INTERNATIONAL STANDARD 3911

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Wheels/rims — Nomenclature, designation, marking, and units of measurement

Roues/jantes — Nomenclature, désignation, marquage et unités de mesure

First edition — 1977-03-01

UDC 629.11.012.3

Ref. No. ISO 3911-1977 (E)

Descriptors : motor vehicles, trucks, passenger vehicles, vehicle wheels, wire wheels, rims, definitions, classification, designation.

Price based on 12 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3911 was drawn up by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the Member Bodies in October 1975.

It has been approved by the Member Bodies of the following countries :

Australia	Iran	Spain
Austria	Japan	Sweden
Belgium	Korea, Rep. of	Switzerland
Brazil	Mexico	Turkey
Bulgaria	Netherlands	United Kingdom
Czechoslovakia	New Zealand	U.S.A.
France	Poland	U.S.S.R.
Hungary	Romania	Yugoslavia
India	South Africa Rep. of	

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
Italy

Printed in Switzerland

Wheels/rims — Nomenclature, designation, marking, and units of measurement

1 SCOPE AND FIELD OF APPLICATION

This International Standard covers the nomenclature, designations, marking and units of measurement for wheels/rims. The nomenclature and accompanying drawings are intended to define fundamental wheel/rim terms rather than to provide a comprehensive tabulation of all wheel design features. Equivalent terms relating to wheels/rims, in English, French and German, are given in an annex.

2 DEFINITIONS

2.1 wheel : A rotating load-carrying member between the tyre and the axle. 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.

2.1.1 rim : That part of the wheel on which the tyre is mounted and supported.

2.1.2 wheel disc : That part of the wheel which is the supporting member between the axle and the rim.

2.1.3 single wheel : A wheel which supports one tyre on one end of an axle.

2.1.4 dual wheel : A wheel of the type shown in figure 2, or a wheel with sufficient inset and configuration so that two such wheels, when assembled with each other, support two tyres on one end of an exle.

2.1.5 inset wheel : A wheel so constructed that the centre line 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 centre line of the rim (figure 1a)).

2.1.6 zeroset wheel : A wheel so constructed that the centre line of the rim is coincident with the attachment face of the disc (figure 1b)).

2.1.7 outset wheel : A wheel so constructed that the centre line 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 centre line of the rim (figure 1c)).

NOTE — Track, the distance between the centre lines of the tyres on an axle, increases as the outset of the wheels is increased.

2.1.8 dual spacing : The distance between the centre lines of the rims to provide the required clearance between the tyres (figures 2 and 5).

2.2 wheel types

2.2.1 disc wheel : A permanent combination of a rim and wheel disc (figures 1 and 2).

