



400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J1982

Issued 1991-12-31

Submitted for recognition as an American National Standard

NOMENCLATURE—WHEELS FOR PASSENGER CARS, LIGHT TRUCKS, AND MULTIPURPOSE VEHICLES

1. Scope—This SAE Recommended Practice establishes uniform engineering nomenclature for wheels and their components used on passenger cars, light trucks, and multipurpose vehicles. This nomenclature and accompanying drawings are intended to define fundamental wheel terms rather than to provide a comprehensive tabulation of all wheel designs.

2. References

2.1 Related Publications—The following publications are provided for information purposes only and are not a required part of this document.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J393—Nomenclature—Wheel, Hubs, and Rims for Commercial Vehicles

SAE J851—Dimensions for Demountable Rims, Demountable Rims and Rim Spacers—Commercial Vehicles

SAE J694—Disc Wheel/Hub or Drum Interface Dimensions—Commercial Vehicles

SAE J1986—Balance Weight and Rim Flange, Design Specifications, Test Procedures and Performance Recommendations.

2.1.2 ISO PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 3911—Wheels/Rims—Nomenclature, Designation, and Marking

3. Definitions

3.1 Wheel—A rotating load-carrying member between the tire and the hub. It usually consists of two major parts: (a) the rim; (b) the wheel disc. The rim and wheel disc may be integral, permanently attached, or detachable (Figures 1, 2, and 3). For wire wheels see Figure 4.

3.1.1 RIM—That part of the wheel on which the tire is mounted and supported (Figures 1 and 5).

3.1.2 WHEEL DISC—That part of the wheel which is the supporting member between the hub and the rim (Figure 1).

3.1.3 INSET WHEEL—A wheel so constructed that the center plane of the rim is located inboard of the attachment face of the disc. Inset is the distance from the attachment face of the disc to the center plane of the rim (Figure 6a).

3.1.4 ZEROSET WHEEL—A wheel so constructed that the center plane of the rim is coincident with the attachment face of the disc (Figure 6b).

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3.1.5 **OUTSET WHEEL**—A wheel so constructed that the center plane of the rim is located outboard of the attachment face of the disc. Outset is the distance from the attachment face of the disc to the center plane of the rim (Figure 6c).

3.2 Wheel Types

3.2.1 **DISC WHEEL**—A permanent combination of a rim and wheel disc (Figures 1 and 2).

3.2.2 **DIVIDED WHEEL**—A wheel so constructed that its multiple parts, the rim portions of which may or may not be the same in width, when securely fastened together, combine to form a disc wheel with a rim having two fixed flanges (Figure 3).

3.2.3 **WIRE WHEEL**—A wheel so constructed that its rim is joined to the center member (hub) by a series of wire spokes (Figure 4).

3.2.4 **REVERSIBLE WHEEL**—A wheel so constructed that its wheel disc can be mounted on either face to provide inset (narrow track) or outset (wide track) (Figure 7).

3.3 Rim Types

3.3.1 **ONE-PIECE (DROP CENTER)**—A rim which is of one-piece construction and incorporates a well (Figures 1 and 2).

3.3.2 **TWO PIECE**—A rim with two pieces that are not permanently attached (Figure 3).

3.4 Rim Nomenclature—(Figure 5)

3.4.1 **FLANGE**—That part of the rim which provides lateral support to the tire and a means for attaching balance weights and decorative trim components.

3.4.2 **BEAD SEAT**—That part of the rim which provides radial support to the tire.

3.4.3 **WELL**—That part of the rim so located with sufficient depth and width to enable the tire beads to be mounted and demounted over the mounting side rim flange or bead seat taper.

3.4.4 **VALVE HOLE**—The hole or slot in the rim which accommodates the valve for tire inflation.

3.5 Disc Nomenclature—(Figure 1).

3.5.1 **FLANGE**—The part of the disc that supports the rim.

3.5.2 **HAT**—The transition point in the disc between the disc flange and the attachment area.

3.5.3 **ATTACHMENT FACE**—The datum surface of the disc that interfaces with the hub face.

3.5.4 **INNER MOUNTING PAD**—The attachment face of the disc located inside the bolt circle.

3.5.5 **OUTER MOUNTING PAD**—The attachment face of the disc located outside the bolt circle.

3.5.6 **NUT BOSS**—A raised portion in the attachment face in which to locate the bolt hole.

3.5.7 **STEP**—The axial distance between the datum of the outer mounting pad and the inner mounting pad.

3.5.8 **BOLT HOLE**—Stud clearance hole.

