



SURFACE VEHICLE RECOMMENDED PRACTICE

J1095™

OCT2025

Issued 1982-06
Revised 2021-05
Reaffirmed 2025-10

Superseding J1095 MAY2021

Fatigue Test Procedures: Hubs and Wheels for Demountable Rims

RATIONALE

Document was updated as part of the standard Five-Year Review process to current standards and to clarify wording.

SAE J1095 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE Recommended Practice provides uniform laboratory procedures for fatigue testing of wheels for demountable rims and hubs intended for normal highway use on trucks, buses, truck trailers, and multipurpose passenger vehicles. The hubs included have bolt circle diameters ranging from 165.1 to 335.0 mm (6.500 to 13.189 inches). It is up to each hub and/or wheel for demountable rims manufacturer to determine the appropriate test method, accelerated load factor and cycle life requirements applicable to obtain satisfactory service life for a given application. When deviations from the procedures recommended herein are made, it is the responsibility of the hub and/or wheel for demountable rims developer to modify other parameters as necessary to ensure satisfactory service life for the intended application. It should be noted that this test procedure focuses on fatigue resulting from vehicle loading and cornering forces. It does not consider loads imparted to the hub from braking events.

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 J393	Nomenclature - Wheels, Hubs, and Rims for Commercial Vehicles
SAE J694	Disc Wheel and Hub or Drum Interface Dimensions - Truck and Bus
SAE J851	Dimensions - Wheels for Demountable Rims, Demountable Rims, and Spacer Bands - Truck and Bus
SAE J876	Wide Base Disc Wheels and Demountable Rims
SAE J1671	Outboard Mounted Brake Drum/Disc Wheel Hub Interface Dimensions - Truck and Bus
SAE J1835	Fastener Hardware for Wheels for Demountable Rims

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For more information on this standard, visit https://www.sae.org/standards/content/J1095_202510/

Documents

Standard, visit Sharing Hub

SAE J1842 Disc Wheel Hub/Spoke Wheel and Axle Interface Dimensions – Truck and Bus

SAE J2475 Wheel End Assembly and Axle Spindle Interface Dimensions – Truck and Bus

2.1.2 Tire and Rim Association Publications

Available from The Tire and Rim Association, Inc., 4000 Embassy Parkway, Suite 390, Akron, OH 44333, www.us-tra.org.

