

Submitted for recognition as an American National Standard

## Fan Guard for Off-Road Machines

Compares to ISO 3457

**Foreword**—This Document has not changed other than to put it into the new SAE Technical Standards Board Format. Scope was changed to Section 1, Purpose 1.1, References were added as Section 2.

1. **Scope**—This practice applies to engine cooling fans used on Off-Road Work Machines and related equipment defined in SAE J1116 MAR99. It does not include guarding for belts, pulleys, or other rotating equipment used on these machines.

1.1 **Purpose**—This document provides performance guidelines for engine cooling fan guard device(s).

### 2. References

2.1 **Applicable Publication**—The following publication forms a part of the specification to the extent specified herein. Unless otherwise indicated, the latest revision of SAE publications shall apply.

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

SAE J1116—Categories of Off-Road Work Machines

### 3. Definitions

3.1 **Fan Guard**—A device to protect against inadvertent contact with a rotating fan by objects or personnel.

3.2 **Fan Shroud**—A device to improve the performance of a cooling fan by enclosing the blade tips.

3.3 **Exposed Area of Fan**—The portion of the fan from the hub to the blade tips not blocked by integral components of the machine that remain in place during maintenance or periodic inspection.

### 4. Performance Requirements

4.1 The fan guard shall cover or enclose all exposed areas of the fan blades and spider with which inadvertent contact could be made by personnel or extraneous material.

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4.2 The maximum nominal width of opening in the guard shall depend on its distance from the exposed area of the fan according to Table 1:

**TABLE 1—MAXIMUM OPENING WIDTH**

Opening	Distance From Guard to Fan
12 mm (0.47 in)	Less Than 90 mm (3.54 in)
16 mm (0.63 in)	91 mm (3.58 in) to 140 mm ( 5.51 in)
19 mm (0.75 in)	141 mm (5.55 in) to 165 mm ( 5.55 in)
22 mm (0.87 in)	166 mm (6.54 in) to 190 mm ( 7.48 in)
32 mm (1.26 in)	191 mm (7.52 in) to 320 mm (12.60 in)

4.3 The guard shall be sufficiently rigid to retain the distances defined in 4.2 under the following conditions:

- 4.3.1 When subjected to a force of 800 N distributed over any 75 x 150 mm area and applied in any direction toward the fan.
- 4.3.2 When subjected to a vertical force of 1100 N distributed over any 75 x 150 mm area and directed downward.
- 4.3.3 Any surface within 20 degrees of horizontal must meet the requirements of 4.3.2.

**4.4 Design Considerations**

- 4.4.1 The fan guard shall minimize sharp edges and pinch points.
- 4.4.2 The guard shall be easy to remove and install with common hand tools.
- 4.4.3 The guard should allow belt adjustment and replacement as required and reversal of fan if needed.
- 4.4.4 When the fan shroud or other components are used as a fan guard, they must meet fan guard performance requirements.

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