3.5.9 **NUT SEAT**—The chamfered portion of the disc that is the bearing surface for the wheel nut.

3.5.10 **BOLT CIRCLE**—A circle locating the centers of the bolt holes that are used to attach the wheel to the hub.

3.5.11 **RIB**—The raised area between bolt holes.

3.5.12 **CENTER HOLE**—The clearance hole for the pilot of the hub.

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3.5.13 SCALLOP—A relief in the disc flange, reducing the contact area between the disc and rim.

3.5.14 WINDOW—A hole created in the surface of the disc.

3.6 Wheel Nomenclature—(Figure 1)

3.6.1 COMPONENT ATTACHMENT—The connection of the disc and rim components.

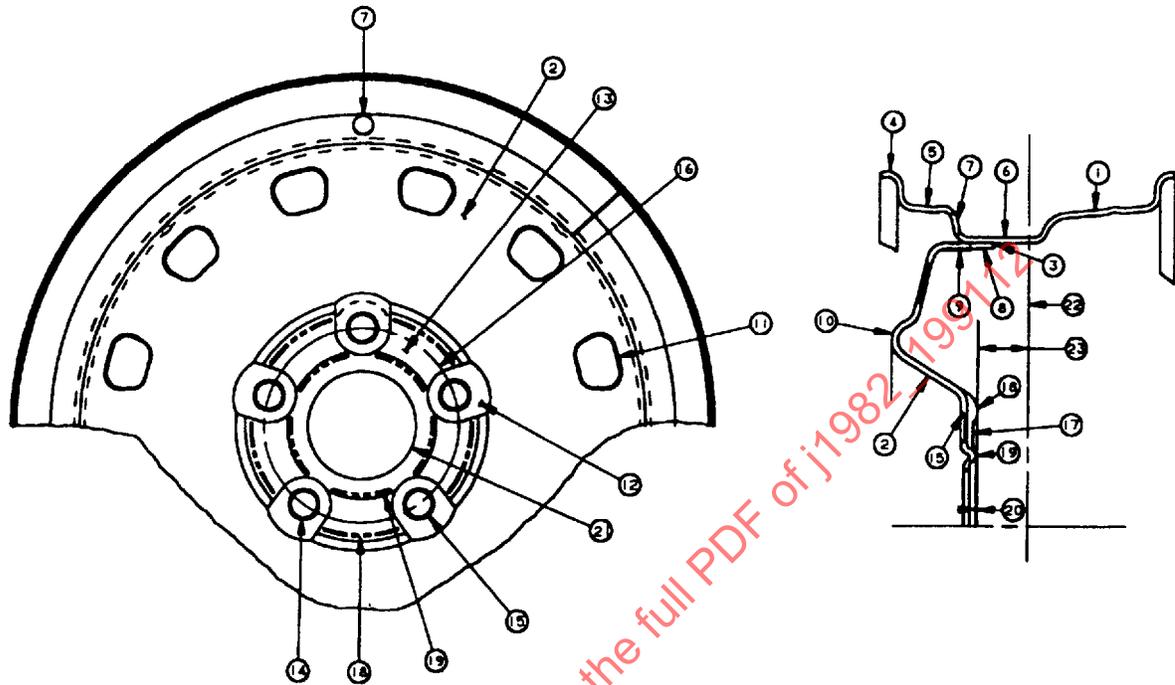
3.6.2 RIM CENTER PLANE—The center that is located at half the distance between the rim flanges when measured from the tire side.

3.6.3 OUTSET, INSET, ZEROSET—The distance from the rim center plane to the attachment surface of the disc (see Figures 6a, 6b, and 6c).

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PREPARED BY THE SAE WHEEL STANDARDS COMMITTEE

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- | | |
|------------------------|------------------------|
| ① RIM | ⑬ RIB |
| ② DISC | ⑭ BOLT HOLE |
| ③ COMPONENT ATTACHMENT | ⑮ NUTSEAT |
| ④ RIM FLANGE | ⑯ BOLT CIRCLE DIAMETER |
| ⑤ BEAD SEAT | ⑰ ATTACHMENT FACE |
| ⑥ WELL | ⑱ OUTER MOUNTING PAD |
| ⑦ VALVE HOLE | ⑲ INNER MOUNTING PAD |
| ⑧ DISC FLANGE | ⑳ STEP |
| ⑨ DISC SCALLOP | ㉑ CENTER HOLE |
| ⑩ HAT | ㉒ RIM CENTER PLANE |
| ⑪ WINDOW | ㉓ INSET |
| ⑫ NUT BOSS | |