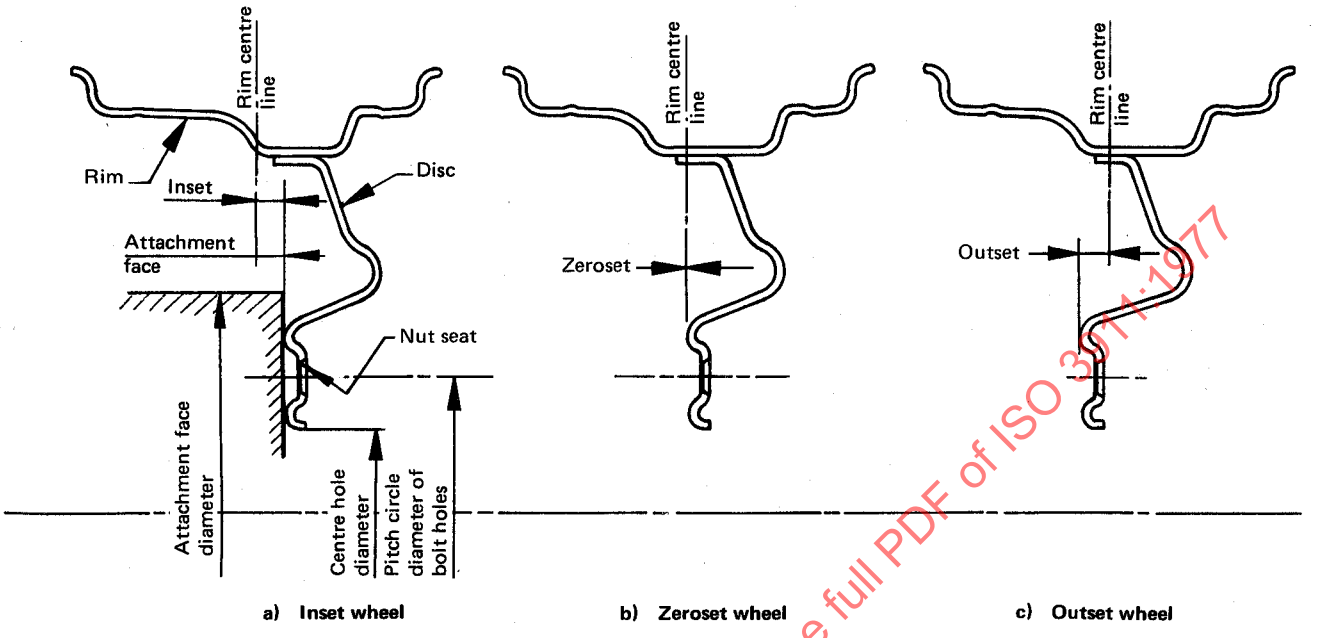


FIGURE 1 — **Passenger car and light truck disc wheel nomenclature**

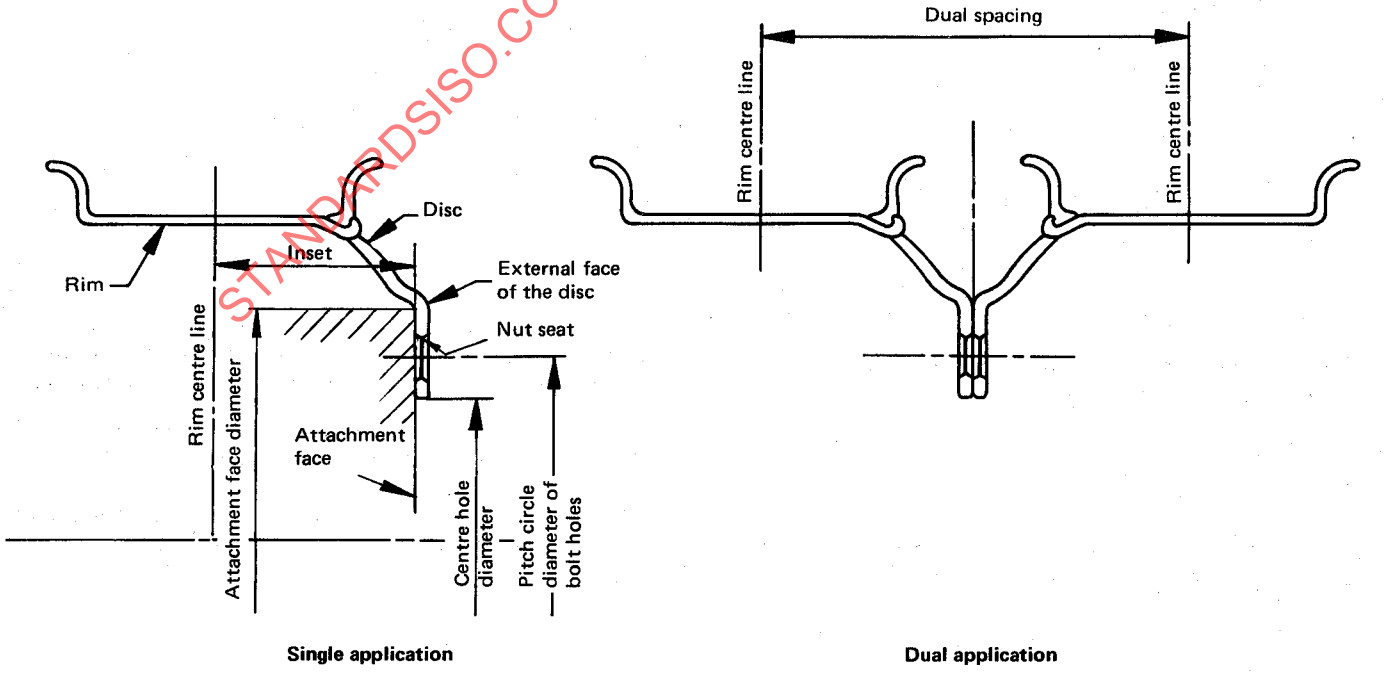


FIGURE 2 — **Truck disc wheel nomenclature**

2.2.2 divided wheel : A wheel so constructed that its two main parts, the rim portions of which may or may not be the same in width, when securely fastened together, combine to form a rim having two fixed flanges (figure 3).

