The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J1440 | REV. SEP93

Issued 1986-04
Revised 1993-09

Superseding J1440 APR86

Submitted for recognition as an American National Standard

(R) OFF-ROAD TIRE AND RIM CLASSIFICATION-FORESTRY MACHINES

***Foreword*—**Technological advances in forestry machine designs and applications have necessitated the inception of special tire designs and sizes. These tires form the classification LS (Log Skidder) which is defined as a low pressure tire utilizing a lug type tread to obtain good traction in soft soil conditions. These tires are load capacity rated for operation at speeds up to and including 32 km/h (20 mph). Other types of off-road tires may be used on forestry machines (reference SAE J751).

1. ***Scope*—**This SAE Recommended Practice describes the classification of off-road tires and rims designed specifically for forestry machines (see SAE J1116), defines related terminology in common use, and shows representative construction details of component parts.

1.1 **Purpose—**To establish a standard nomenclature for tire classification LS (Log Skidder) tire and rim components.

2. ***References***

2.1 **Applicable Publications—**The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

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

SAE J751—Off-Road Tire and Rim Classification—Construction Machines
SAE J1116—Categories of Off-Road Self-Propelled Work Machines

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

ISO 4223-1—Definition of Some Terms Used in the Tire Industry, Part 1—Pneumatic Tires
ISO 4251-1—Tires and Rims (Existing Series) for Agriculture Tractors and Machines, Part 1—Tire Designations and Dimensions
ISO 4251-3—Rim Dimensions
ISO 4251-4—Tire Classification and Nomenclature
ISO 4251-5—Log Skidder Tires

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3. Definitions

3.1 Tire Designation—Log skidder tires are identified by an alphanumeric designation, including the following: section width reference, a construction indicator, rim designation, a carcass strength rating, and a service code.

23.1-26	10 PR	LS-2
28L-26	12 PR	LS-3

3.1.1 SECTION WIDTH REFERENCE—The section width reference is the nominal tire width. There are two commonly accepted designations: conventional and low section height (exceptions are covered in 3.1.1.3).

3.1.1.1 *Conventional*—A conventional tire is indicated when the section width reference includes only digits with a decimal point (for example, 23.1). The aspect ratio of a conventional tire (section height/section width) is equal to or greater than 0.75.

3.1.1.2 *Low Section Height*—A low section height tire is indicated when the section width reference consists of digits followed by the letter "L" (for example, 28L or 30.5L). The aspect ratio is less than 0.75.

3.1.1.3 *Exceptions*—LS constructions have been made using tire designations from other categories of off-road tires for specific forestry machines. Sizes currently in use include:

67x34.00-25
30.00-33
37.5-39
43.5-39

3.2 Construction—Bias ply is the basic tire construction. A bias ply construction is designated by a hyphen (-) following the designated section width reference (for example, 23.1-). Refer to Figure 1 for representative construction details.

3.3 Rim Diameter Designation—The rim diameter designation follows the section width reference and construction indicator and specifies the appropriate diameter rim (for example, 23.1-26).

3.4 Carcass Strength Rating—Ply rating (PR) is the commonly accepted designation. Although ply rating is an indication of tire strength, it does not necessarily represent the actual number of cord plies in a tire.

3.5 Service Code—Forestry machines use tires of service code LS followed by numerical tread indicators 1, 2, or 3 (for example, LS-2).

3.5.1 LS-1 REGULAR TREAD—Based on the agricultural rear tractor tire of the same size designation, this tread type has for the most part been replaced by the LS-2.

3.5.2 LS-2 INTERMEDIATE TREAD—More aggressive tread design with greater lug height and width. This is the most common tread type used on forestry machines.

3.5.3 LS-3 DEEP TREAD—Most aggressive tread design with the greatest lug height. Most commonly used in very soft swampy conditions.

3.6 Machine Clearances—When designing for machine clearances, the maximum dimensions for grown tires in service should be used (see Figure 2). Where specific tire dimensions are required, the definitions in Figure 2 are the recommended nomenclature for communication with the tire manufacturer.

