



Truck & Bus Tyre
TECHNICAL MANUAL

RIM & ACCESSORIES

Technical data of rims

Tubes and flaps

Mounting and demounting

Tube-type tyre mounting / demounting

Tubeless tyre mounting / demounting

Tubeless rim valve mounting

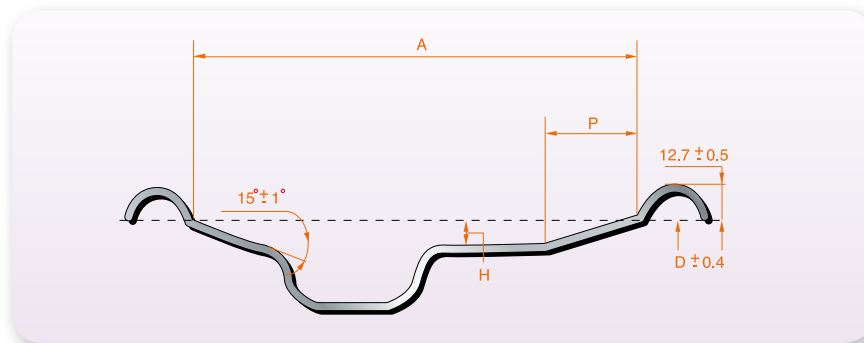
About dual spacing

T

ECHNICAL DATA OF RIMS

- The rim is part of the wheel which supports the tyre.

DROP-CENTRE RIMS WITH 15° TAPERED BEAD SEATS



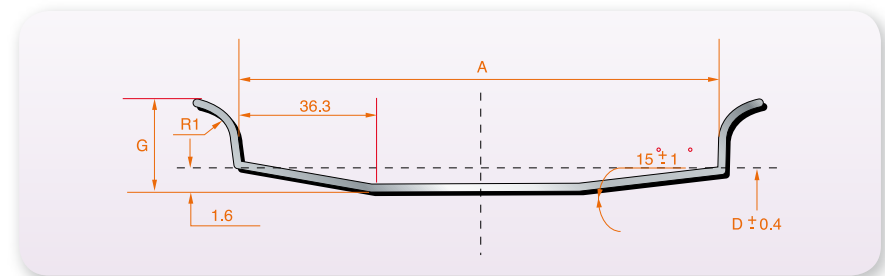
DIMENSIONS(mm)	
Rim	A ± 3.2
5.25	133.4
6.00	152.4
6.75	171.5
7.50	190.5
8.25	209.6
9.00	228.6
9.75	247.6

DIMENSIONS(mm)	
Rim	A ± 3.2
10.50	266.7
11.75	298.5
12.25	311.0
13.00	330.2
14.00	355.6

DIAMETERS				
Nominal diameter code	17.5	19.5	22.5	24.5
Diameter D (mm)	444.5	495.3	571.5	622.3

MULTI-PIECE RIMS WITH 5° TAPERED BEAD SEATS

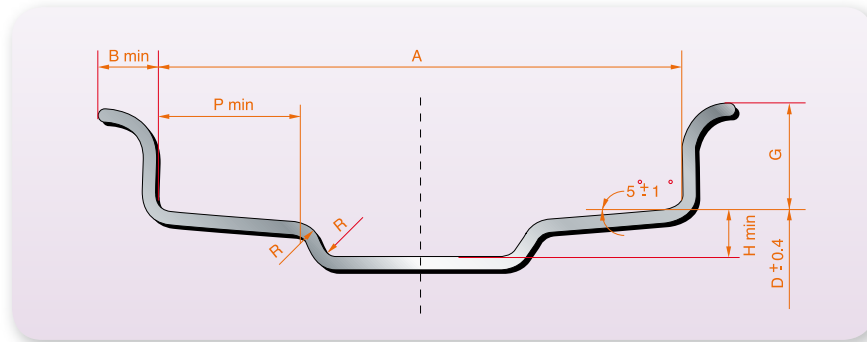
Rims with detachable lateral rings are equipped with flange and bead seat removable on one side of the rim.



