



SURFACE VEHICLE RECOMMENDED PRACTICE

J3080™

MAY2019

Issued 2018-03
Revised 2019-05

Superseding J3080 MAY2018

Inertia Dynamometer Rotor Crack Test Procedure for Air Disc Brakes

RATIONALE

This revision of the SAE J3080 includes typographical corrections and provides the proper internal references to other sections or items in the document. The original rationale from the original release is still applicable.

Brake rotor cracks on commercial vehicles can compromise the structural integrity of the foundation brake. These failures can amount to significant maintenance and downtime costs. In order to provide an early assessment of this failure mode, vehicle manufacturers as well as brake suppliers have developed multiple laboratory test procedures. These procedures determine (using different test methods and test approaches) the propensity of a given friction couple (brake rotor and friction material) to develop cracks which can render the brakes out-of-service.

It is the objective of this Recommended Practice (RP) to establish a uniform and industry-endorsed laboratory method which reflects the most commonly used inertia dynamometer test procedure. This RP harmonizes the test conditions when applicable, and determines the minimum requirements for the test system used to conduct the test. The two methods included on this RP reflect the two main approaches to rotor crack testing. Method A uses a bedding cycle at 200 °C and 300 °C, and incorporates performance (torque output) versus pressure during the bedding; Method B uses a single bedding cycle at 150 °C. This RP also presents the method and criteria to assess and report rotor cracks. This RP applies when comparing test results to a baseline, a product specification, or a legacy product design.

TABLE OF CONTENTS

1.	SCOPE.....	4
1.1	Purpose	4
2.	REFERENCES.....	4
2.1	Applicable Documents	4
2.1.1	SAE Publications.....	4
2.2	Related Publications	4
2.2.1	ISO Publications.....	4
2.2.2	ETRTO Engineering Handbook 2015	4
3.	SYMBOLS AND DEFINITIONS	5
3.1	Average By Time Deceleration	5
3.2	Brake Torque	6
3.3	Brake Work	6
3.4	Cooling Air Speed	6
3.5	Cycle Time	7
3.6	Deceleration-Controlled Brake Application	7
3.7	Design Overall Diameter	7
3.8	Initial Brake Lining Temperature	7

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3.9	Initial Brake Rotor Temperature	7
3.10	Initial Braking Speed	8
3.11	Final Brake Speed	8
3.12	Gross Axle Weight Rating	8
3.13	Gross Vehicle Weight Rating	8
3.14	Maximum Brake Pressure	8
3.15	Mean Fully Developed Deceleration	8
3.16	Pressure-Controlled Brake Application	8
3.17	Test Inertia	9
3.18	Torque-Controlled Brake Application	9
3.19	Tire Dynamic Rolling Radius	9
3.20	Tire Rolling Circumference Factor	9
3.21	Wheel Load	9
4.	TEST EQUIPMENT CAPABILITIES	10
4.1	Automatic data acquisition system capable of recording digitally the following channels at 200 Hz minimum	10
4.1.1	Brake equivalent linear speed	10
4.1.2	Brake input pressure	10
4.1.3	Brake output torque	10
4.2	Automatic data collection system capable of recording digitally the following channels at 50 Hz minimum	10
4.2.1	Brake rotor temperature(s)	10
4.2.2	Brake pad(s) temperature (optional)	10
4.2.3	Cooling air temperature (optional)	10
4.2.4	Cooling air relative humidity (optional)	10
4.2.5	Cooling air speed or volumetric flow	10
4.3	Global (continuous) data recording for the entire duration of the test (including brake-off operation) at 1 to 2 Hz for channels enabled per 4.1 and 4.2.	10
4.4	Control test conditions within the limits specified in Table 3	10
5.	DYNAMIC BRAKE APPLICATION WITH BRAKE DECELERATION	11
5.1	Time t_0	11
5.2	Time t_1	11
5.3	Time t_2	11
5.4	Time t_3	11
5.5	Time t_4	11
6.	DEFAULT TEST CONDITIONS	11
6.1	Foundation Brake Setup for Testing	12
6.2	Cooling Air Adjustment and Conditioning	12
7.	ROTOR THERMOCOUPLE INSTALLATION for brake temperature control	13
7.1	Test Method A	13
7.2	Test Method B	14
8.	PARTS MEASUREMENTS AND PREPARATION	14
9.	TEST PROCEDURES MATRIX	15
10.	INSPECTIONS BETWEEN FATIGUE CYCLES	19
11.	ROTOR CRACK EVALUATION CRITERIA AND TEST SUSPENSION POINT	20
12.	MINIMUM REQUIREMENTS FOR TEST REPORT	21
12.1	Test Conditions	21
12.1.1	Vehicle (or Axle) Application	21
12.1.2	Test Conditions	21
12.1.3	Brake Caliper	22

12.1.4	Brake Actuator (Brake Chamber).....	22
12.1.5	Brake Pads.....	22
12.1.6	Brake Rotor	23
12.2	Graphs.....	23
12.3	Tabular Data for Dynamic Brake Applications with Brake Deceleration	23
12.4	Tabular Data for Rotor Crack Cycles Using Brake Drag Applications	23
13.	NOTES	24
13.1	Revision Indicator.....	24
Figure 1	Typical (22.5-inch wheel) brake drag application with constant torque and cooling cycle	7
Figure 2	Typical time stamps for torque-controlled brake applications with brake deceleration	11
Figure 3	Thermocouple location for U-shaped vented rotor for method A.....	13
Figure 4	Thermocouple location for U-shaped vented rotor for method B.....	14
Figure 5	Positions for brake pad thickness measurement	15
Figure 6	Flowchart for rotor crack per method A.....	16
Figure 7	Flowchart for rotor crack per method B.....	18
Figure 8	Assessment of brake pad thickness measurements	19
Figure 9	Examples of rotor cracks and its classification	21
Figure 10	Example of graphical representation of test results	25
Table 1	Symbols and units.....	5
Table 2	Tire rolling circumference factor.....	9
Table 3	Control limits for test parameters	10
Table 4	Default test conditions for nominal brake sizes	12
Table 5	Thermocouple location per rotor design and test method	13
Table 6	Rotor crack test with extended bedding and ten crack cycles per method A	16
Table 7	Rotor crack test with extended bedding and seven crack cycles per method B.....	18

1. SCOPE

This Recommended Practice applies to commercial vehicles equipped with air disc brakes and above 4536 kg of Gross Vehicle Weight Rating. Other assessments on the friction material or rotor related to wear, durability, correlation to product life, noise, judder, compliance to specific regulations, etc., are not part of this RP (Recommended Practice).

1.1 Purpose

This Recommended Practice provides an inertia dynamometer test method to assess the propensity of a friction couple to initiate and propagate thermally-induced cracks on the rotor.

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 J2468 Road vehicles—Brake Linings—Compressibility Test Procedure

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Recommended Practice

2.2.1 ISO Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

ISO 611 Road vehicles – Braking of automotive vehicles and their trailers – Vocabulary

ISO 6310 Road vehicles – Brake lining – Compressive strain test method

2.2.2 ETRTO Engineering Handbook 2015

NIST SP811 Guide for the Use of the International System of Units

NOTE: Use this standard to present numerical values, units of measure, and to convert between S.I. Metric and U.S. customary system of units ensuring similar relative errors.