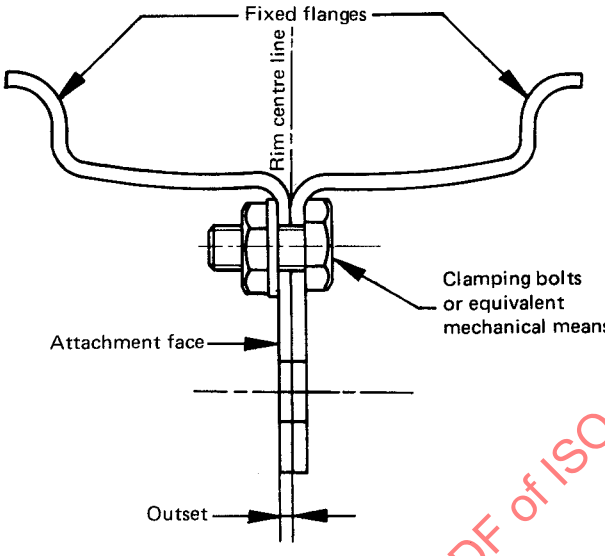
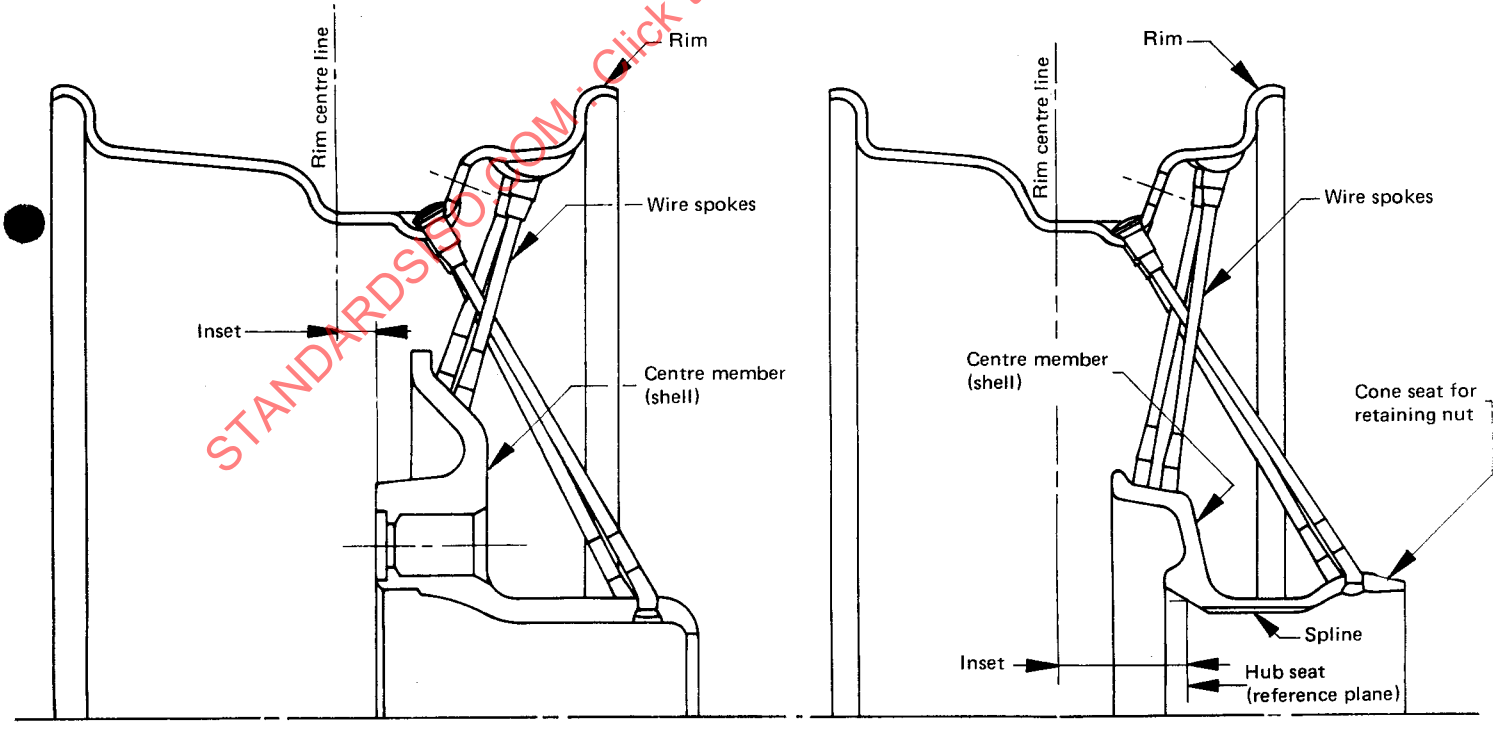


FIGURE 3 – **Divided wheel nomenclature**

2.2.3 wire wheel : A wheel so constructed that its rim is joined to the centre member (shell) by a series of wire spokes (figure 4).

