HANDY HINTS ON HOW TO MEASURE SPECIFICATIONS FOR …

HEAVY DUTY - EARTHMOVER, MINING, INDUSTRIAL & AGRICULTURAL WHEELS & RIMS

TOOLS YOU NEED: Appropriate length straight edge / 300mm steel ruler / 300mm vernier callipers / 300mm inside callipers / 300mm outside calliper

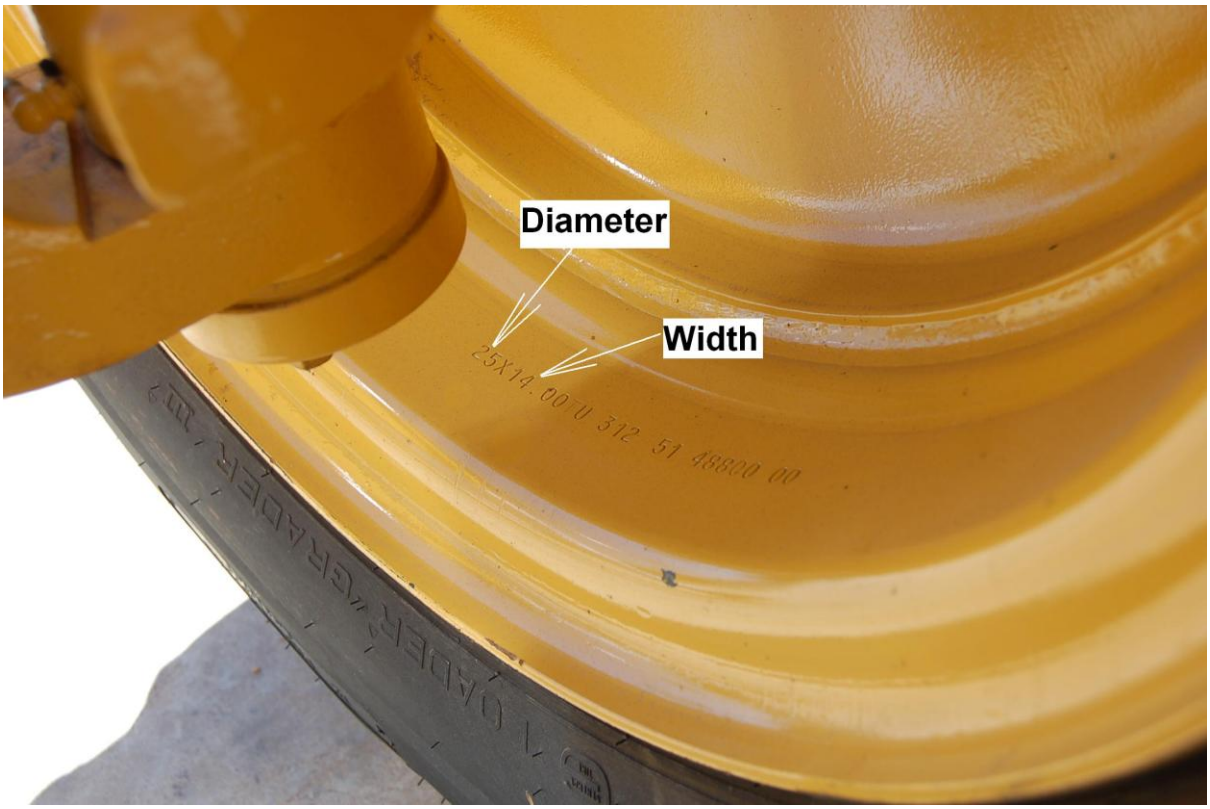
HANDY TIP: When measuring any industrial wheels it is an advantage to remove the wheel from the vehicle.

