

Operator Protection for General-Purpose Industrial Machines

1. Scope—This SAE Standard applies to General-Purpose Industrial Machines described in Category 2 of SAE J1116, but excludes skid steer loaders (covered by SAE J1388). Protection for the operator of an attachment (for example, a backhoe) is excluded from the scope of this document.

1.1 Purpose—The purpose of this document, with referenced documents, is to establish performance requirements for protective systems that provide operator protection from hazards of machine rollover and/or falling objects.

2. References

2.1 Applicable Publications—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

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

SAE J167—Overhead Protection for Agricultural Tractors—Test Procedures and Performance Requirements

SAE J386—Operator Restraint Systems for Off-Road Work Machines

SAE J1040—Performance Criteria for Rollover Protective Structures (ROPS) for Construction, Earthmoving, Forestry, and Mining Machines

SAE J1116—Categories of Off-Road Self-Propelled Work Machines

SAE J1194—Rollover Protective Structures (ROPS) for Wheeled Agricultural Tractors

SAE J1388—Personnel Protection—Skid Steer Loaders

3. Rollover Protection—In order to fulfill the intended purpose of this document, subject machines shall be equipped as specified in 3.1 and 3.2.

3.1 A rollover protective structure (ROPS) per SAE J1040. Wheeled machines similar in configuration to agricultural tractors may, as an alternative, be equipped with a ROPS per SAE J1194.

3.2 Seat belts conforming to SAE J386. The seat mounting and seat belt anchorage(s) shall meet the requirements of SAE J386.

3.3 To reduce further the probability or severity of operator injury in the event of a rollover, attention to the following details is recommended:

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- 3.3.1 Batteries, fuel tanks, oil reservoirs, and coolant systems should be constructed, located, or sealed to minimize likelihood of spillage on the operator.
- 3.3.2 Edges, corners, or other sharp projections that might be struck by the head or torso of an operator restrained by a seat belt per 3.2 should be avoided, suitably padded, or designed to break away on impact.
- 4. **Protection From Falling Objects**—For operator protection from falling objects, the machine may be equipped with a falling object protective structure (FOPS). Wheeled machines similar in configuration to agricultural tractors may, as an alternative, be equipped with FOPS per SAE J167.
 - 4.1 FOPS may be expected to provide reasonable protection from such falling objects as trees and rocks.
 - 4.2 FOPS per SAE J167 would be expected to provide reasonable protection from such objects as bricks, concrete blocks, and small hand tools that may fall from heights of not more than 9 m (30 ft) above the ground, encountered in operations such as highway maintenance or landscaping, and other services on construction sites.

PREPARED BY THE SAE OPERATOR PROTECTION TECHNICAL COMMITTEE
SC1—PERSONNEL PROTECTION (GENERAL)