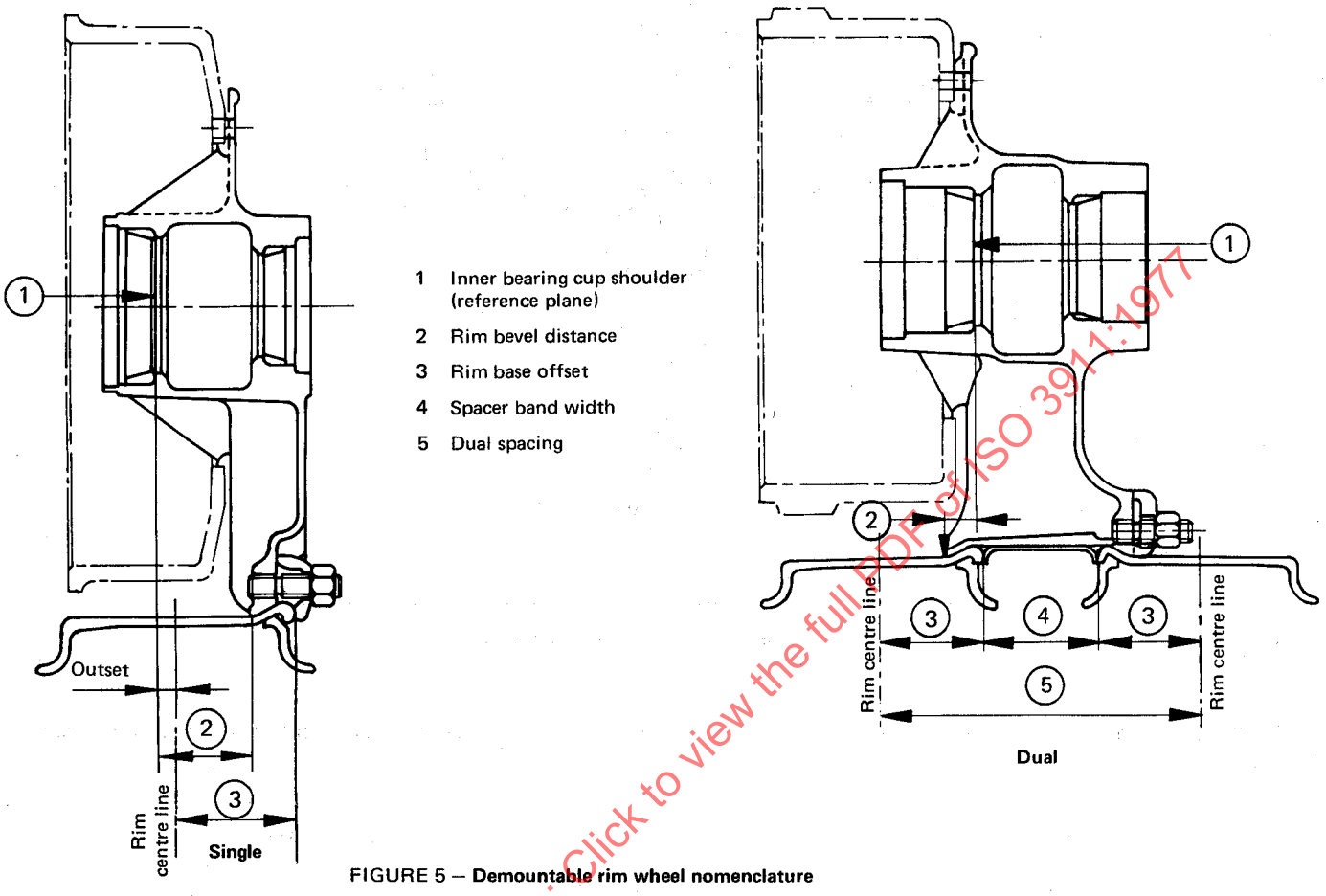


Conventional mounting type

Centre mounting type

FIGURE 4 – **Wire wheel nomenclature**

2.2.4 demountable rim wheel : A wheel so constructed that one or two demountable rims are clamped to the wheel disc which also serves as the hub and support for the brake drum or disc brake rotor (figure 5).