PROCEDURE:

Step 1: Record make and model and year of the machine to be measured

Step 2: Record standard tyre size and ply rating on unit (as shown below)

Step 3: Record rim diameter (as shown below)



Step 4: Record rim width (as shown above)

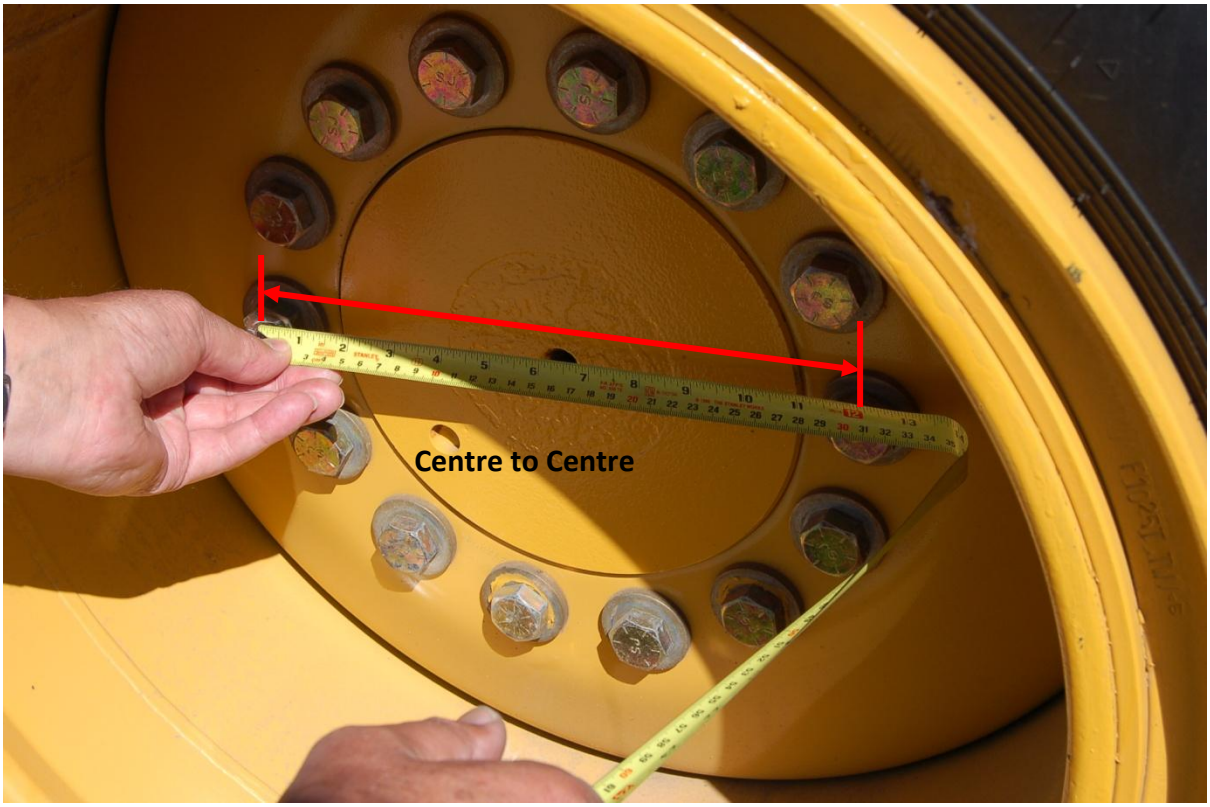
Step 5: Record rim type (Refer to the diagrams on pages 9 & 10)

Step 6: Record the type of centre (i.e. Flat plate or Formed or Shaped disc)

Flat Plate Type - Centre Disc

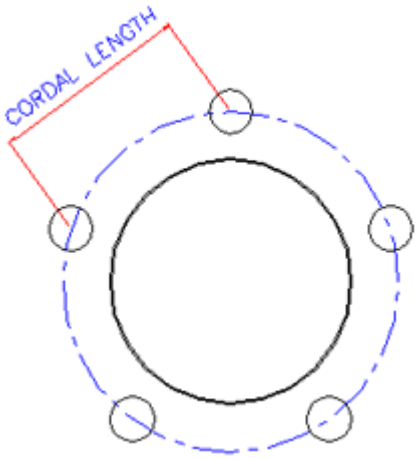
Formed or Shaped Type Centre Disc

Step 7: **Record the pitch circle diameter in mm (as shown below)**



Obtaining these measurements whilst the wheel is fitted to the vehicle can prove to be difficult. However, the PCD can also be calculated by taking the cordal length measurement (see diagram). The PCD can be calculated by multiplying the cordal length by the values stated in the chart below.

