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STANDARD**

SAE

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Superseded by ISO 17063

Walk-Along Work Machines - Braking Systems - Performance Requirements and Test Procedures

RATIONALE

Machines within the scope of SAE J2330 are now also within the scope of ISO 17063. SAE J2330 is being cancelled and superseded by ISO 17063.

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1. **Scope**—This SAE Standard specifies minimum performance and test criteria for brake systems to enable uniform assessment of the braking capability of walk-along self-propelled work machines with a mass greater than 115 kg. Service and parking brake systems are covered by this document.
2. **References**
 - 2.1 **Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.
 - 2.1.1 ISO PUBLICATIONS—Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002.

ISO 6014—Earth-moving machinery—Determination of ground speed
ISO 6016—Earth-moving machinery—Methods of measuring the masses of whole machines, their equipment and components
 3. **Definitions**—For the purposes of this document, the following definitions apply:
 - 3.1 **Walk-Along Work Machine**—Self-propelled wheeled or crawler machine controlled by a walking operator.
 - 3.2 **Brake System**—All the components which combine together to stop and/or hold the machine. Such system consists of a control, means of brake actuation, and the brake(s).
 - 3.2.1 SERVICE BRAKE SYSTEM—The primary system used for stopping and holding the machine.
 - 3.2.2 PARKING BRAKE SYSTEM—The system used to hold a stopped machine stationary.
 - 3.2.3 BRAKE(S)—Component(s) which applies a force to oppose movement of the machine. Brakes may, for example, be of friction, electrical, hydrostatic, or other fluid types.
 - 3.3 **Machine Mass**—The maximum operating mass of a machine as specified by the manufacturer of the machine. (Ref. ISO 6016)
 - 3.4 **Stopping Distance**—The distance traveled by the machine from the point on the test course at which the machine brake control actuation begins to the point where the machine is stationary.

3.5 Maximum Machine Level Surface Speed—Machine speed determined in accordance with ISO 6014, or equivalent.

4. General Requirements

4.1 A means which satisfies the service brake and parking brake requirements shall be provided for stopping and holding the machine.

4.2 Ground drive systems which satisfy the braking requirements in 6.1 and 6.2 of this document are acceptable as the braking means.

4.3 The brake system shall not contain a disconnect such as a clutch or shiftable gear box which allows the brake(s) to be disabled unless the disconnect control is at the operator's position and it can be immediately reengaged during machine movement.

4.4 Brake Controls

4.4.1 GENERAL—The brake system(s) controls shall be capable of being applied by the operator from the normal operating position.

4.4.2 CONTROL FORCE—The force to actuate the brake control shall not exceed 20 N for finger (flip levers and switches) actuation and 220 N for hand grasp actuation.

5. Test Conditions

5.1 Manufacturers precautions shall be observed while carrying out performance tests.

5.2 The test course shall consist of a hard, dry surface with a well-compacted base and a slope no greater than 3% transversely. The slope in the direction of travel shall be as specified for the test being conducted.

5.3 The test machine mass shall be as specified in 3.3.

5.4 The test machine shall be configured for operating in the transport position as recommended by the manufacturer.

5.5 Immediately prior to the tests, the machine shall be operated until the brake and drive systems are at normal operating temperature.

6. Test and Performance Criteria

6.1 Service Brake

6.1.1 REQUIREMENTS—A means shall be provided for stopping and holding the machine's motion in both forward and reverse directions.

6.1.2 PROCEDURE

6.1.2.1 Stopping—The machine shall be tested at maximum forward and maximum reverse speeds. When testing a machine equipped with separate clutch and brake controls, the clutch shall be disengaged simultaneously with brake engagement. The test course shall be as described in 5.2 with no more than 1% slope in the direction of travel.