



SURFACE VEHICLE STANDARD

J2473™

APR2023

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Superseding J2473 APR2014

Self-Propelled Sweepers and Scrubbers - Maximum Gradient Rating During Hopper Discharge

RATIONALE

The section related to tilt table testing needs revision based on the current prescribed testing methodology.

1. SCOPE

This SAE Standard establishes the maximum gradient rating during hopper discharge of self-propelled, driver-operated sweepers and scrubbers as defined by SAE J2130-1 and SAE J2130-2.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publication

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

- | | |
|-------------|--|
| SAE J2130-1 | Identification of Self-Propelled Sweepers and Cleaning Equipment, Part 1 - Machines with a Gross Vehicle Mass Greater than 5000 kg |
| SAE J2130-2 | Identification of Self-Propelled Sweepers and Cleaning Equipment, Part 2 - Machines with a Gross Vehicle Mass up to 5000 kg |
| SAE J2180 | A Tilt Table Procedure for Measuring the Static Rollover Threshold for Heavy Trucks |

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For more information on this standard, visit
https://www.sae.org/standards/content/J2473_202304/

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publication

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J765 Crane Load Stability Test Code

3. DEFINITIONS

3.1 HOPPER RATED LOAD

The material mass in kilograms of bagged sand applied to the hopper according to the manufacturers' specifications.

3.2 OUTRIGGERS

Extendable or fixed arms attached to the base machine that rest on the supporting surface to define the balance point fulcrum. See Figures 1 and 2.

3.3 TIPPING LINE (SIDE DUMP)

3.3.1 SWEEPER WITH STEERABLE AXLE

A line connecting the centers of contact of the front and rear tires with the ground reference plane on the tipping side of the machine. See Figures 3 and 4.