1 Inner bearing cup shoulder (reference plane)
2 Rim bevel distance
3 Rim base offset
4 Spacer band width
5 Dual spacing

FIGURE 5 – **Demountable rim wheel nomenclature**

2.2.5 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 6).

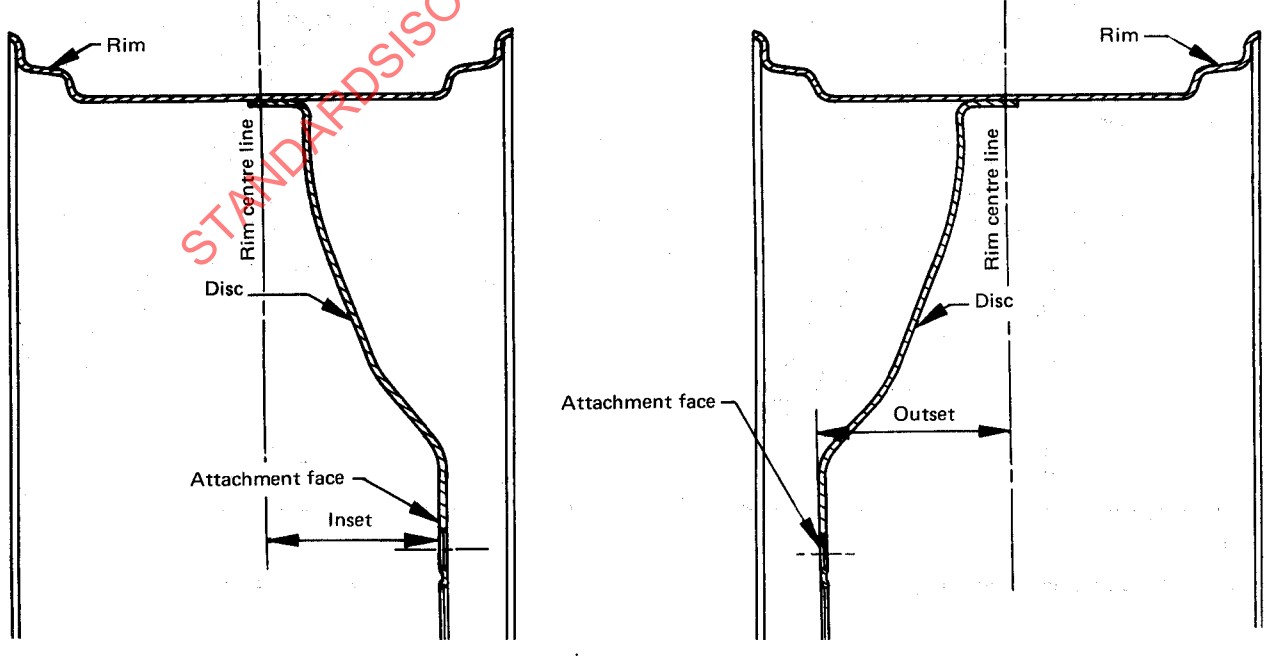
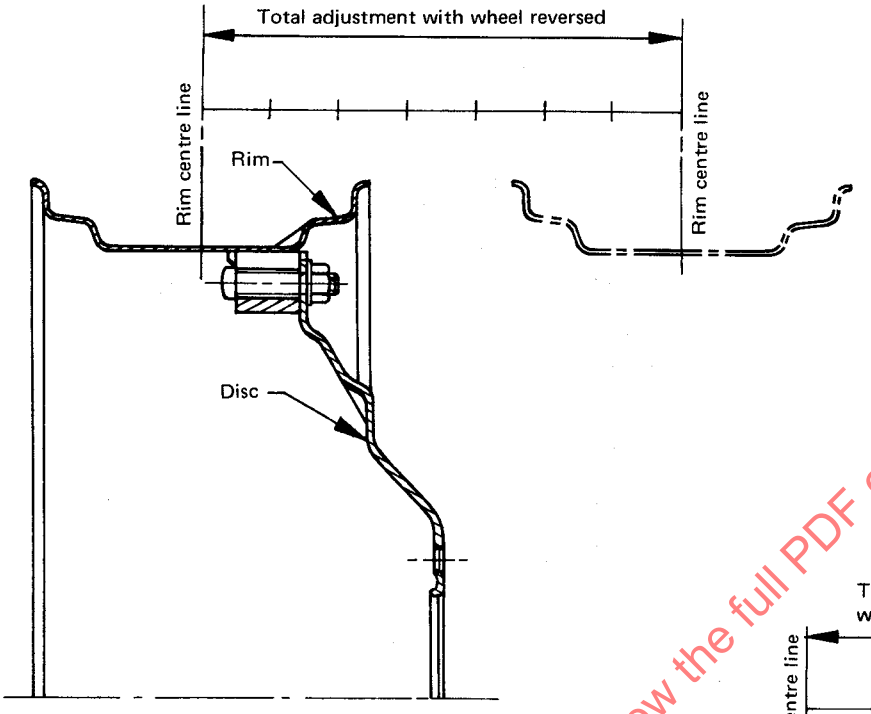
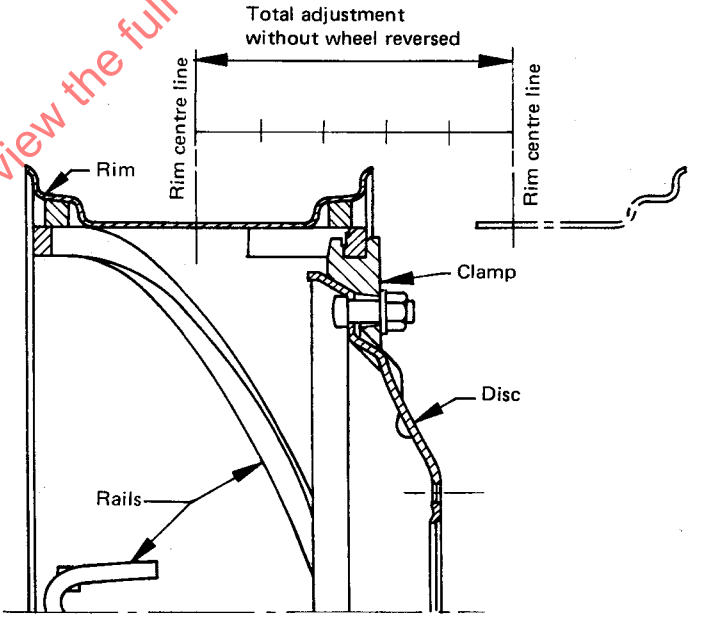


