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Trailer Grade Parking Performance Test Procedure

SAE Recommended Practice
Issued June 1985

An American National Standard

TRAILER GRADE PARKING PERFORMANCE TEST PROCEDURE—SAE J1452 JUN85

SAE Recommended Practice

Report of the Brake Committee, approved June 1985.

1. Purpose—This SAE Recommended Practice establishes a uniform procedure for determining the parking performance on a grade of any new trailer intended for roadway use equipped with a parking brake system.

2. Scope—This practice establishes grade parking performance with respect to:

2.1 The trailer holding on the grade, fully loaded and unloaded.

2.2 Applied manual effort.

2.3 Down and up grade directions.

3. Equipment

3.1 Force measuring device (0–890 N).

3.2 Decelerometer, if burnish is required (0–1G).

3.3 Temperature measuring device (0–540°C).

4. Test Preparations

4.1 On brakes applied by the parking brake system, use new lining and drums or discs of original equipment material installed in accordance with the trailer manufacturer's specifications.

4.2 Parking brake assemblies and actuation systems are to be installed, lubricated, adjusted, and inspected in accordance with the trailer manufacturer's specifications.

4.3 The trailer is to be tested in both the fully loaded and unloaded conditions. For the purposes of this test procedure: fully loaded shall be the manufacturer's maximum rated weight (GVWR if applicable) without exceeding any individual axle load limit (GAWR if applicable). GVWR includes weight of test equipment and supporting dolly, if required. Unloaded shall be the trailer weight with no payload, but with test equipment and supporting dolly, if required.

4.4 Tires are to be the largest diameter specified for the trailer, new or not more than 20 percent worn, and inflated to recommended pressures specified by the trailer manufacturer.

5. Test Notes

5.1 Conduct the test on a dry, smooth Portland cement concrete surface (or other surface of equivalent coefficient of surface friction) that is free from loose materials and has a grade as specified in SAE J293.

5.2 Parking brake systems components are to be within a temperature range of 40–150°F (4–66°C) during the test.

5.3 Parking brake systems employing service brakes shall be tested after burnishing because of the difficulty of obtaining reliable and repeatable preburnish data. The burnish schedule is specified in SAE J786a, paragraph 5.5. Parking brake systems which employ a friction brake that is not a part of the service brake system shall be tested before and after burnish, per SAE J360.

5.4 Trailer shall be positioned on the test grade either by a powered unit in a manner consistent with normal usage, or by other mechanical means (example: block and tackle).

5.5 Data sheets should provide for recording the following data: test weight (loaded and unloaded), percent grade or grade angle, identification of parking brake system, direction of trailer on the grade, applied input effort, and observation of wheel roll or lock and trailer hold or slide.

6. Test Procedure

6.1 Connect towing equipment to trailer.

6.2 Ascend grade specified in SAE J293 until trailer is fully on grade.

6.3 With trailer held on grade by towing equipment, apply trailer parking brake system to a force not exceeding that specified in SAE J293.

6.4 Render trailer brake system independent of towing equipment brake system.

6.5 Disengage towing equipment so that no retarding force is supplied to the trailer. Support trailer in normally connected attitude with a device, such as a dolly, that does not retard the trailer.

NOTE: Suitable precautions must be taken to stop trailer in case of breakaway on test grade.

6.6 In case of trailer creep, note whether wheels roll or slide.

6.7 Release parking brake system after towing equipment has been reconnected, and repeat steps 6.2 through 6.6 facing the opposite direction on the grade.

7. Reporting of Performance—Trailer parking performance shall be expressed as described in paragraph 5.5.