Engineering Design Information

3. TEST PROCEDURES

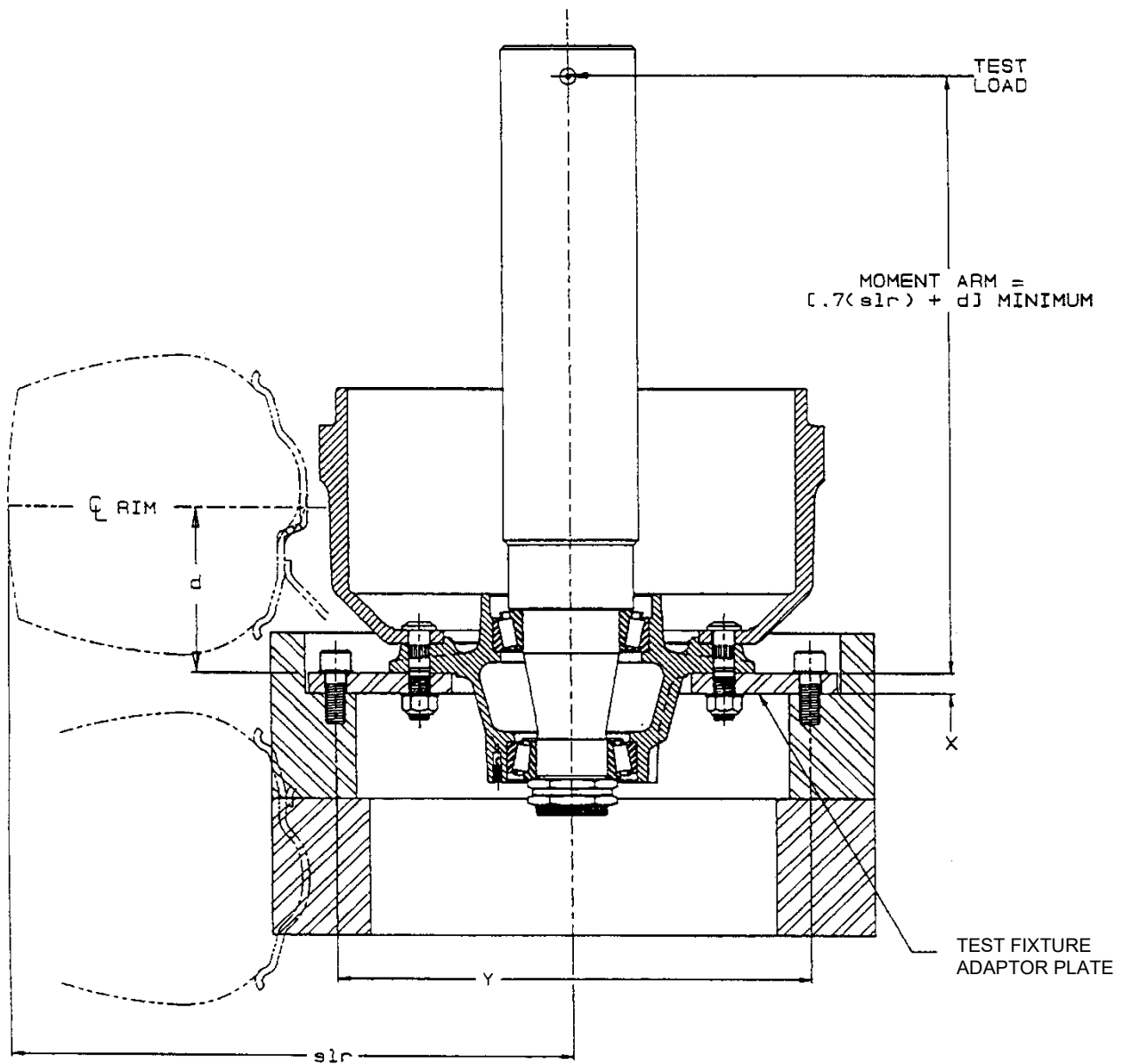
3.1 Wheels for Demountable Rims and Hubs for Test

Use only fully processed wheels for demountable rims or hubs which are representative of production parts intended for vehicle installation. New wheels for demountable rims or hubs and related parts shall be used for each test. If the wheel for demountable rims or hub application is ever to be used without a brake drum or rotor, the wheel for demountable rims or hub must be tested without a brake drum or rotor attached. The drum or rotor is optional in other instances. If a drum, rotor, or representative substitute is used for testing, the worst case scenario should be tested. This is typically achieved by use of the thinnest drum or rotor mounting cross section.

3.2 Hub Dynamic Cornering Fatigue Test

3.2.1 Equipment

The test machine shall be one with a means to impart a constant rotating bending moment and radial load to the hub (see Figure 1). Test fixture adaptor dimensions are described in Table 1. Several characteristics related to the adaptor will impact the overall test results. For consistency, it is recommended the adaptor be fabricated from plate steel. Furthermore, the plate thicknesses are most representative of drive and trailer axle configurations. Steer axles will typically use a thinner plate, representative of a single wheel. Consideration should be given to ensuring the test support hardware, such as the adapter plate, bolts, washers, etc., represent the worst-case condition expected in service. Using hardware which alters the system stiffness will result in misleading data.



d = INSET OF WHEEL FROM TEST FIXTURE ADAPTOR PLATE
 x = TEST FIXTURE ADAPTOR PLATE THICKNESS
 y = TEST FIXTURE ADAPTOR PLATE BOLT CIRCLE (B.C.)
 slr = STATIC LOADED RADIUS OF TIRE

Figure 1 - Hubs: cornering fatigue test (typical set-up)