

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 APR92—Overhead Protection for Agricultural Tractors—Test Procedures and Performance Requirements

SAE J231 JAN81—Minimum Performance Criteria for Falling Object Protective Structure (FOPS)

SAE J386 JUN85—Operator Restraint Systems for Off-Road Work Machines

SAE J1040 APR88—Performance Criteria for Rollover Protective Structures (ROPS) for Construction, Earthmoving, Forestry, and Mining Machines

SAE J1043 SEP87—Performance Criteria for Falling Object Protective Structure (FOPS) for Industrial Machines

SAE J1116 JUN86—Categories of Off-Road Self-Propelled Work Machines

SAE J1194 MAY89—Rollover Protective Structures (ROPS) for Wheeled Agricultural Tractors

SAE J1388 JUN85—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.

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SAE J1042 Reaffirmed JUN93

- 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:
- 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) per SAE J231 or SAE J1043. Wheeled machines similar in configuration to agricultural tractors may, as an alternative, be equipped with FOPS per SAE J167.
- 4.1** FOPS per SAE J231 may be expected to provide reasonable protection from such falling objects as trees and rocks.
 - 4.2** FOPS per SAE J1043 or 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 OFF-ROAD MACHINERY TECHNICAL COMMITTEE
SC25—GENERAL PURPOSE TRACTORS (INDUSTRIAL)

SAE J1042 Reaffirmed JUN93

Rationale—SAE J1042 has been up for review by ORMTC SC25. The following rationale has developed regarding future application of this standard.

The stated purpose and scope of SAE J1042 is to establish protective system requirements for general-purpose industrial machinery as defined in Category 2 of SAE J1116. The scope of SAE J1042 also specifically excludes skid steer loaders which are covered by SAE J1388 and excludes protection for the operator of attachments (such as backhoes) which may be attached to Category 2 Equipment.

The machines listed in Category 2 of SAE J1116 are:

- a. Tractors
- b. Loaders
- c. Backhoe Loaders
- d. Mowers
- e. Trenchers

These machines are covered by SAE J98.

SAE J98 (current revision) provides satisfactory statements on ROPS and FOPS Protection Systems.

SAE J1042 is referenced in SAE J1388, 7.1.5 for certain features of operator area hazards which can be included in future revisions.

SAE J1042 is referenced in SAE J1040 in relationship to SAE J1116. However, SAE J98 effectively provides the guidelines for ROPS for SAE J1116, Category 2 Equipment.

It was concluded that SAE J1042 should not continue as a SAE Standard indefinitely.

It was recommended that SAE J1042 be reaffirmed at this time. References to SAE J1042 should be deleted from next revision of SAE J98, J1040, and J1388. This will allow SAE J1042 to be deleted in next review.

Relationship of SAE Standard to ISO Standard—Not applicable.

Application—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.

Reference Section

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