3.7 Rim Definition—The rim assembly is that member on which the tire is mounted and supported. A rim contour is designated by an alphanumeric sequence which utilizes a combination of the following rim parameters: a rim diameter designation, a rim profile designation, and a rim width reference number. The origin of the numeric designation is inch units (for example, 26xDW20, 32xDW27TB).

3.7.1 RIM DIAMETER DESIGNATION—The rim diameter designation is a reference number for the diameter of the rim measured in inches (refer to Figure 3) (for example, 26 x DW20, 32 x DW27TB).

3.7.2 RIM PROFILE DESIGNATION—The rim profile designation is one or more letters which signify the rim contour at the tire to rim interface. This designation precedes the rim width, and in certain cases, additional letters follow the rim width to further describe the contour (for example, 26 x DW 20, 32 x DW 27 TB).

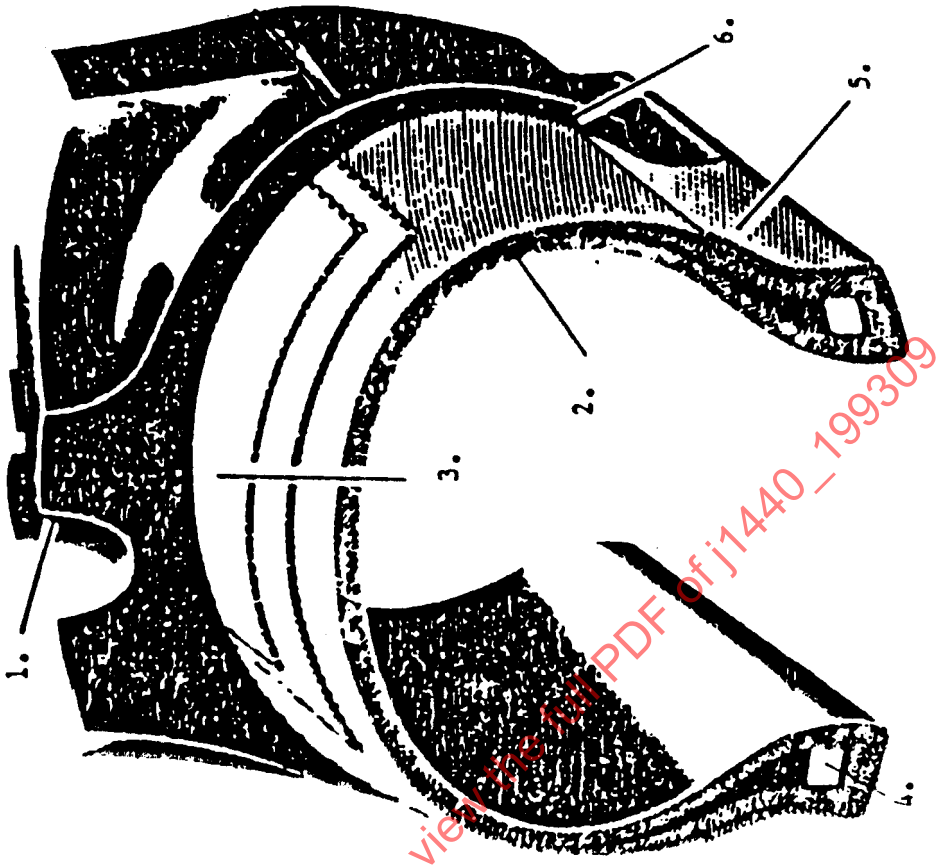
3.7.3 RIM WIDTH REFERENCE NUMBER—The rim width reference number is the width as measured in inches between flanges of the rim contour, as shown in Figure 3 (for example, 26 x DW 20, 32 x DW 27 TB).