DIMENSIONS(mm)		BASIC		OPTIONAL	
Rim	A ± 3.2	G ± 1.2	R1 ± 2.5	G ± 1.2	R1 ± 2.5
5.0	127.0 ± 3.2	27.9	14.0		
5.5	139.7 ± 3.2	30.5	15.2	33.0	16.5
6.0	152.4 ± 3.2	33.0	16.5		
6.5	165.1 ± 3.2	35.6	17.8	36.8	18.4
7.0	177.8 ± 3.2	38.1	19.0	36.8	18.4
7.5	190.5 ± 3.2	40.6	20.3	42.0	21.0
8.0	203.2 ± 3.2	43.2	21.6	42.0	21.0
8.0 V 5°	203.2 ± 3.2	44.4	27.0	42.0	21.0
8.5	215.9 ± 3.6	45.7	22.9	43.2	21.6
9.0	228.6 ± 3.6	48.3	24.1	45.7	22.8
9.5	247.7 ± 3.6	38.1	19.0	8.25	8.25
10.0	254.0 ± 4.7	50.8	25.4	9.00	9.00
14.0 V 5°	355.6 ± 4.7	44.4	27.0		

DIAMETERS				
Nominal diameter code	15	20	22	24
Diameter D (mm)	384.4	514.4	565.2	616.0

DROP-CENTRE RIMS WITH 5° TAPERED BEAD SEATS



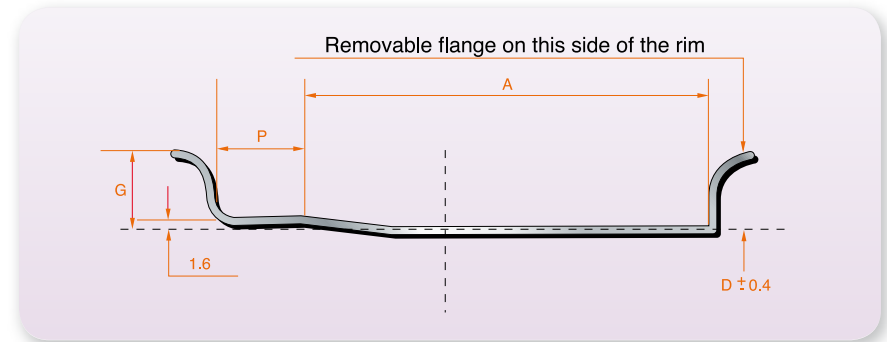
DIMENSIONS(mm)			
Rim	A ±1.5	G ^{+3.2} -0.4	H min
4.00B	101.6	14.0	15.0
4.50B	114.3	14.0	15.0
5.00B	127.0	14.0	15.0
5.50B	139.7	14.0	15.0
6.00B	152.4	14.0	15.0
4.00C	101.6	15.9	16.8
4.50C	114.3	15.9	16.8
4J	101.6	17.3	17.3
4½J	114.3	17.3	17.3
5J	127.0	17.3	17.3
5½J	139.7	17.3	17.3
6J	152.4	17.3	17.3
6½J	165.1	17.3	17.3
7J	177.8	17.3	17.3
7½J	190.5	17.3	17.3
6L	152.4	21.6	28.5
6½L	165.1	21.6	28.5

DIMENSIONS(mm)			
Rim	A 3.2	G ±1.2	P min
4.50E	114.3	19.8	22.2
5.00E	127.0	19.8	22.2
5.50E	139.7	22.2	23.9
6.00G	152.4	27.9	31.8
6.50H	165.1	33.7	36.3

DIMENSIONS(mm)				
Rim	A	H min	G ^{+1.2} -0.4	P min
11	279.4 ±5.0	10.0	25.4	50.0
12	304.8 ±5.0	10.0	25.4	50.0

DIAMETERS						
Nominal diameter code	12	13	14	15	16	20
Diameter D (mm)	304.0	329.4	354.8	380.2	405.6	512.8

FLAT BASE RIMS



DIMENSIONS(mm)			
Rim	A ±3.2	G ±2.5	R max
5.00 S	127.0 ±3.2	33.3	
6.00 T	152.4 ±3.2	38.1	
7.33 V	186.2 ±3.2	44.0	20.0
9.00 V	228.6 ±3.6	44.0	
10.00 V	254.0 ±4.7	44.0	

DIAMETERS			
Nominal diameter code	20	22	24
Diameter D (mm)	508.0	558.8	609.6

TUBES AND FLAPS

Tubes are used to contain the air pressure and carry the load in tube-type tyres.

