

Wheels

—Recreational and Utility Trailer

Test Procedures—SAE J1204

SAE Recommended Practice
Approved November 1977

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WHEELS—RECREATIONAL AND UTILITY TRAILER TEST PROCEDURES—SAE J1204

SAE Recommended Practice

Report of Wheel Committee approved November 1977.

1. Scope—This SAE Recommended Practice provides uniform procedures for fatigue testing ferrous wheels intended for normal highway use on travel, camping, boat and light utility trailers drawn by passenger cars and light trucks. For performance requirements, see SAE Jxxx. For procedures and minimum performance requirements for truck-type rims and wheels, see SAE J267a and for passenger car rims and wheels see SAE J328a. Mobile home service is also outside the scope of this recommended practice.

There are two basic test procedures described, a cornering fatigue test and a radial fatigue test. The cornering test is directed at the wheel portion of the wheel/rim assembly; whereas the radial test will examine potential deficiencies in the rim portion of the structure. Both test procedures are required to obtain a thorough examination of the wheel/rim assembly.

2. Definitions—(Pressed Steel Wheels)

2.1 Passenger Car Type Wheels

2.1.1 Wheel—Usually an assembly of a rim and a center member, commonly known as a disc or spider.

2.1.2 Rim—Supporting member for the tire or tire and tube assembly.

2.1.3 Center Member (Disc or Spider)—The connection between the vehicle and the rim.

2.1.4 Offset or Dish—The distance between the mounting face of the disc and the rim centerline. This distance is termed positive when the mounting face is outboard of the rim centerline and negative when inboard of the rim centerline. See Fig. 1.

2.1.5 For further definitions and descriptions of nomenclature, see Fig. 1.

2.2 Industrial-Type Wheels

2.2.1 For definitions and descriptions of nomenclature, see Fig. 2.

3. Test Procedures

3.1 Wheels for Test—Use only fully processed new wheels which are representative of production parts intended for the vehicle and ready for road use. Separate wheels are to be used for each test.

3.2 Dynamic Cornering Fatigue

3.2.1 Equipment—The test machine shall be one with a means to impart a constant rotating bending moment to the wheel.

3.2.2 Procedure—The rim shall be clamped securely to the test device. A rigid load arm shaft with a test adaptor with a mounting surface representative of production hubs shall be attached to the mounting surface of the wheel, using studs and nuts representative of those specified for the wheel.

These wheel nuts shall be torqued to the torque limits specified in Table 1 for the stud size and the type of nut. The mating surface of the test adaptor and wheel shall be free of excessive build-up of paint, dirt, or foreign matter. The final clamped position of the wheel without load shall not exceed an eccentricity of 0.010 in (0.25 mm) total indicator reading normal to the shaft axis at the point of loading. The load system shall maintain the specified load within $\pm 3\%$. The application of the test load will be parallel to a plane through the center of the rim as shown in Fig. 3.

3.2.3 Bending Moment—Bending moment is determined by:

$$M = L (R\mu + d) S$$

where M = Bending moment 1bf-ft (N-m)

L = The load rating of the wheel as specified by vehicle manufacturer and/or wheel manufacturer; 1bf (N)

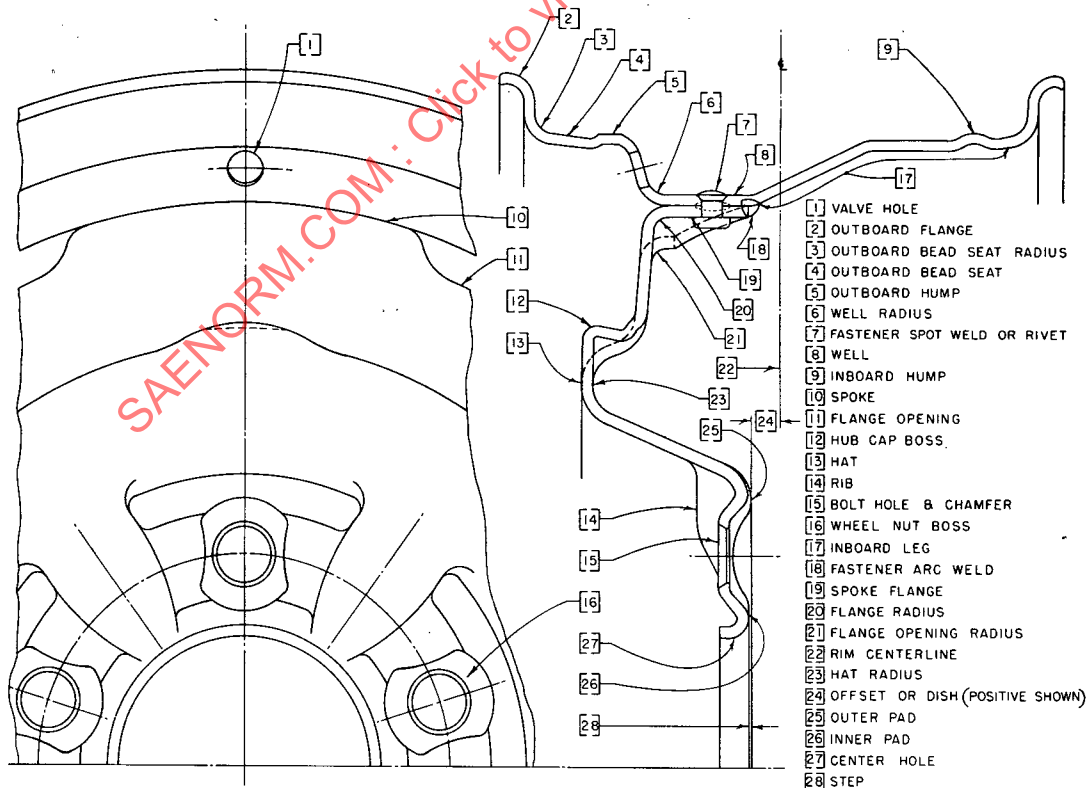


FIG. 1

The ϕ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.