3.8 Rim Construction—Two basic types of rims are used with log skidder tires.

3.8.1 SINGLE PIECE—Refer to Figures 3A, 3B, and 3C.

3.8.2 SPLIT—Refer to Figure 3D.

3.9 Rim and Wheel Nomenclature—Refer to Figures 4A and 4B, and SAE J751.



1. Tread Lugs
2. Cord Body
3. Steel or Fabric Breakers
4. Bead Wire Bundle
5. Chafer
6. Flange Guard

FIGURE 1—NOMENCLATURE FOR FORESTRY TIRES

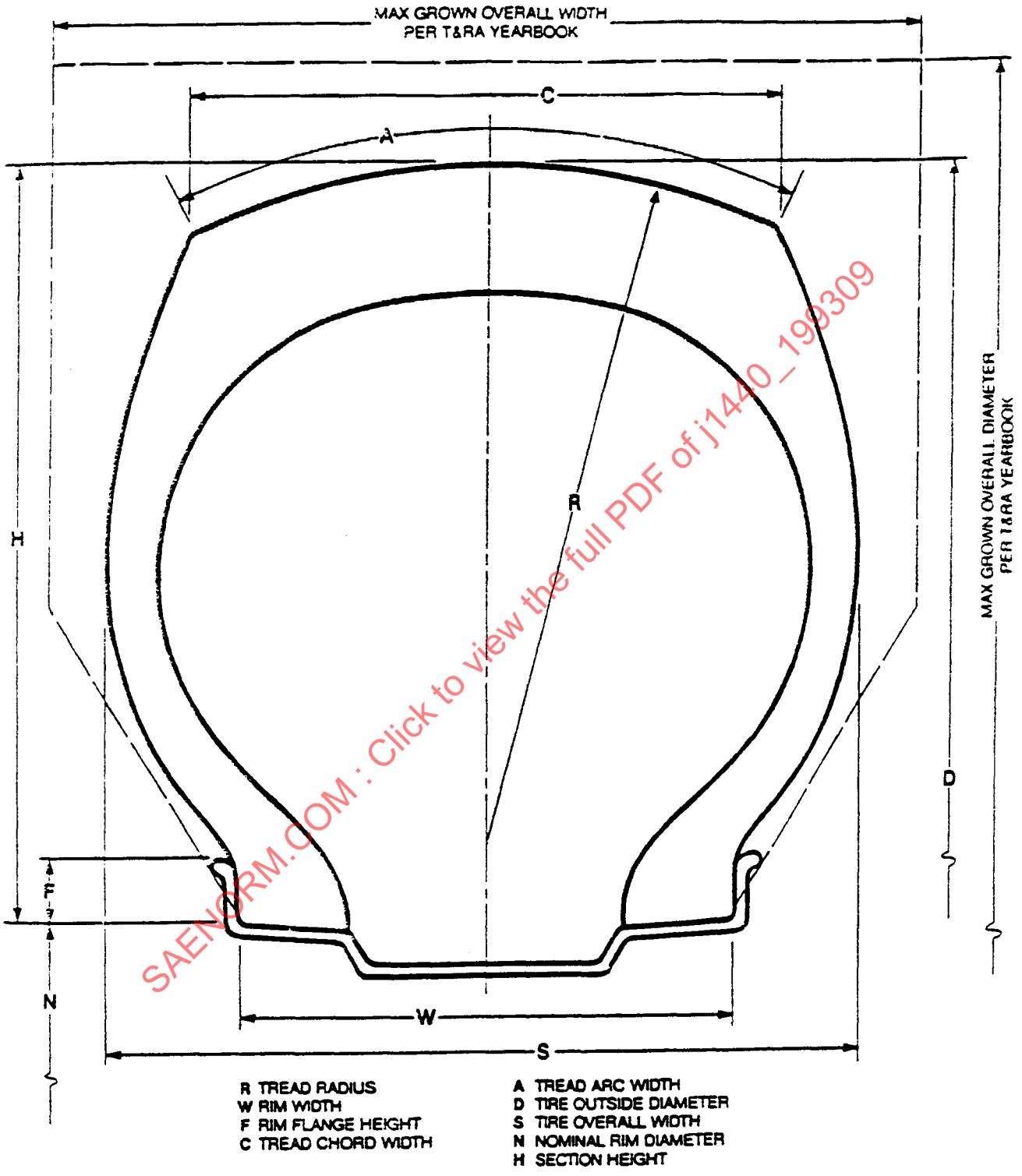