FIGURE 1—TWO-PIECE WHEEL-DISC

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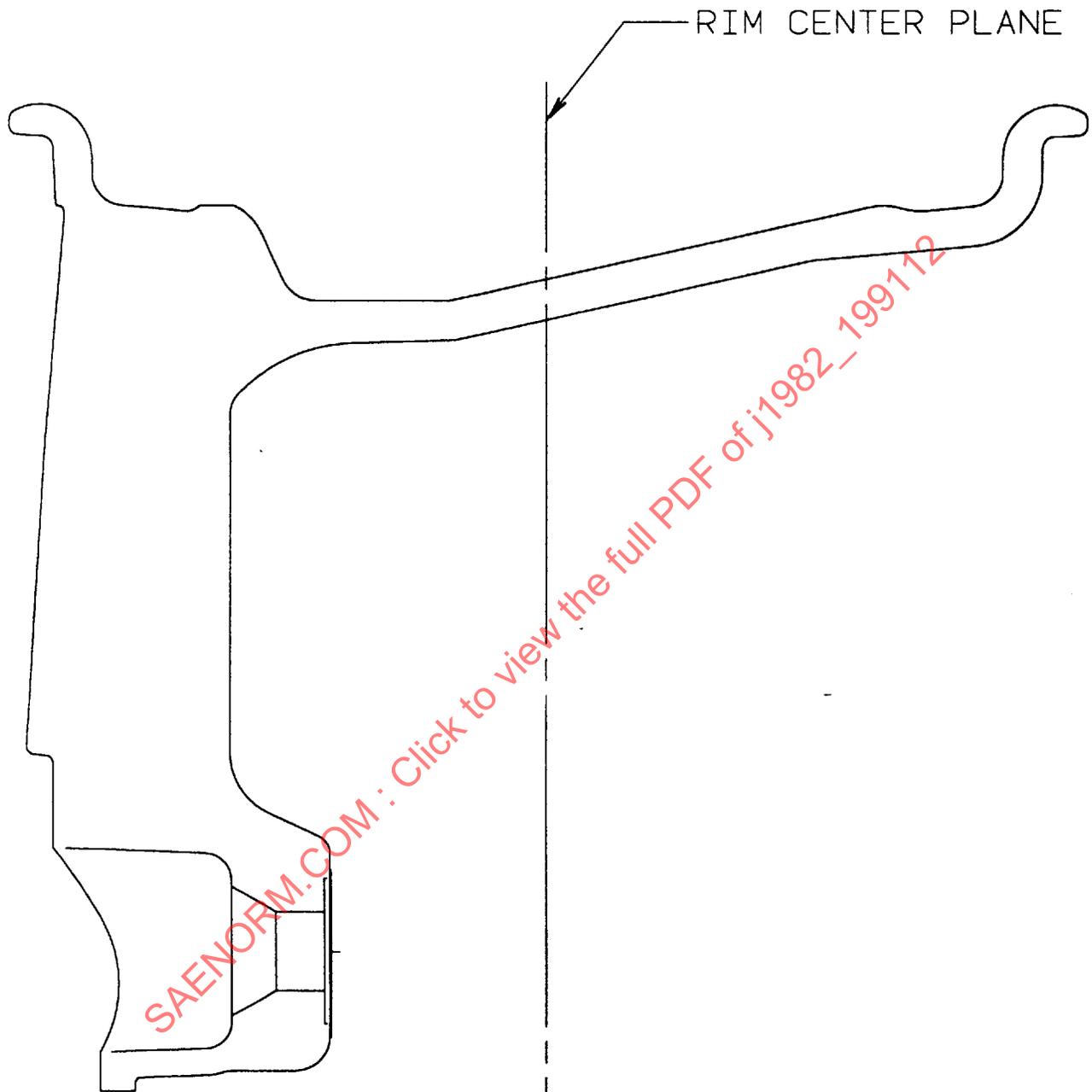
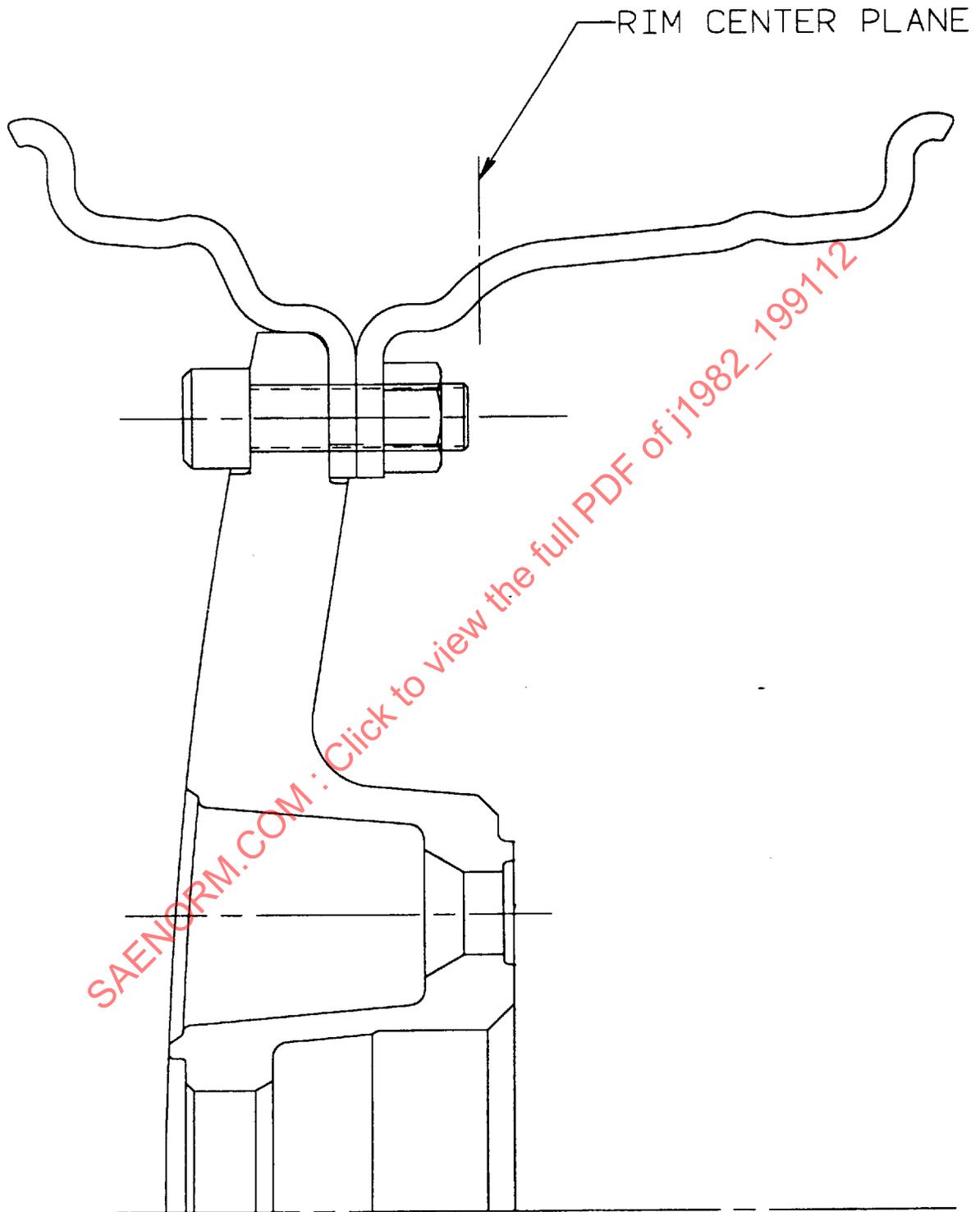