It is always important to use the proper size and type of tube to suit the application. Radial tyres with their more flexible sidewalls require the use of a radial tube of a size the same as the radial tyre. For example a 1000R20 tube is used for a 1000R20 radial tyre.

As for flaps, they are used to protect the tube in the area between the rim and the tube. Refer to the product manual for correct size and selection information for radial flaps.

TUBE AND FLAP

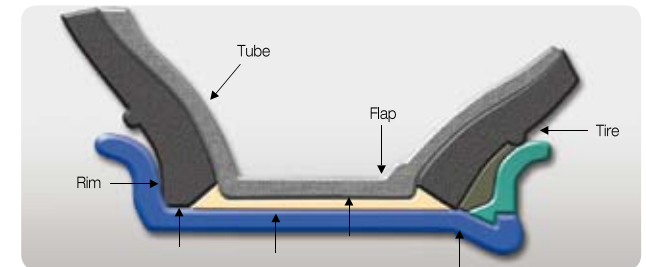


New tyres should always use a new tube and flap.

TUBE AND FLAP MOUNTING

- Mount the tube in a tyre and inflate it just until it becomes round (4-5 PSI).
- Apply mounting lubricant on the exposed tube surface with a brush or sponge, taking care not to let lubricant stream down between the tyre and tube.
- Mount the flap, lining up the valve stem hole. Then align and mount the tyre/tube so that valve stem lines up with the rim valve hole.

TUBE AND FLAP ASSEMBLY



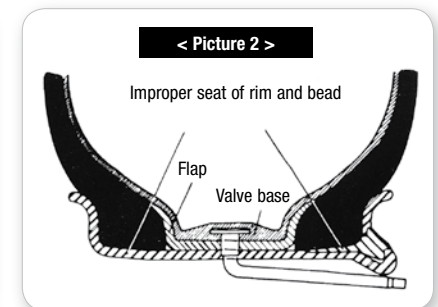
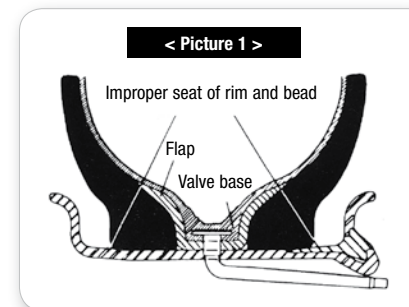
Places to lubricate

TUBE AND FLAP ASSEMBLY

The assembly procedure calls for correct line up of the valve stem to hole in the flap and valve stem hole in the rim. It is important, along with correct inflation procedure, so as not to tear or damage the valve stem base, valve stem or tube during the mounting process. (Picture 1) shows the positioning of tyre bead, rim and valve base positioning with only 4-5 PSI pressure inside the tube (enough to make it round, but not to properly seat the bead). (Picture 2) shows the tyre bead seated properly to the rim which should happen as the tyre is further inflated. Finally, once the beads properly seat, the assembled tyre can be inflated to the recommended pressure.

Note : A tyre cage and remote air nozzle and length of air line should be used during inflation.

TUBE AND FLAP ASSEMBLY



MOUNTING AND DEMOUNTING

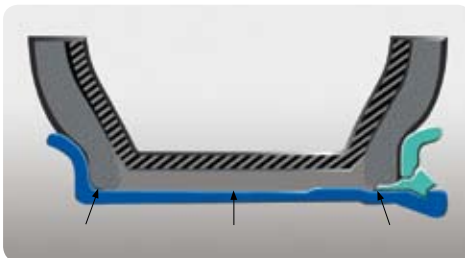
SAFETY INSTRUCTIONS

Do not mount or demount tyres without proper training. Wall charts containing mounting and demounting instructions for all on-highway rims should be available through your normal rim supplier.