No. of Studs	Factor Value	No. of Studs	Factor Value	No. of Studs	Factor Value
3	1.155	13	4.179	23	7.344
4	1.414	14	4.494	24	7.661
5	1.701	15	4.810	25	7.979
6	2.000	16	5.126	26	8.296
7	2.305	17	5.442	27	8.614
8	2.613	18	5.759	28	8.931
9	2.924	19	6.076	29	9.249
10	3.236	20	6.392	30	9.567
11	3.549	21	6.710	31	9.885
12	3.864	22	7.027	32	10.202

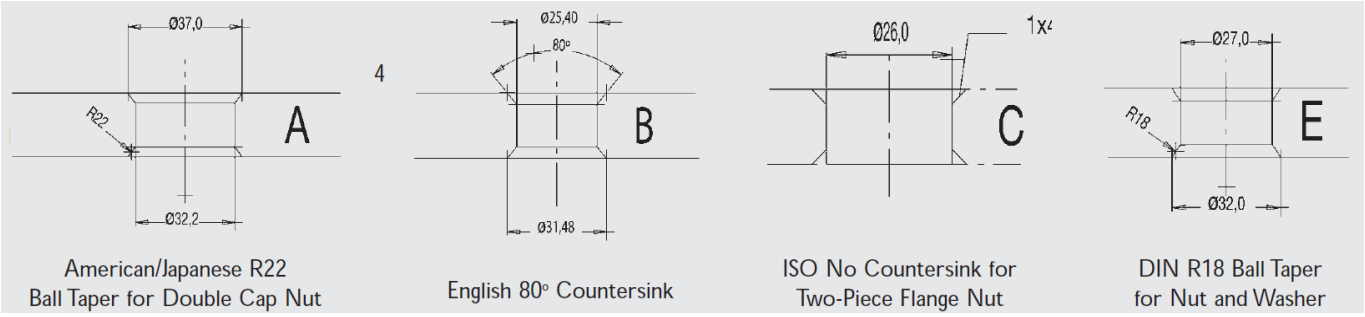


Example (5-Stud): **Cordal Length = 94** **Therefore 94 x 1.701 = 160 mm PCD**

Step 8: **Record the number of stud / bolt holes**

Step 9: **Record the diameter of the stud holes using a vernier calliper or ruler**

Step 10: **Record the counter sink angle (by checking with the diagrams below). Does the stud hole have a taper on both sides?**



