Tire Guards for Protection of Operator of Earthmoving Haulage Machines—SAE J321b

SAE Recommended Practice
Last revised April 1978

THIS IS A PREPRINT WHICH IS SUBJECT TO REVISIONS AND CORRECTIONS. THE FINAL VERSION WILL APPEAR IN THE 1979 EDITION OF THE SAE HANDBOOK.

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LAND SEA AIR SPACE

PREPRINT

TIRE GUARDS FOR PROTECTION OF ϕ OPERATOR OF EARTHMOVING HAULAGE MACHINES—SAE J321b

SAE Recommended Practice

Report of Construction and Industrial Machinery Technical Committee approved November 1967 and completely revised by Off-Road Machinery Technical Committee April 1978. Rationale statement available.

1. Scope—This recommended practice establishes a minimum zone of protection for the operator of the machine and certain structural requirements for guards on pneumatic-tired earthmoving haulage machines capable of speeds in excess of 25 km/h (15 mph). Earthmoving machines covered by this recommended practice are dumpers, and tractor-scrapers as identified in SAE J1057a (June, 1975).

2. Definitions

2.1 Zone of Protection—This is the area designated to provide protection for the operator from material thrown tangentially from a rotating tire of the machine, in a plane parallel to the rotation of the tire for all oscillation and steering angles in a hauling position.

3. General Requirements

3.1 Zones of Protection

3.1.1 Forward Zone of Protection—When the operator is located forward of the tire centerline. This area is defined by a line intersecting the forward extremity of the Deflection Limiting Volume (DLV), as defined in SAE J397a (July, 1973), and by a vertical tangent to the rear edge of the tire as shown in Fig. 1.

3.1.2 Rearward Zone of Protection—When the operator is located rearward of the tire centerline. This area is defined by lines drawn tangent to the tire and intersecting the extremities of the DLV. The rear zone line shall form an inclusive angle to the ground line of not greater than 90 deg as shown in Fig. 2.

3.1.3 The width of the Zone of Protection shall be as shown in Fig. 3.

3.2 Guard—The guard shall provide circumferential coverage per paragraph 3.1.1 and Fig. 1 and/or paragraph 3.1.2 and Fig. 2.

3.3 Protection—This may be accomplished by a guard, structure of the machine, and/or attachments or by the lateral location of the DLV away from the plane of the tire.

3.4 Material—The guard may be either rigid or flexible. The construction shall provide energy absorption (at least equal to USA 14 gauge mild steel), for tangentially-thrown material without rupture.

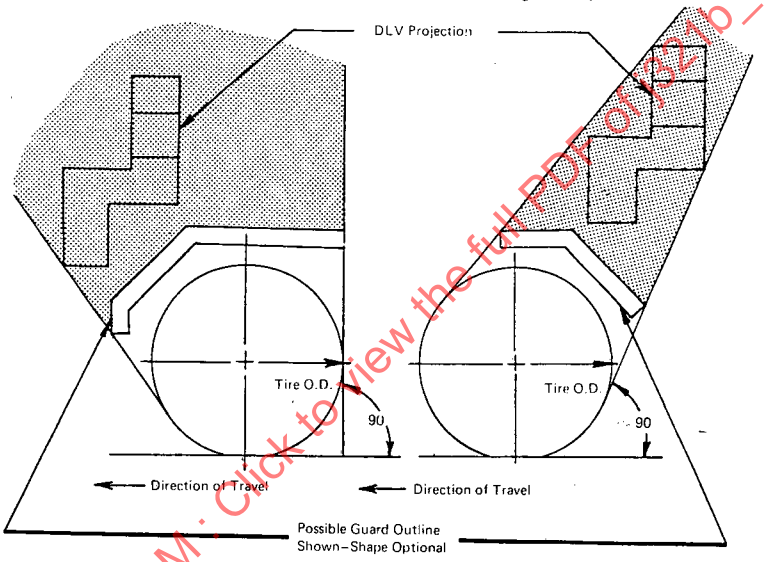

FIG. 1—CIRCUMFERENTIAL COVERAGE REQUIREMENTS WITH OPERATOR LOCATED FORWARD OF TIRE(S)

FIG. 2—CIRCUMFERENTIAL COVERAGE REQUIREMENTS WITH OPERATOR LOCATED REARWARD OF TIRE(S)

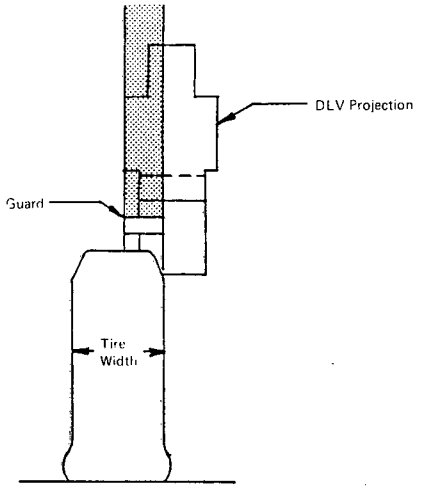

FIG. 3—LATERAL TIRE COVERAGE REQUIREMENTS FOR OPERATOR PROTECTION (ON A LEVEL SURFACE)

Note: Shaded areas to Figs. 1, 2, and 3 indicate minimum zone of protection in a hauling position.

The ϕ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.