FIGURE 6 – **Reversible wheel**

2.2.6 adjustable wheel : A wheel so constructed that the rim can be repositioned axially relative to the wheel disc. Adjustments can be made a) manually or b) by power of the vehicle (figure 7).



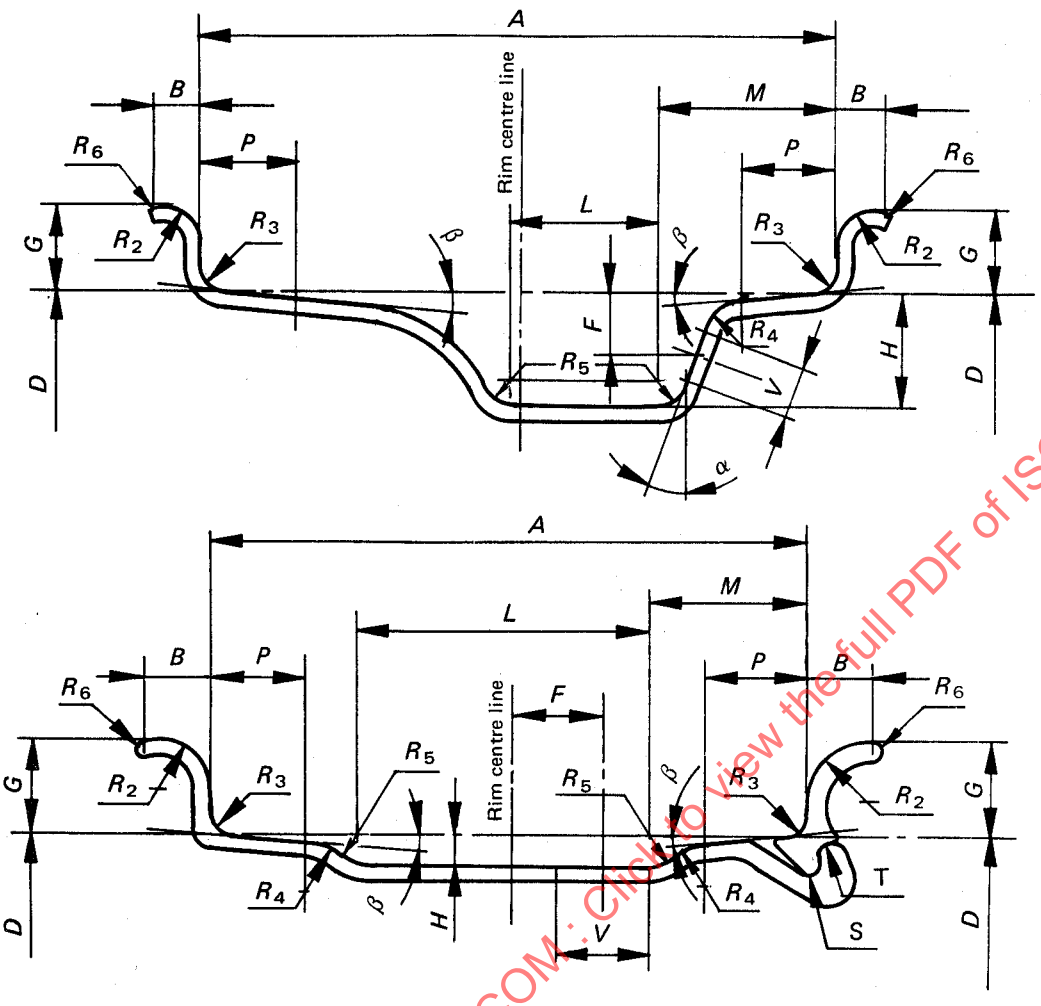
a) **Manually adjustable**



b) **Power adjustable**

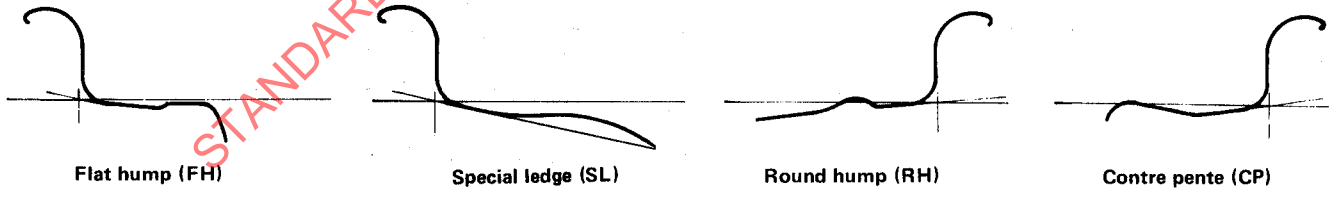
FIGURE 7 — **Adjustable wheel**

2.3 Rim nomenclature



D	Specified rim diameter
A	Specified rim width
G	Flange height
B	Flange width
R_2	Flange radius
R_6	Flange edge radius
P	Bead seat width
R_3	Bead seat radius
β	Bead seat angle
R_4	Well radius top
α	Well angle
H	Well depth
L	Well width
M	Well position
R_5	Well radius bottom
V	Rim hole
F	Rim hole location
S	Gutter groove
T	Gutter tip

Optional bead seat profiles



Flat hump (FH) | Special ledge (SL) | Round hump (RH) | Contre pente (CP)

FIGURE 8 — **Rim tyre side profile nomenclature**

2.3.1 flange : That part of the rim which provides lateral support to the tyre (references A, B, G, R_2, R_3).

2.3.2 bead seat : That part of the rim which provides radial support to the tyre (references D, P, β, R_3).

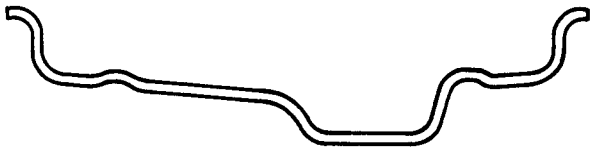
2.3.3 well : That part of the rim so located with sufficient depth and width to enable the tyre beads to be mounted and demounted over the mounting side rim flange or bead seat taper (references R_4, α, M, H, L, R_5).

2.3.4 rim hole (valve aperture) : The hole or slot in the rim which accommodates the valve for tyre inflation (references V, F).

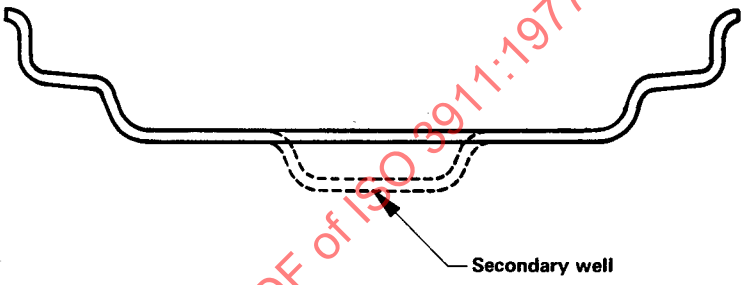
2.3.5 gutter : The groove in the rim base in which rim parts such as a spring lock ring or a detachable spring flange fit and are retained by the gutter tip (references S, T).

2.4 Rim types

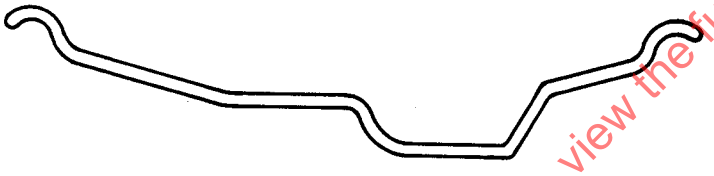
2.4.1 one-piece (drop-centre) rim : A rim which is of one-piece construction and incorporates a well (figure 9).



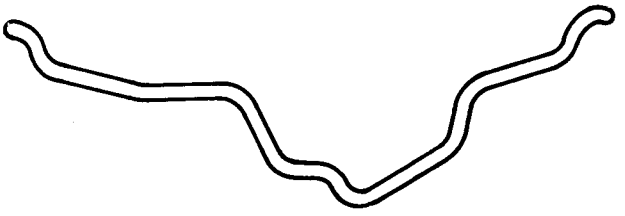
Passenger car 5° D.C.



Agricultural 5° D.C.