American/Japanese R22 Ball Taper for Double Cap Nut

English 80° Countersink

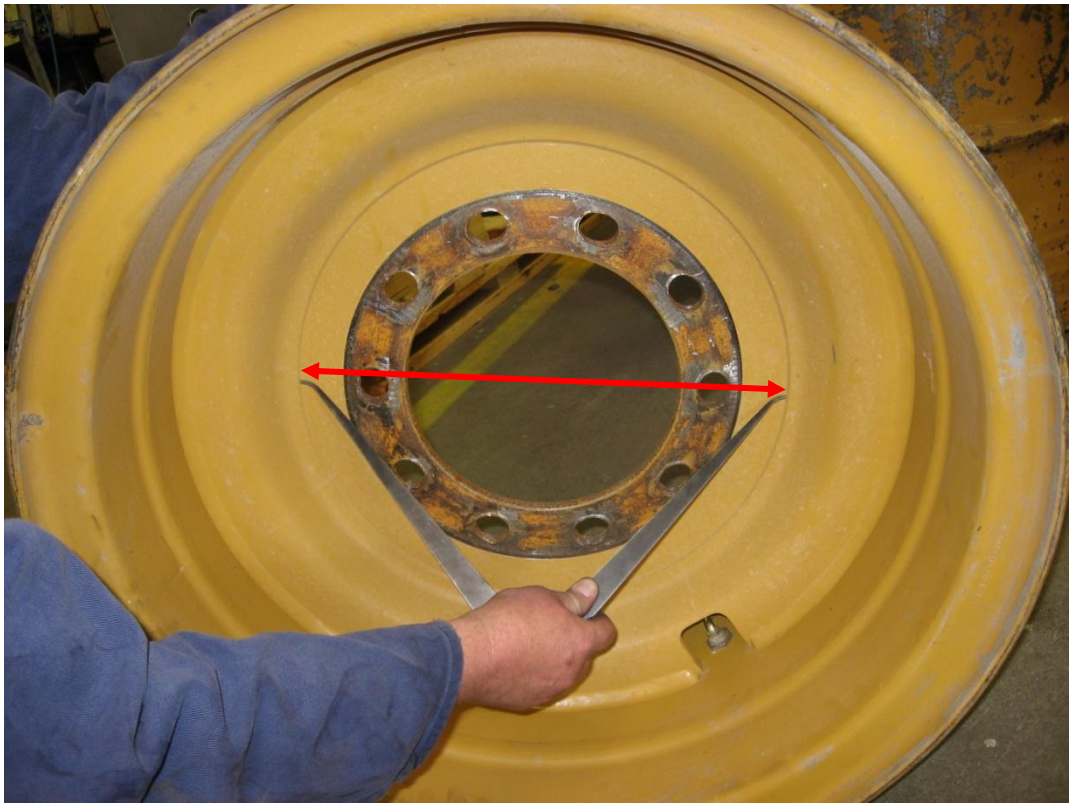
ISO No Countersink for Two-Piece Flange Nut

DIN R18 Ball Taper for Nut and Washer

Step 11: **Record centre bore hole diameter using inside callipers, or if the wheel cannot be removed from the vehicle measure the hub diameter using outside callipers.**

Step 12: **Record the centre plate thickness by measuring with vernier calliper**

Step 13: **Record the diameter of the flat "Machined Section" of the mounting face using the inside callipers (as shown below)**



Step 14: **Record the inner back space “from the outer rim edge” using a 1m steel ruler or straight edge and the tape measure (as shown below)**