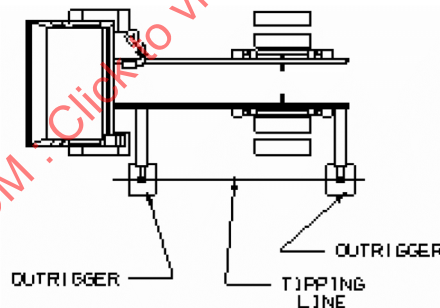


Figure 1 - Outrigger equipped

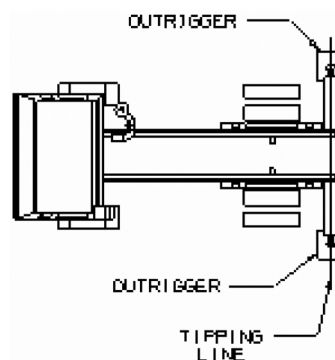


Figure 2 - Outrigger equipped

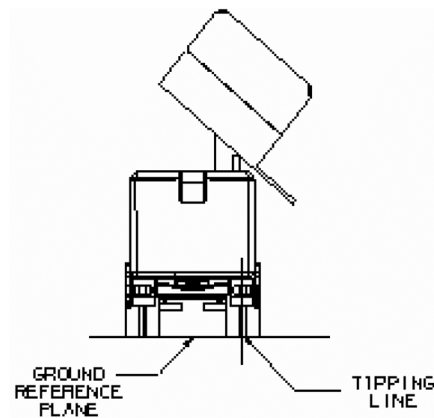


Figure 3 - Side discharge

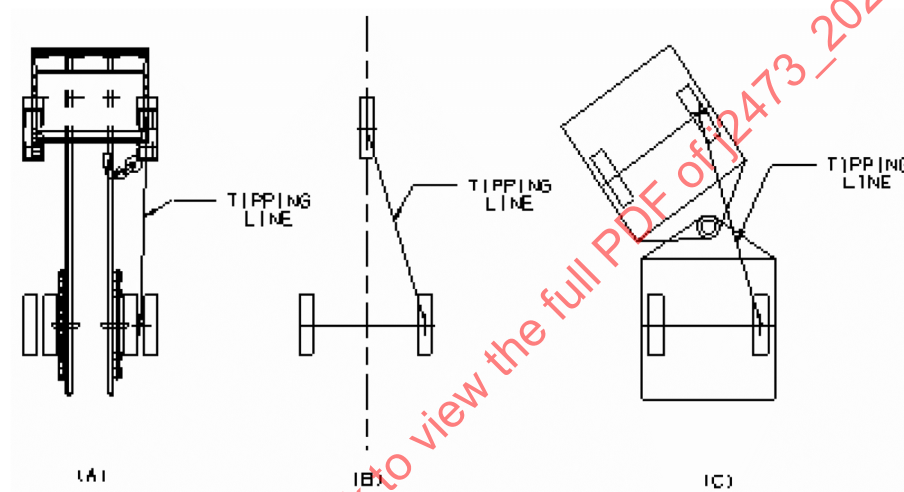


Figure 4 - Side discharge

3.3.2 SWEEPER WITH OSCILLATING AXLE

A line connecting the center of contact of the tire on the rigid axle with the ground reference plane on the tipping side of the machine and the center of oscillation of the oscillating axle.

3.3.3 SWEEPER WITH ARTICULATING STEERING

A line connecting the center of contact of the tires on the tipping axle when the vehicle is set to turn on full lock away from the tipping side. See Figure 4 (c).

3.3.4 SWEEPER WITH OUTRIGGERS

A line connecting the center of contract of the outrigger pads with the ground reference plane on the tipping side of the machine. See Figure 1.

3.4 TIPPING LINE (FRONT OR REAR DUMP)

3.4.1 SWEEPER WITHOUT OUTRIGGERS

A line through the front or rear axle on the tipping end of the machine. See Figures 5 and 6.

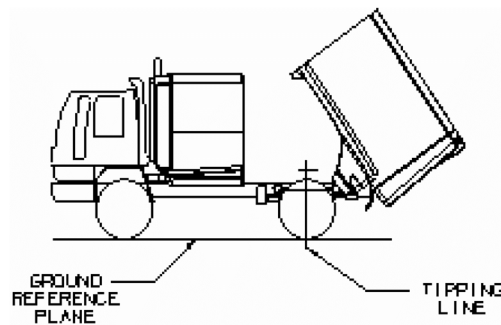


Figure 5 - Rear discharge

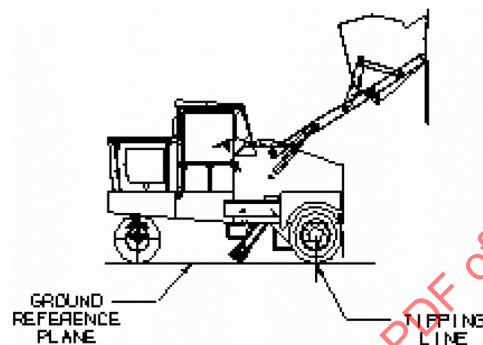


Figure 6 - Front discharge

3.4.2 SWEEPER WITH OUTRIGGERS

A line connecting the center of contact of the outrigger pads with the ground reference plane on the tipping end of the machine. See Figure 2.

3.5 BALANCE POINT

3.5.1 MACHINE WITHOUT OUTRIGGERS

The moment acting to overturn the machine at hopper rated load that shall not cause any tire on the side opposite the load side to lift more than 1.6 mm from the ground reference.

3.5.2 MACHINE WITH OUTRIGGERS

The moment acting to overturn the machine at hopper rated load that shall not cause any tire or outrigger pad on the side opposite the load to lift more than 1.6 mm from the ground reference plane.

4. SPECIAL REQUIREMENTS

4.1 Stability limitations are not applicable under loads based on structural competence.

4.2 Stability Criteria

4.2.1 Design stability is the measure of a machine's resistance to overturning under rigidly controlled conditions that include consideration for dynamic factors encountered in normal application and operation. Factors that can influence stability include mass, mass distribution, wheelbase, method of suspension, the deflection resulting from load mass, and the orientation on a slope.

4.2.2 Static stability shall be determined by the tilt table procedure for measuring the static rollover threshold for heavy trucks in accordance with SAE J2180.