



SURFACE VEHICLE RECOMMENDED PRACTICE

J328™

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Superseding J328 JUL2021

Wheels - Passenger Car and Light Truck Performance Requirements and Test Procedures

RATIONALE

This document has been updated to add a reference to SAE J3204.

SAE J328 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE Recommended Practice provides minimum performance requirements and uniform procedures for fatigue testing of wheels intended for normal highway use and temporary use on passenger cars, light trucks, and multipurpose vehicles. For heavy truck wheels and wheels intended to be used as duals, refer to SAE J267. For wheels used on trailers drawn by passenger cars, light trucks, or multipurpose vehicles, refer to SAE J1204. These minimum performance requirements apply only to wheels made of materials included in Tables 1 to 4. The minimum cycles noted in Tables 1 through 4 are to be used on individual test and a sample of tests conducted, with Weibull Statistics using two parameter, median ranks, 50% confidence level, and 90% reliability, typically noted as B10C50.

2. REFERENCES

2.1 Applicable Publications

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 J175	Wheels - Lateral Impact Test Procedure - Road Vehicles
SAE J267	Wheels/Rims - Truck and Bus - Performance Requirements and Test Procedures for Radial and Cornering Fatigue
SAE J1204	Wheels - Recreational and Utility Trailer Fatigue Test Procedure and Performance Requirements
SAE J2530	Aftermarket Wheels - Passenger Cars and Light Truck - Performance Requirements and Test Procedures
SAE J3010	Registration and Conformity Assessment Process for Passenger Cars and Light Trucks Wheels

Kinstler, J., "The Science and Methodology of SAE Wheel Fatigue Test Specifications," SAE Technical Paper 2005-01-1826, 2005, <https://doi.org/10.4271/2005-01-1826>.

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Full document details: Wheels - Passenger Car and Light Truck Performance Requirements and Test Procedures

For more information on this standard, visit
https://www.sae.org/standards/content/J328_202601/

Documents

Standard, visit Sharing Hub

2.1.2 ISO Publications

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

ISO 3006 Road Vehicles - Passenger Car Road Wheels - Test Methods

2.2 Related Documents

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 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 J393 Nomenclature - Wheels, Hubs, and Rims for Commercial Vehicles

SAE J3204 Aftermarket Composite Wheels Made of Matrix Material and Fiber Reinforcement Intended for Normal Highway Use - Test Procedures and Performance Requirements

2.2.2 ISO Publications

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

ISO 3911 Wheels/Rims - Nomenclature, Designation, Marking, and Units of Measurement

2.2.3 Tire and Rim Association Publications

Available from The Tire and Rim Association, Inc., 175 Montrose West Avenue, Suite 150, Copley, OH 44321, Tel: 330-666-8121, www.us-tra.org.

Yearbook, The Tire and Rim Association, Inc.

Table 1 - Test factors and minimum cycle requirements for wheels in normal highway service - dynamic cornering fatigue

Wheel Type (Material)	"S" Front	"S" Rear	Minimum Cycles
Ferrous All	1.6	1.45	18000
Cold Formed Aluminum 5000 Series ⁽¹⁾	1.80	1.55	50000
Aluminum Cast and Forged	2.0	1.75	50000

⁽¹⁾ With 3% or less magnesium content.

Table 2 - Test factors and minimum cycle requirements for wheels in normal highway service - dynamic radial fatigue

Wheel Type (Material)	"K" Front	"K" Rear	Minimum Cycles
Ferrous All	2.25	2.0	400000
Aluminum All	2.5	2.25	600000

Table 3 - Factors and minimum cycle requirements for temporary use wheels - dynamic cornering fatigue

Wheel Type (Material)	"S" Front	"S" Rear	Minimum Cycles
Ferrous All	1.6	1.45	9000
Cold Formed Aluminum 5000 Series ⁽¹⁾	1.8	1.55	25000
Aluminum Cast and Forged	2.0	1.75	25000

⁽¹⁾ With 3% or less magnesium content.

Table 4 - Factors and minimum cycle requirements for temporary use wheels - dynamic radial fatigue

Wheel Type (Material)	"K" Front	"K" Rear	Minimum Cycles
Ferrous All	1.65	1.45	400000
Aluminum All	1.80	1.60	600000

3. DEFINITIONS

3.1 NORMAL HIGHWAY USE

A wheel intended for sustained, all position, use on a motor vehicle on improved surfaces with no special restrictions as to speed or distance traveled.

