SAE International™

SURFACE VEHICLE STANDARD

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Identification of Self-Propelled Sweepers and Cleaning Equipment Part 1—Machines with a Gross Vehicle Mass Greater than 5000 kg

RATIONALE

This document provides terms and definitions so that they can be consistently applied to describe Self-Propelled Sweepers and Cleaning Equipment. This revision has been expanded to incorporate additional types of machines and expanded into parts 1 and 2 to discriminate between machines used in street sweeping, airfield operations and road maintenance (Part 1), by virtue, of classification of a gross vehicle mass greater than 5000 kg from that of smaller machines used in industrial operations and areas principally used by pedestrian traffic (Part 2).

1. SCOPE

This SAE Standard applies to all self-propelled machines with a gross vehicle mass greater than 5000 kg that are utilized to clean material from highways, parking lots, airfield runways, outside paved areas that are principally exposed to vehicular traffic. These machines may also be involved with road construction/repaving work. Primary methods for material removal and cleaning can be by mechanical, pneumatic, washing and flushing systems, or in a combination of any system.

1.1 Purpose

To identify self-propelled cleaning equipment, which are grouped into self propelled sweepers and cleaning equipment classified under the Earthmoving Machine category of SAE J1116.

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

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

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3. DEFINITIONS

3.1 Street Sweepers

Self-propelled machines, either truck chassis or purpose-built integral chassis mounted, primarily designed to sweep material from highways, parking lots, construction sites, and road re-paving work. These machines can move material to a hopper or other type of container attached to the machine by mechanical or pneumatic means, or by a combination of both.

3.2 Specialty Cleaners

Self-propelled machines equipped to perform a specific cleaning tasks. This could relate to the surface being cleaned or any other unique feature of the cleaning operation.

4. IDENTIFICATION

4.1 Integral chassis, tricycle configuration, sweepers with a maximum transport speed of less than 32 km/hr. (Figure 1a).

4.1.1 Hoppers can be high dump (being able to dump into refuse containers) or low dump (being able to dump on to the ground only).

4.1.2 The machine may be front wheel or rear wheel steered. Steering controls can be located, either in the center of the operator's cabin, or to the left or to right side, or both on the left and right side.

4.1.3 Material can be conveyed in to the hopper, via mechanical or pneumatic means or by a combination of both.

4.2 Integral chassis sweepers other than in paragraph 4.1, some of which have a maximum transport speed less than 32 km/h and some of which are designed to transport at highway speeds (Figure 1b).

4.2.1 Hoppers can be high dump (being able to dump into refuse containers) or low dump (being able to dump onto the ground only).

4.2.2 Steering controls can be located, either in the center of the operator's cabin, or to the left or to right side, or both on the left and right side.

4.2.3 Material can be conveyed in to the hopper, via mechanical or pneumatic means or by a combination of both.

4.3 Truck chassis mounted sweepers that are able to transport at highway speeds (Figure 2).

4.3.1 Hoppers can be high dump (being able to dump into refuse containers) or low dump (being able to dump on the ground only).

4.3.2 Steering controls located in the operator's cabin may be on the left or right side or both.

4.3.3 Material can be conveyed in to the hopper, via mechanical or pneumatic means or by a combination of both.

4.4 Specialty cleaners are self-propelled machines equipped to perform a specific cleaning task. They could relate to the surface being cleaned or any other unique feature of the cleaning operation.

Figures 3a and b show typical examples of these machines, which are not limited to only those shown, but would be based on the principles elaborated in paragraphs 4.1 and 4.2 but designed and constructed to fulfill the particular cleaning requirement. Additional systems, either solely or in combinations, employing; filtration, high pressure water jetting, flushing, detergents, scrubbing, spoil retrieval and recirculation, may be utilized to perform the function.

Hoppers can be high dump (being able to dump into refuse container), low dump (being able to dump on the ground only) or employ transfer systems to discharge into containers.