FIGURE 2—INDUSTRY METHOD FOR DEPICTING MAXIMUM DIMENSIONS FOR GROWN TIRES IN SERVICE

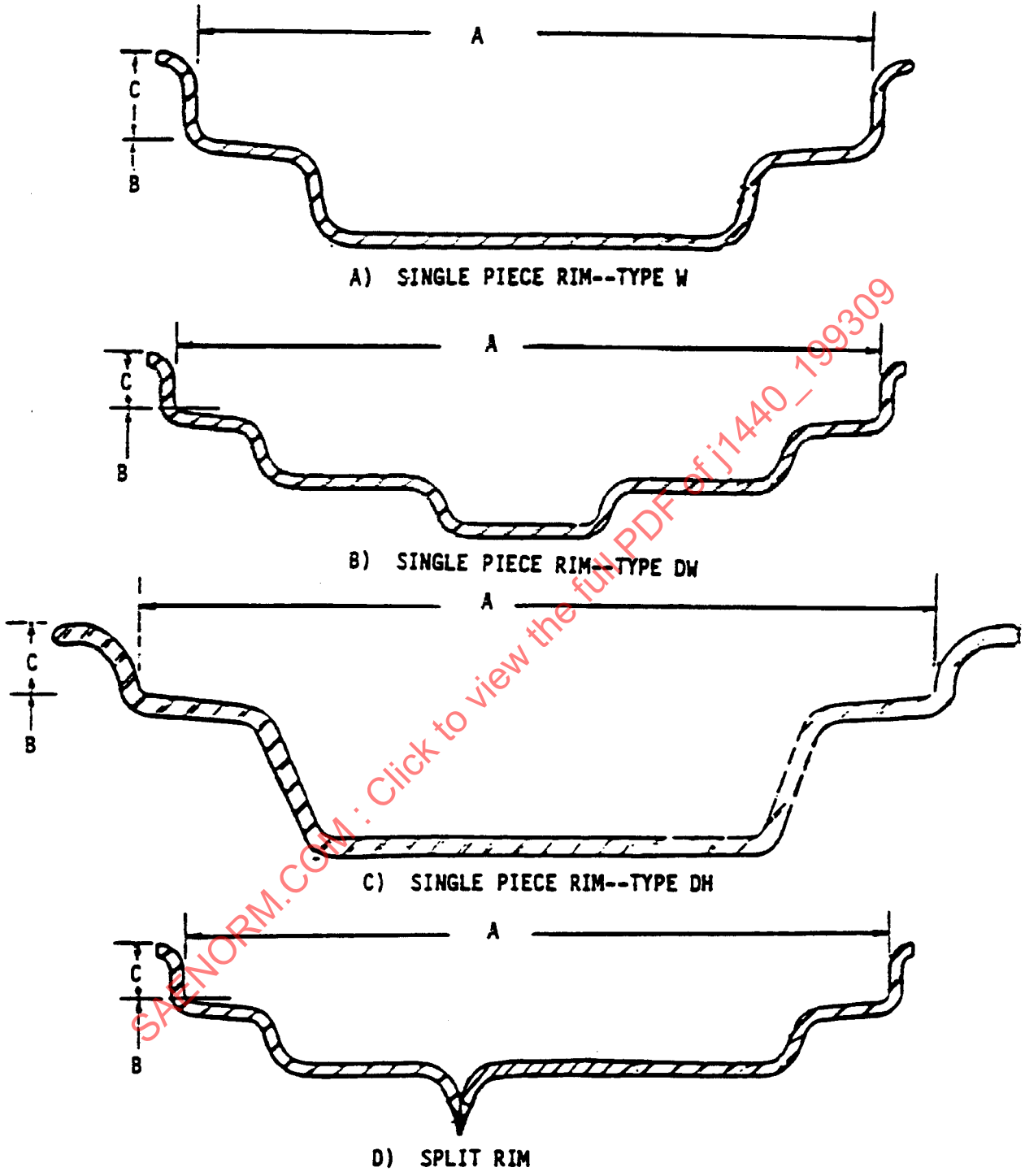


FIGURE 3—RIM CONTOUR

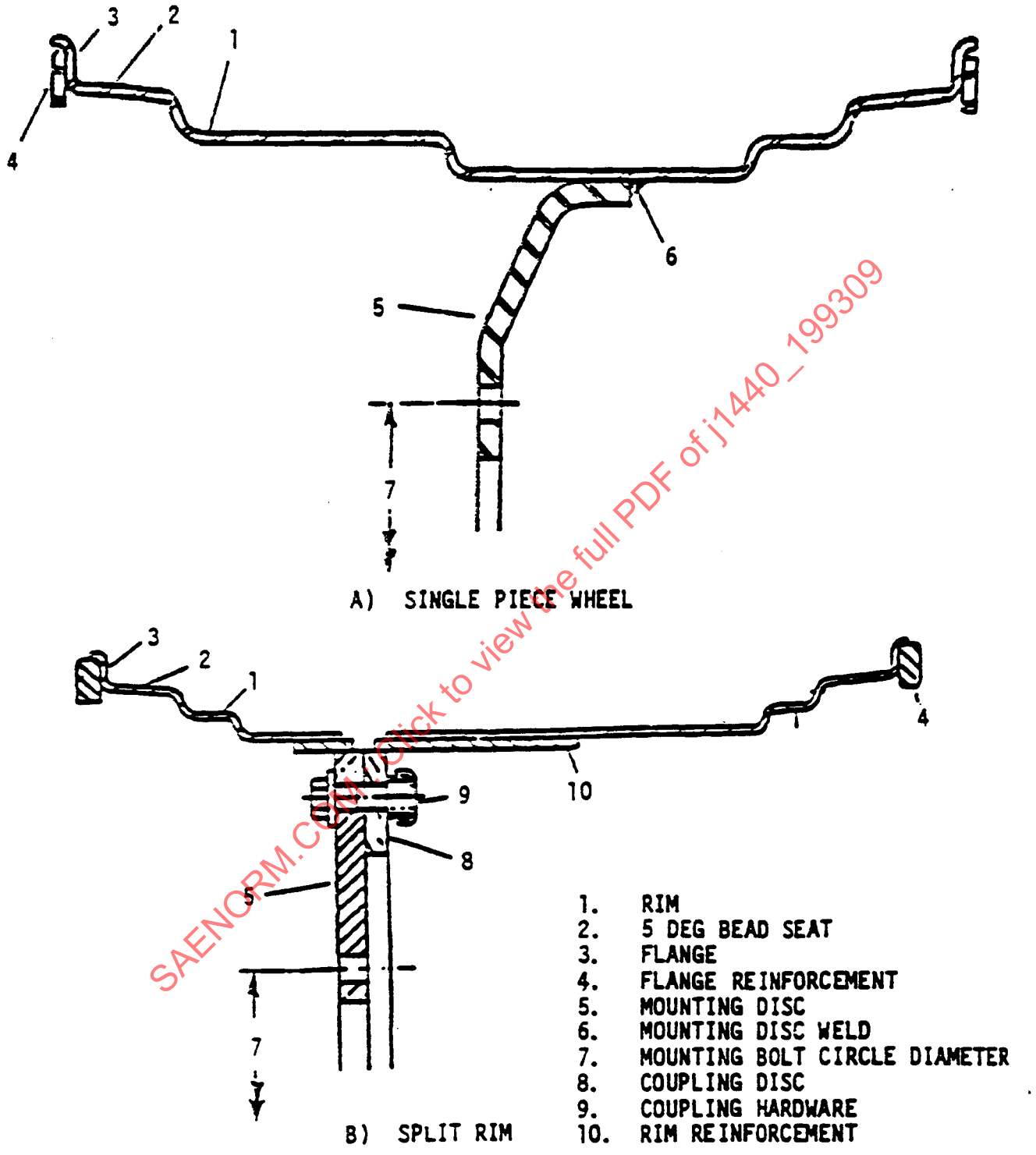


FIGURE 4—RIM AND WHEEL NOMENCLATURE COMMON TO FORESTRY TIRES