3.2 TEMPORARY USE

A wheel intended for "temporary use" only as a spare for the life of an original tire. Special speed restrictions may also apply.

4. DYNAMIC CORNERING FATIGUE

4.1 Equipment

Use a test machine that: (see Figures 1 and 2)

- Imparts a constant rotating bending moment to the wheel.
- Maintains the test load within $\pm 2.5\%$.
- Monitors and measures the deflection of the system at the point of load application during the test.

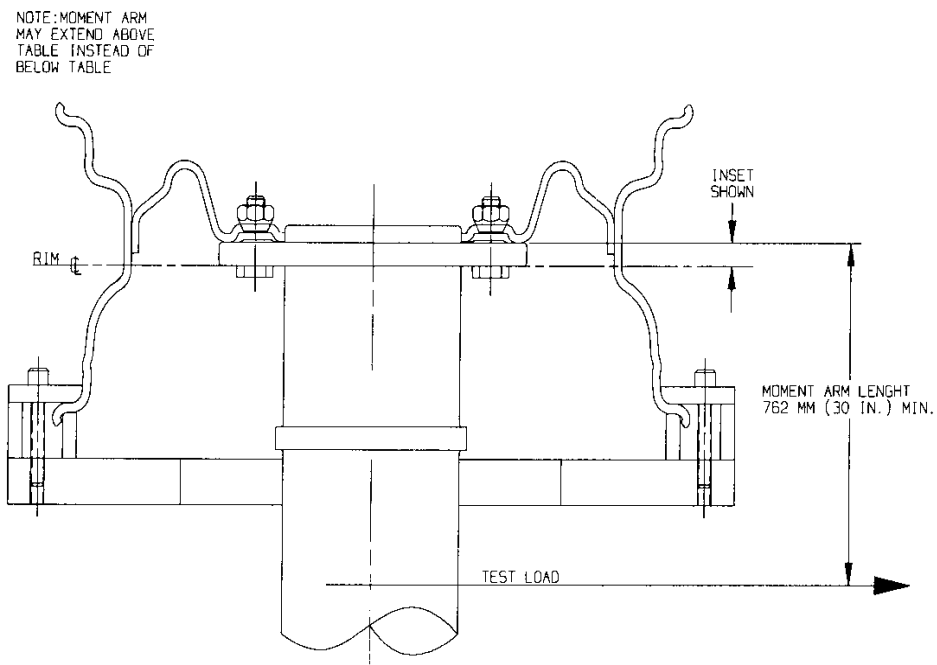


Figure 1 - Dynamic cornering fatigue (typical set-up)

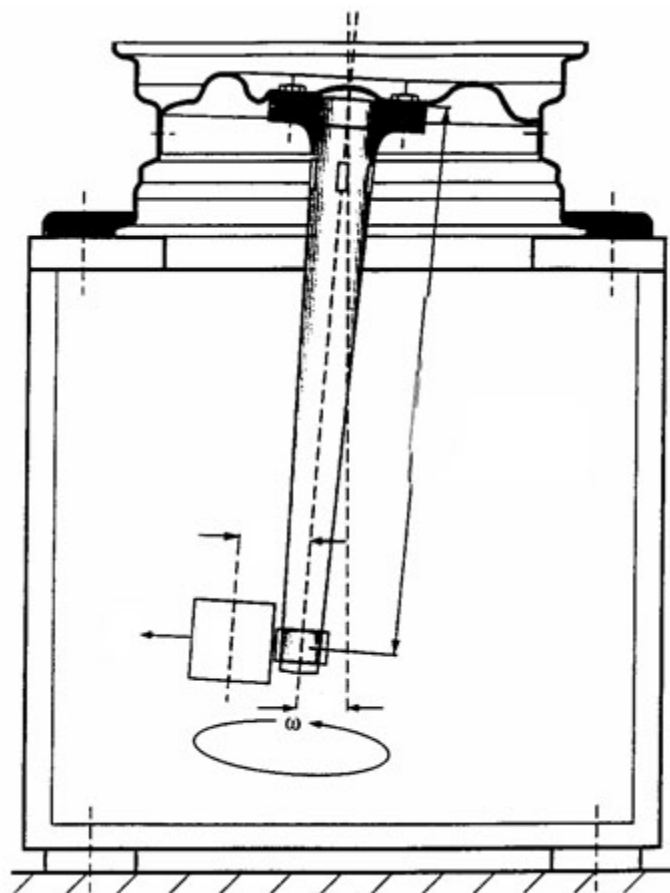


Figure 2 - Eccentric mass construction