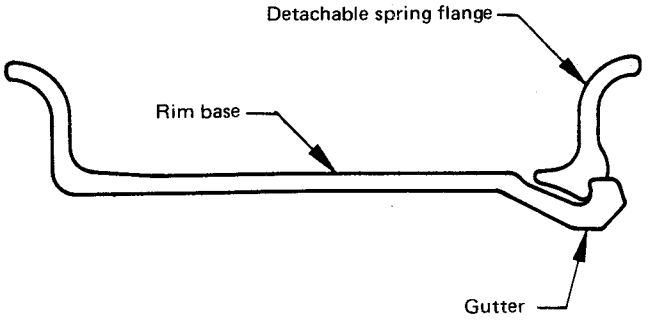
Truck 15° D.C.



Mobile home — Low bed trailer 15° D.C. demountable

FIGURE 9 — **One-piece (drop-centre) rim nomenclature**

2.4.2 two-piece rim



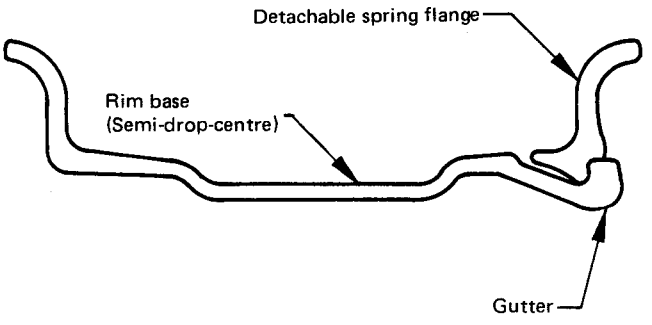


FIGURE 10 — **Two-piece rim nomenclature**

2.4.3 three-piece rim

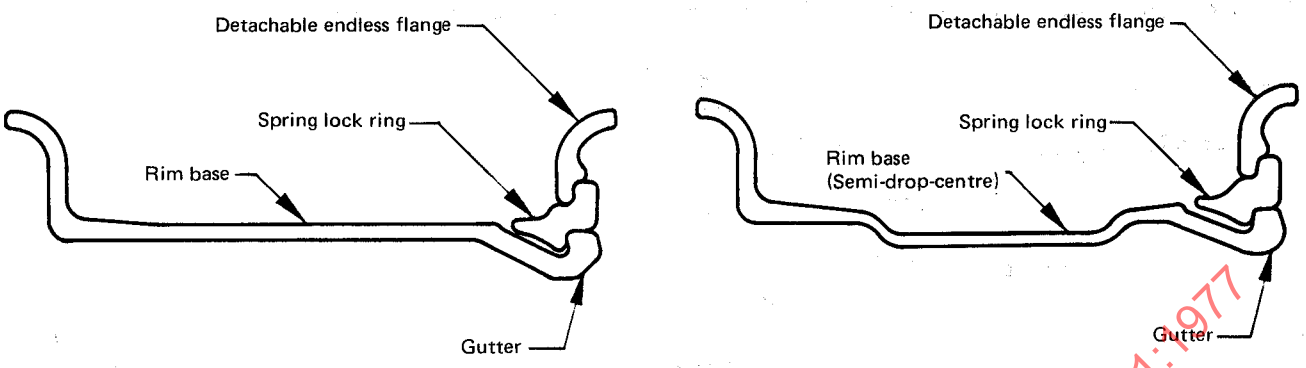


FIGURE 11 – **Three-piece rim nomenclature**

2.4.4 four-piece rim

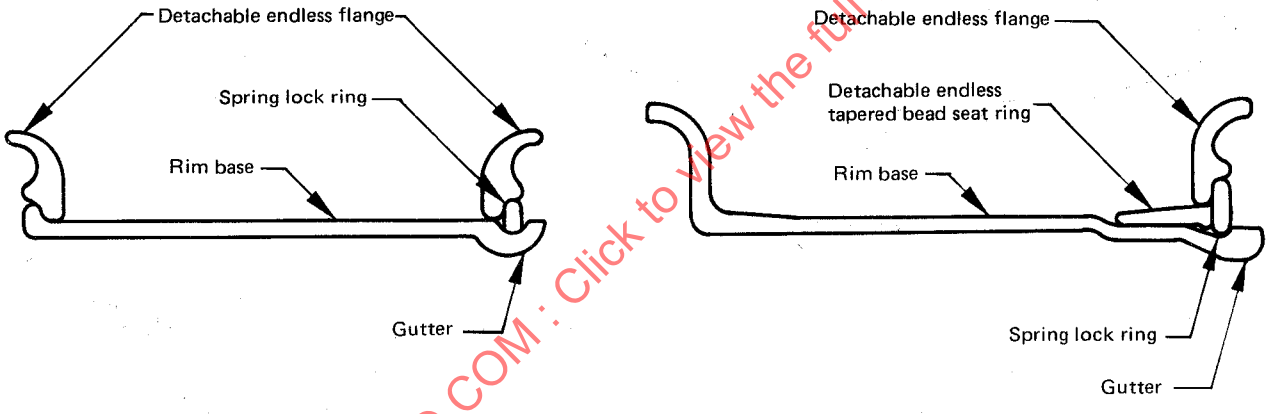


FIGURE 12 – **Four-piece rim nomenclature**

2.4.5 five-piece rim

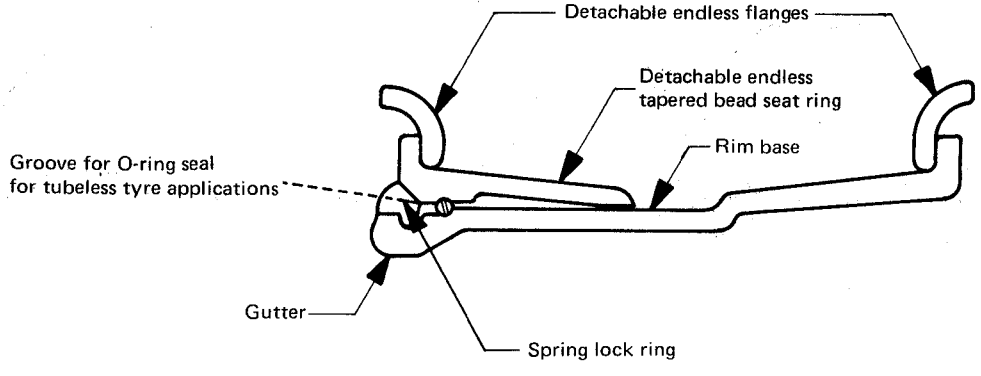


FIGURE 13 – **Five-piece rim nomenclature**

3 WHEEL OR RIM, SIZE DESIGNATION

For future applications, the size designation of wheels/rims shall be shown in the following order by figures representing :

3.1 Nominal rim diameter

— in inches for existing rim types;

— in millimetres when used in combination with new-concept tyres which require new-concept rims.

3.2 Rim type

— the symbol "X" indicates a one-piece rim;

— the symbol "–" indicates a multi-piece rim.

3.3 Nominal rim width

— present design rims to be expressed in inches;

— future design rims involving new-concepts to be expressed in millimetres.

3.4 Rim profile

A letter or letters signifies the tyre-side profile of the rim (example : B, C, D, E, F, G, J, JJ, JK and K). Usually the profile designation follows the nominal rim width. It may, however, precede or include the nominal rim width as shown for agricultural rims in the following examples.

3.5 Off the road

The symbol "/" followed by a figure or figures indicates the flange height in inches.

3.6 Examples of size designation (for existing rim types)

Passenger car : **10 × 3.50 C, 15 × 6 JJ**

Light truck : **15 × 5.5 JJ, 16.5 × 6.00, 15 – 5.50 F SDC** (SDC indicates a semi-drop-centre rim)

Medium/Heavy truck : **20 – 7.5, 22 – 8,00 V, 22,5 × 8.25**

Agricultural : **28 × W 12, 28 × W 10 H, 26 × DW 16** (DW indicates the rim has a secondary well)

Off the road : **25 – 13.00/2.5**

4 MARKING

Wheels with integral or permanently affixed rims, and rims, separate or demountable, shall be legibly marked with their size designation. The marking is to be visible after the tyre is mounted and inflated.

5 UNITS