FIGURE 2—ONE-PIECE WHEEL

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FIGURE 3—DIVIDED WHEEL

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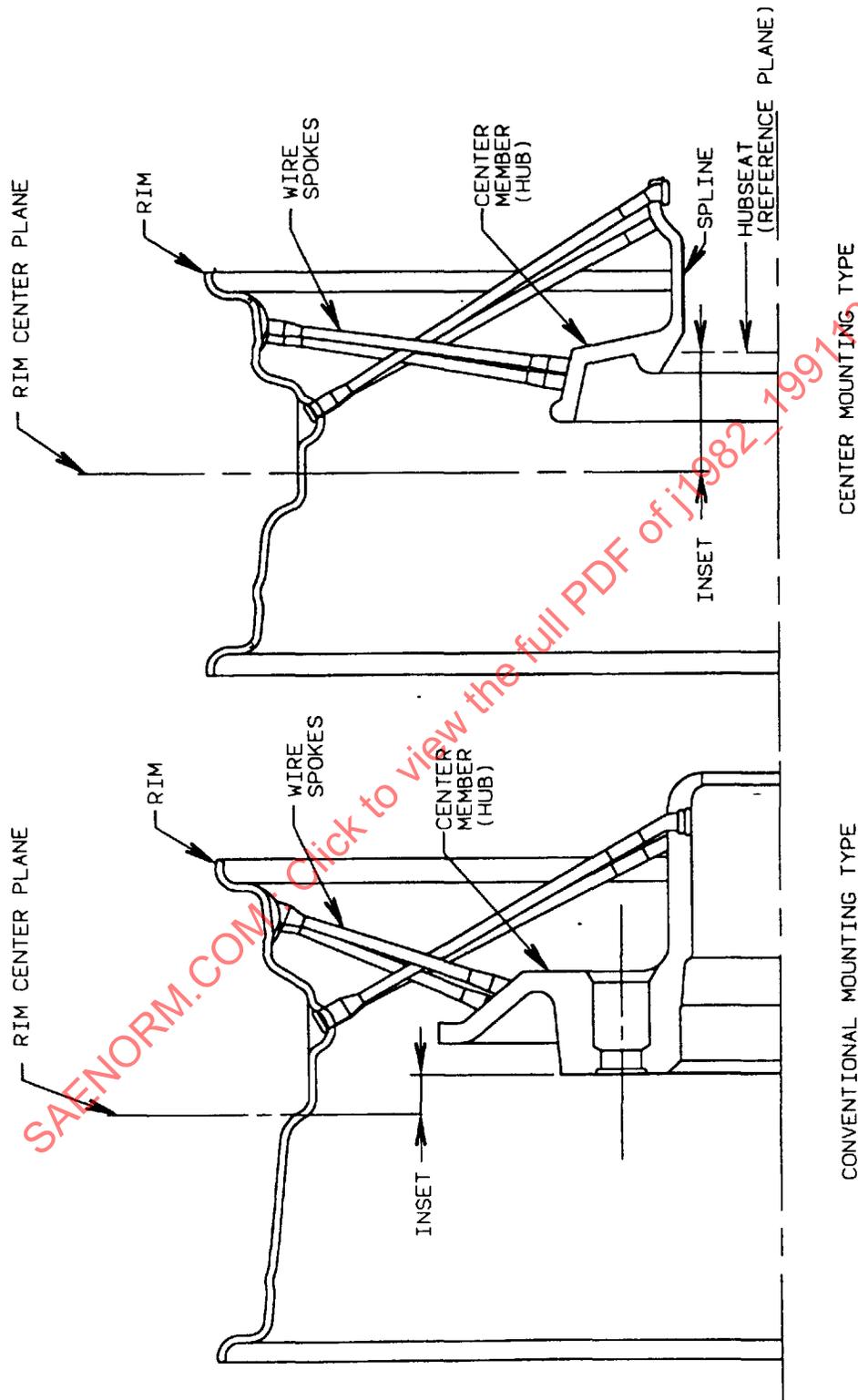
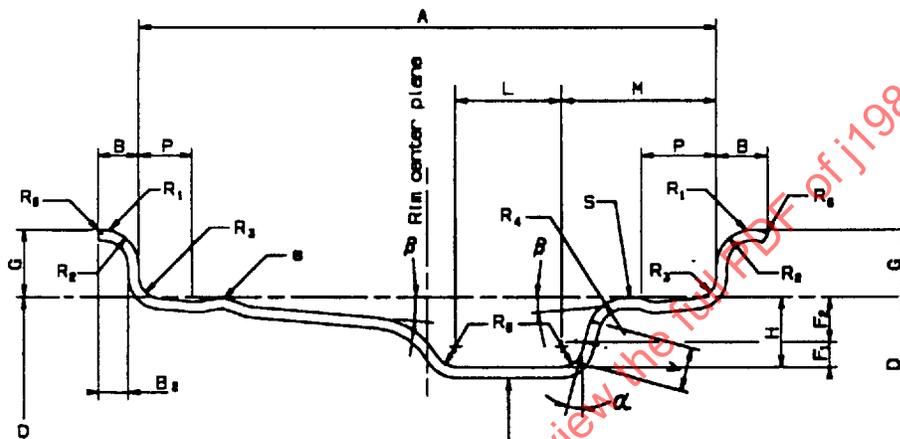


FIGURE 4—WIRE WHEEL

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RIM NOMENCLATURE



- A Specified rim width
- B Flange width
- B_s Flange offset
- D Specified rim diameter
- D_s Rim inside diameter
- F₁, F₂ Valve hole location
- G Flange height
- H Well depth
- L Well width
- M Well position
- P Bead seat width
- R₁ Flange compound radius
- R₂ Flange radius
- R₃ Bead seat radius
- R₄ Well top radius
- R₅ Well bottom radius
- R₆ Flange edge radius
- S Bead hump
- V Valve hole
- α Well angle
- β Bead seat angle

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FIGURE 5—RIM