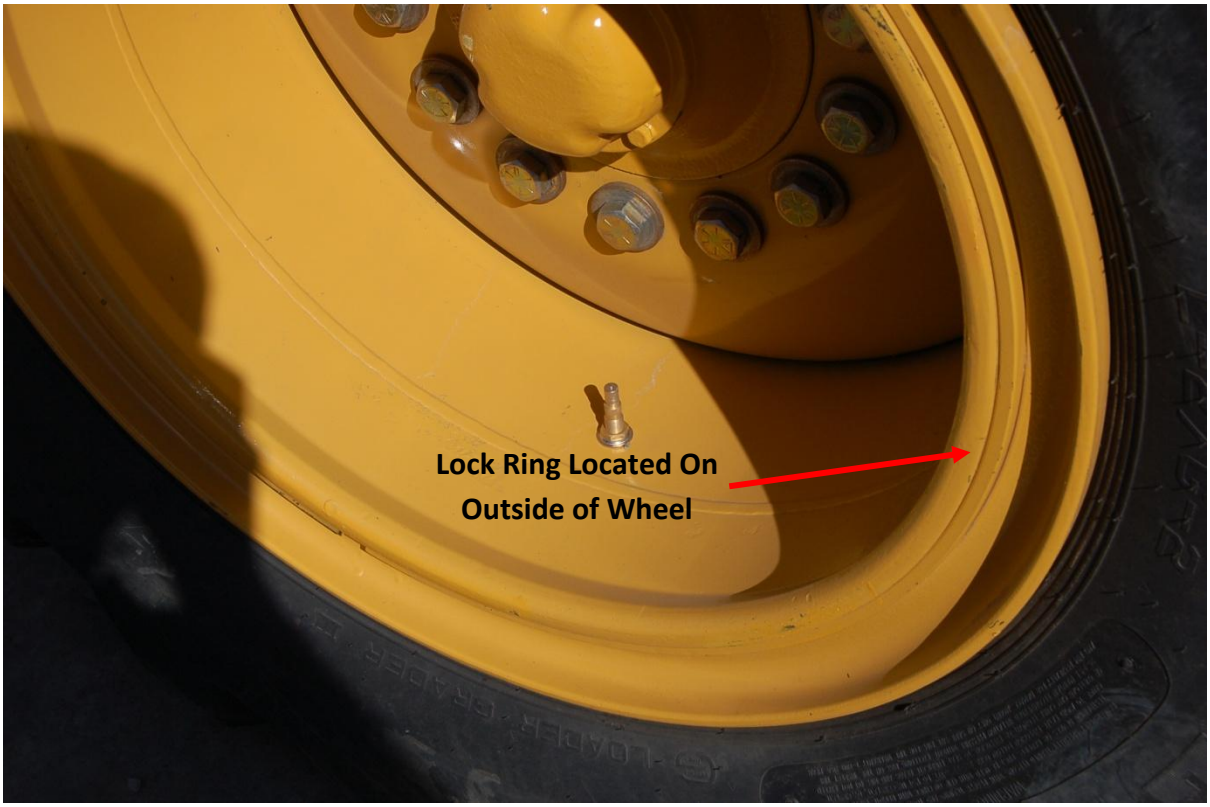
Step 15: **Record the front space using the appropriate length straight edge and the 300mm steel ruler (correct position as shown below)**

Beware: **Below is an example of how NOT to measure the front space.**

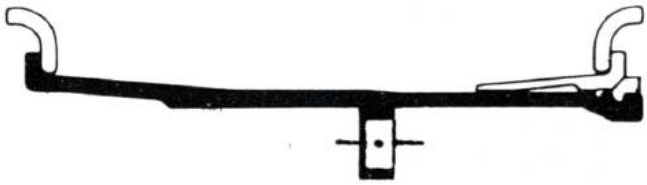
Step 16: **Record the valve position. i.e. the distance from the outside of the rim to the valve hole using a straight edge ruler.**

Step 17: **Record if the wheel requires a valve protector (as shown below)**

Step 18: **Record which side of the wheel the lock ring is located if applicable (See pic below which shows the lock ring on the outside of the wheel)**



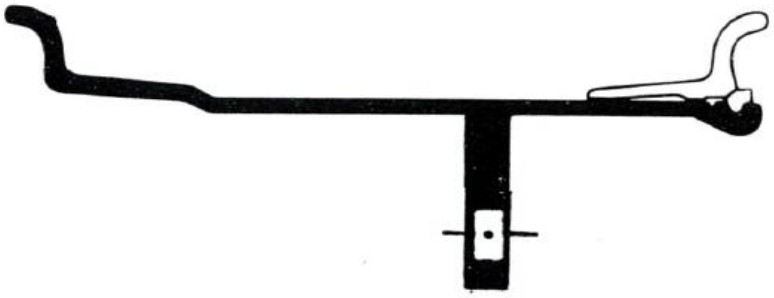
How to Identify Different Rim Types:



Earthmover Rim.
Loose Front and
Back Flanges.

Semi-Drop
Centre Rim
Formed Disc.

Semi Drop Centre Rim.
Fixed Back Flange.



T Type Rim.
Fixed Back Flange.