5. COMPONENT IDENTIFICATION (additional definitions not shown in figures)

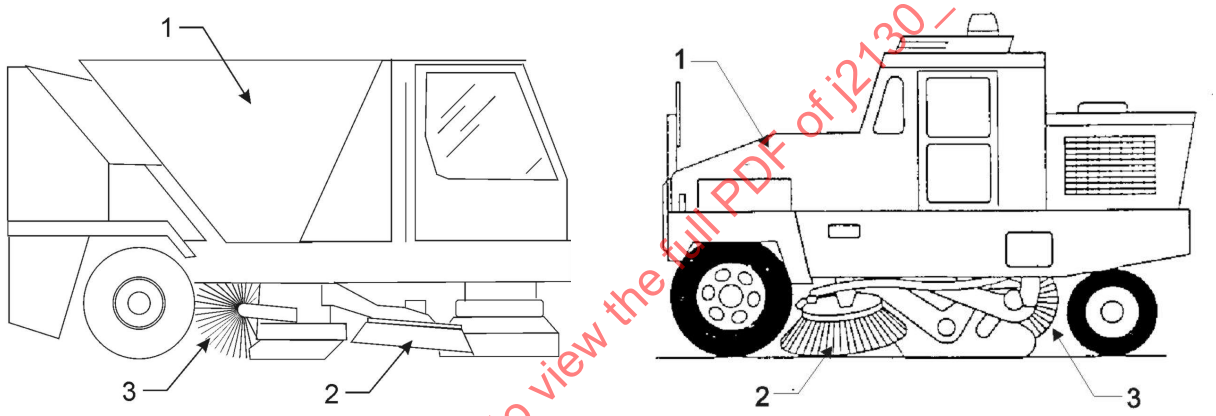
5.1 Wander or vacuum hose is a secondary suction inlet used by the operator to transport debris into the hopper through a remote hose connection.

5.2 Wander hose arm has an arm that assists in carrying the wander hose.

5.3 Catch basin cleaner is a machine designed exclusively as a suction device to load a hopper through a wander hose usually used to clean-out below ground level, i.e. catch basins, water passages, etc.

5.4 The fan is used to move air, to create air movement for pneumatic material conveyance, through pressure or vacuum or both. In order to transfer debris from the surface being cleaned into the hopper. Additionally the fan may be employed in a dust control system

5.5 Auxiliary engine is a second engine used to power a secondary function of the vehicle, usually the sweeping system or the air moving system or both.



