobile Headlamps

Snowmobile headlamps are one or more lamps mounted on the front of a snowmobile used as the major lighting device to provide general illumination ahead of the snowmobile. The photometric requirements stated in Tables 1 and 2 represent the total headlamp illumination requirement for a snowmobile.

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

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

4. AIMING ADJUSTMENT TESTS

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

4.2 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 50 lb (22.7 N) is exerted at the geometric center of the outer surface of the lens.

4.3 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 ±1/8 in (3.175 mm).

4.4 Headlamp Mounting

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

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

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

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

4.5 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 on a vertical screen at 25 ft (7.6 m) within a maximum vertical deviation of ±0.2 deg [1 in (25.4 mm)] and within a maximum horizontal deviation of ±0.4 deg [2 in (50.8 mm)]. The aim for each observer shall be taken as the average of at least three observations.

4.6 Beam Aim During Photometric Test

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 6 deg left and 6 deg right.

4.7 Photometric Tests

Shall be made with the photometer at a minimum distance of 60 ft (18.3 m) from the lamp. The headlamp shall be operated at its rated voltage during the test and in accordance with 3.1.2.

4.8 At Focus Tests

The light source shall be located in the design position with respect to the reflector as specified by the manufacturer.

4.8.1 When aimed as described in 4.6, the high beam of the headlamp shall meet the candela requirements in Table 1.

TABLE 1 - UPPER BEAM

Position, deg	Candela, cd
3U-V	1200 min
1/2D-V	18 000 min
1-1/2D-6L to 6R	6000 min
1-1/2D-9L to 9R	3000 min
1-1/2D-15L to 15R	1000 min
4-1/2D-V	1200 min

NOTE: A tolerance of ± 1/4 deg should be allowed at any test point.

4.8.2 When aimed, as described in 4.6, the low beam of the headlamp shall meet the candela requirements in Table 2.