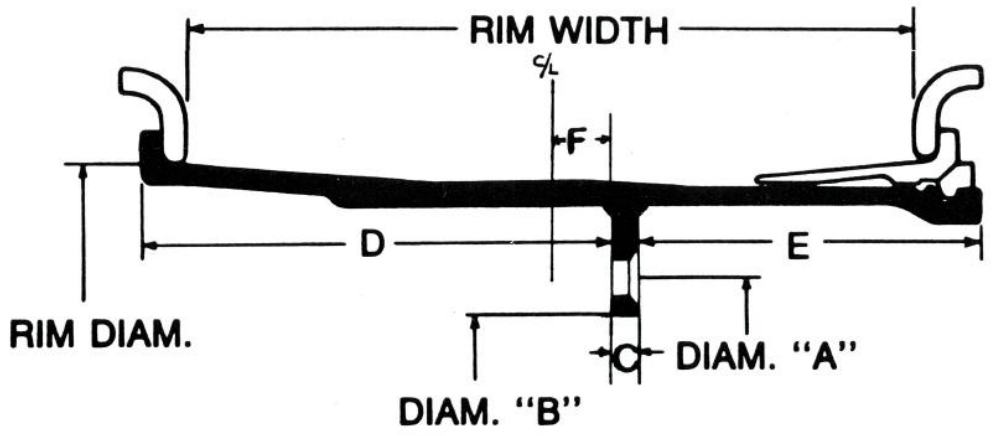
3 Piece, Tube and Tubeless rim

T Type Rim.
Formed Disc.

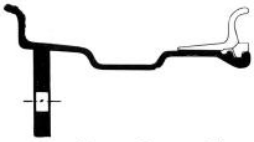
4 Piece Tube Rim

GRADER & EARTHMOVING WHEELS

HOW WE MEASURE UP...



Information Required



Semi Drop Centre Rim.
Fixed Back Flange.

Earthmover Rim.
Loose Front and Back Flanges. Has support Ring.

MACHINE SPECIFICATIONS:

MAKE _____

MODEL _____ YEAR _____

STANDARD TYRE SIZE _____ PLY RATING _____

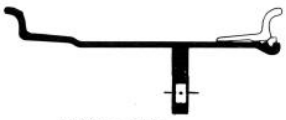
WHEEL SPECIFICATIONS:

RIM WIDTH _____ DIAMETER _____ RIM TYPE _____

CENTRE TYPE—

FLAT PLATE, SCOLLAPED PLATE OR FORMED DISC

_____



T Type Rim.
Fixed Back Flange.

Semi-Drop Centre Rim Formed Disc.

DIMENSIONS:

A. PITCH CIRCLE DIAMETER _____

No OF STUD HOLES _____

DIAMETER OF STUD HOLES _____

COUNTER SINK ANGLE _____

B. CENTRE BORE HOLE DIAMETER _____

C. CENTRE THICKNESS _____

DIAMETER OF MACHINED MOUNTING FACE _____

D. BACK SPACING MEASUREMENT _____

E. FRONT SPACING MEASUREMENT _____

F. NOMINAL OFFSET _____

(FROM RIM CENTRELINE TO DRIVING FACE OF CENTRE)

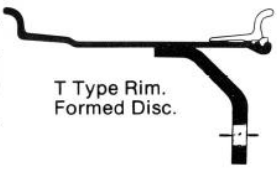
VALVE HOLE POSITION _____

(FROM OUTSIDE EDGE OF RIM)

VALVE PROTECTOR YES/NO _____

LOCK RING POSITION INSIDE/OUTSIDE _____

Earthmover Rim.
Loose Front and Back Flanges.



T Type Rim.
Formed Disc.