The dimensional data for wheels and rims shall be expressed in millimetres, and angular measurements in degrees. Load-carrying capacity shall be expressed in kilograms (kg). Tyre inflation pressure shall be expressed in kilopascals (kPa) or alternatively in bars[1].

1) 1 kPa = 10^{-2} bar

ANNEX

LIST OF EQUIVALENT TERMS, IN ENGLISH, FRENCH AND GERMAN

English	French	German
A		
adjustable wheel	roue à voie variable	Spurverstellrad
attachment face	face d'appui	Radanlagefläche
attachment face diameter	diamètre de la face d'appui	Durchmesser der Radanlagefläche
B		
bead seat	portée du talon	Felgenschulter
bead seat angle	angle de la portée du talon	Schulterwinkel
bead seat radius	rayon de raccordement rebord-portée	Schulterradius (Hornfuss-radius)
bead seat width	largeur de la portée du talon	Schulterbreite
bead seat optional contours :	profils optionnels de portée du talon	Alternativ-Konturen der Felgenschultern :
contre-pente (CP)	contre-pente (CP)	Contre-pente (CP)
flat hump (FH)	flat hump (FH)	Flat Hump (FH)
round hump (RH)	round hump (RH)	Round-Hump (RH)
special ledge (SL)	special ledge (SL)	Special Ledge (SL)
C		
centre hole	alésage central	Mittenloch
centre line	plan de roulement	Mittellinie
centre member, shell (wire wheel)	partie centrale (roue à rayons)	Nabenteil
clamp	fixation	Klemmstück
clamping bolt	vis de fixation	Befestigungsschraube
cone seat (for retaining nut)	siège conique (pour l'écrou de serrage)	Konus für die Befestigungsmutter
contre-pente	contre-pente	Contre-pente
D		
demountable rim	jante amovible	abnehmbare Felge
detachable endless flange	rebord amovible	abnehmbarer, geschlossener Seitenring
detachable spring flange	rebord amovible verrouilleur	abnehmbarer, geschlitzter Seitenring (Kombiring)
detachable endless taper bead seat ring	anneau conique amovible	abnehmbarer, geschlossener Schrägschulterring
disc	disque	Radscheibe, Radschüssel
disc wheel	roue à disque	Scheibenrad
divided wheel	roue en deux parties	(schrauben-) geteiltes Rad
drop-centre rim (DC)	jante à base creuse	Tiefbettfelge
dual spacing	entraxe entre jumelés	Mittenabstand
dual wheel	roue jumelée	Zwillingsrad
F		
fixed taper bead seat	portée du talon conique fixe	feste Schrägschulter
fixed flange	rebord fixe	festes Felgenhorn
detachable endless flange	rebord amovible	abnehmbarer, geschlossener Seitenring
detachable spring flange	rebord amovible verrouilleur	abnehmbarer, geschlitzter Seitenring (Kombiring)