Front Tricycle Sweeper Rear tricycle Sweeper

FIGURE 1A - INTEGRAL CHASSIS TRICYCLE CONFIGURATION SWEEPER

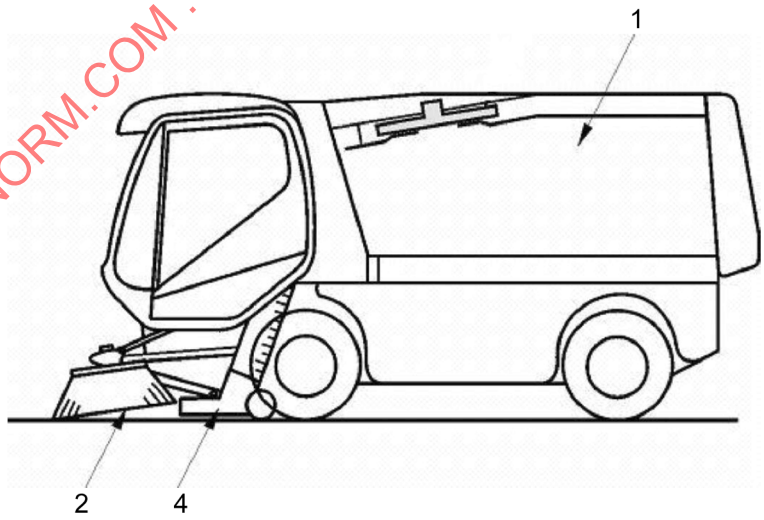


FIGURE 1B - INTEGRAL CHASSIS CONFIGURATION SWEEPER

1. Hopper
2. Gutter Broom
3. Main Broom
4. Pick-up nozzle

FIGURE 1 - INTEGRAL CHASSIS CONSTRUCTION SWEEPERS

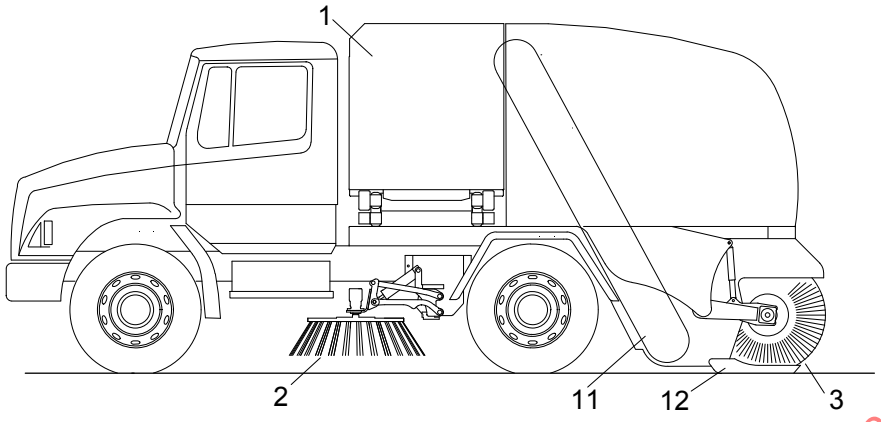


FIGURE 2A - MECHANICAL SWEEPER

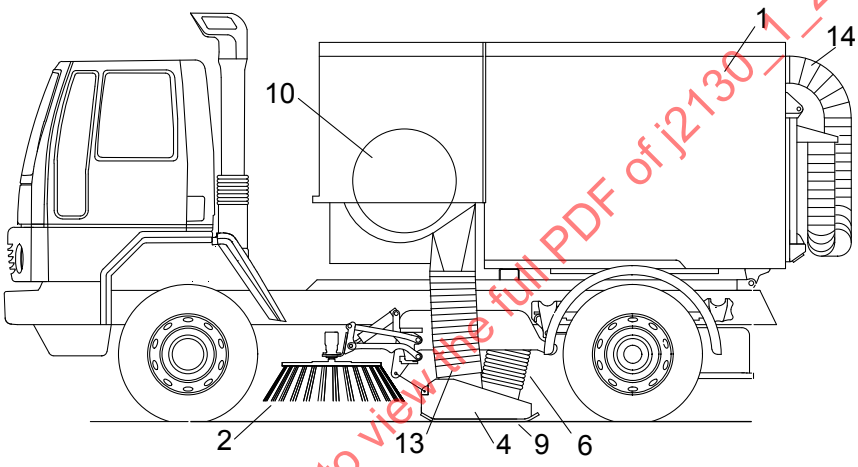


FIGURE 2B - REGENERATIVE AIR SWEEPER

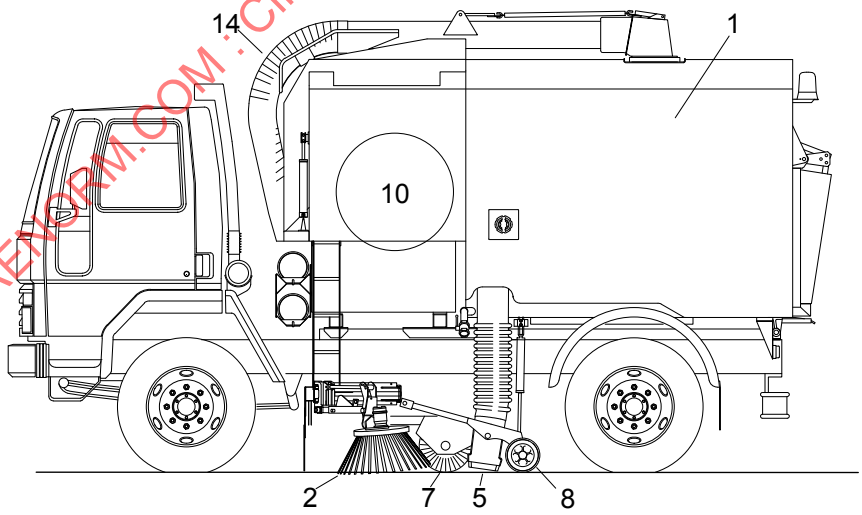


FIGURE 2C - VACUUM SWEEPER

1. Hopper
2. Gutter Broom
3. Main Broom
4. Pick-up Head
5. Pick-up Nozzle (< full width)
6. Vacuum Hose
7. Transfer Broom
8. Caster Wheel
9. Skids
10. Fan
11. Elevator
12. Drag Shoe
13. Regenerative Pressure Duct
14. Wander Hose

FIGURE 2 - TYPES OF TRUCK CHASSIS MOUNTED SWEEPERS