



SURFACE VEHICLE RECOMMENDED PRACTICE

J3192™

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Drum and Disc Brake Static Performance Test Equivalency

RATIONALE

This SAE Recommended Practice was developed because of the need of trailer manufacturers to verify parking brake performance in accordance with FMVSS 121/CMVSS 121 when sourcing brake drums or discs.

1. SCOPE

This SAE Recommended Practice is intended for measuring the static brake torque performance of a pneumatically actuated brake assembly, friction material, and drum/disc combination on an inertia brake dynamometer.

1.1 Purpose

This SAE Recommended Practice establishes a laboratory test procedure for determining the static breakaway torque of a specified brake model, brake lining, and brake drum or disc. The intent is to be able to compare the static breakaway torque performance of this specific combination and the draw-bar test data from an FMVSS 121 vehicle test using the same friction material and brake drum or disc combination to another dynamometer test using the same friction material, but a different brake drum or disc. A test result meeting dynamometer FMVSS 121 requirements, along with demonstrated equivalency of the dynamometer static breakaway torque for the same friction material but with different drums or discs, will enable the drums or discs to be considered interchangeable.

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 Publications

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 J79	Brake Disc and Drum Thermocouple Installation
SAE J1626	Braking, Stability, and Control Performance Test Procedures for Air- and Hydraulic-Brake-Equipped Trucks, Truck-Tractors, and Buses
SAE J2115	Air Brake Performance and Wear Test Code - Commercial Vehicle Inertia Dynamometer

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Documents

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2.1.2 FMVSS Publications

Available from the United States Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, Tel: 202-512-1800, www.gpo.gov.

FMVSS 121 Air Brake Systems - Tractors, Trucks, Buses and Trailers

49 CFR 571.121 Air Brake Systems

TP-121D-01 Laboratory Test Procedure for FMVSS 121D Air Brake Systems - Dynamometer

3. INSTRUMENTATION, EQUIPMENT, AND TEST CONDITIONS

3.1 Refer to SAE J2115, Section 4.

3.1.1 For brake drum or disc thermocouple installation, use standard method described in 4.3.3.1.

3.2 A stub axle (full axle sectioned at mid-length) with spindle, spider, or caliper, and all brake system components will be provided for testing. These components will include brake chamber, slack adjuster, S-cam, brake pads/lined brake shoe assemblies, hub, discs/drum(s), and installation hardware as required. Any modification to the test hardware, other than brake adjustment, shall be approved by the requester prior to testing.

3.3 A test definition will be provided by the test requester. The document will be like that shown in Appendix A and will identify all test parameters to be used for dynamometer testing. Application of these parameters for test use shall comply with definitions provided in SAE J2115.

4. DEFINITIONS

4.1 Refer to SAE J2115, Section 5.

5. TEST PROCEDURE

5.1 FMVSS TP-121D-01 Based Dynamometer Test Procedure

5.1.1 Refer to SAE J2115, Section 6.

5.1.2 In addition to the test part preparation (6.1), the brake disc or drum must be marked as follows:

5.1.2.1 Mark the edge or side of the brake disc or drum at 90 degree intervals with a paint marker, engraver, steel stamp, or other indelible means such that brake rotation can be observed or verified.

5.1.2.2 Identify these positions as 12:00, 3:00, 6:00, 9:00, or A, B, C, D, or in any other way to define rotational quadrants.

5.1.3 Conduct SAE J2115, 6.1 to 6.3. Any unusual performance characteristics such as noise, roughness, chatter, etc. Any deficient hardware performance such as a binding push rod or slack adjuster witnessed during the test shall be documented.

5.2 Static Breakaway Cycles

5.2.1 Adjust the brake per the brake manufacturer's specifications.

5.2.2 Warm the brake by conducting brake applications per Table 1 until the temperature after the stop exceeds 121 °C (250 °F). Please note that it is advisable to maintain as great a cycle time as possible during warming to avoid premature fade of the brake.