OTHER INFORMATION:

_____

_____

_____

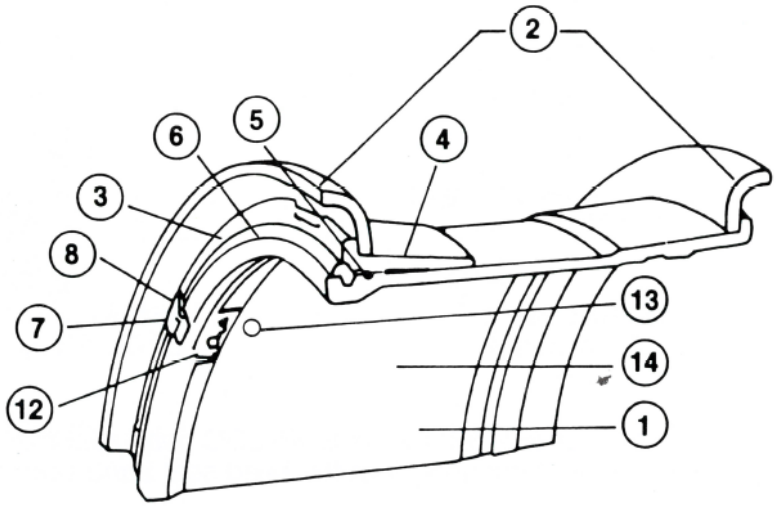
_____

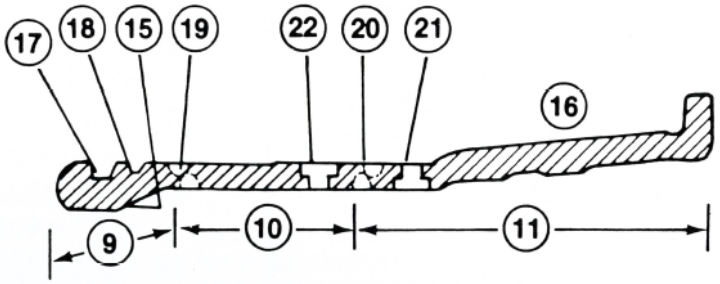
IMPORTANT: **Read and follow all safety instructions before servicing of tyre/rim assemblies.**

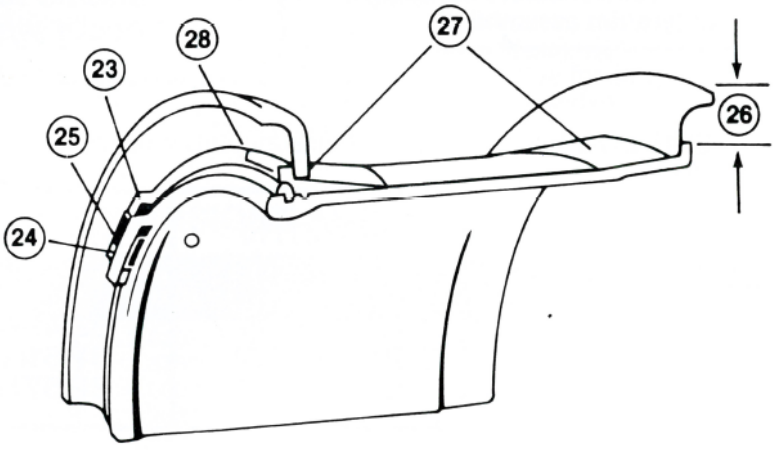
mullins wheels

EARTHMOVER RIM TERMINOLOGY

1. Rim Base
2. Flanges (side-rings)
3. 5° bead seat band, tapered ring
4. Bead seat band
5. O-ring gasket
6. Lock-ring
7. Lock-ring driver
8. Gutter notch for lock ring driver
9. Gutter section
10. Center band section
11. Back section
12. Locator—demountable rim only
13. Tubeless valve hole
14. Tube type valve slot (not shown)
15. 28° rim mounting surface
16. 5° tire mounting surface
17. Lock-ring groove
18. O-ring groove
19. Gutter section weld
20. Back section weld
21. Inverted valve hole
22. Standard valve hole
23. Outboard driver pocket—(bead seat band)
24. Outboard driver pocket—(rim base)
25. Locking driver key
26. Flange height
27. Serrations or knurling
28. Pry bar slot







IMPORTANT: Read and follow all safety instructions before servicing of tire/rim assemblies.