REMOVE ALL CRACKED WHEELS FROM SERVICE



LUBRICATE AREAS SHOWN BY ARROWS



USE OF GG RING INDICATE CORRECT MOUNTING

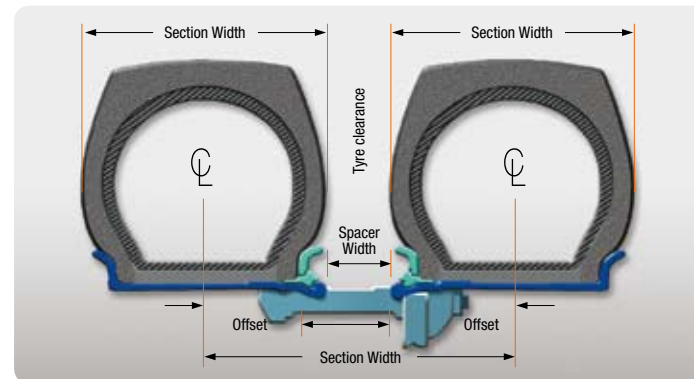


PROPER SEQUENCE FOR TIGHTENING STUD RUTS ON AN 8 STUD SYSTEM

NOTE:

Always use a securely held safety cage and extension hose with clip on air chuck for airing the tyre. Rapid air loss can propel the assembly.

CROSS SECTION THROUGH TYPICAL DUAL INSTALLATION



PROPER MATCHING OF RIM PARTS

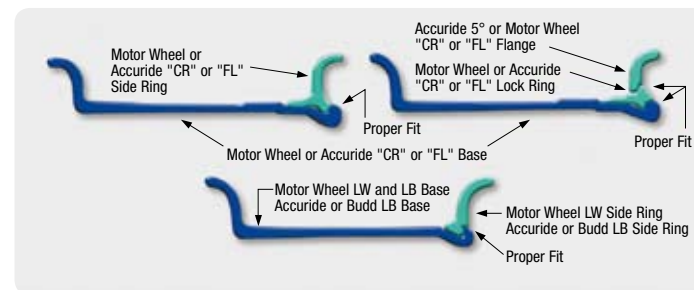


Figure 3.12 Correct and incorrect matching of rim parts

TUBE-TYPE TYRE MOUNTING

All parts should be clean and free of water or foreign matter.

A new tube should be used, because reused or old tubes stretch or increase in size which can lead to problems with the tube folding, cracking or wearing too rapidly.

Proper sized radial tubes should be used in radial tyres. Radial tubes are designed to handle the radial tyre profiles and flexing requirements.

WHEEL PREPARATION

For safety reasons check the following in regards to mounting and demounting tyres and wheels.

- rim diameter, rim width and flange design must be that recommended mended for the tyre.
- rim profile must be appropriate to the type of tyre (tube-type or tubeless) that is being used.
- the angle and position of the tyre bead must seat properly to the rim.

Before mounting, the wheel should be inspected for any cracks, breaks, damage, misplaced parts or deformities or irregularities at the locking ring, rim flange, surfaces or valve hole.

Any signs of weak welds, dents, rough surfaces or rust should be corrected or a new or more suitable wheel should be used.

If corroded, clean the rim with a wire brush, sand it smooth and paint it with anti-rust paint.

Any dents and rough surfaces must be smoothed

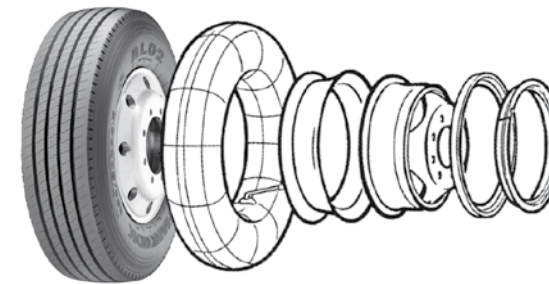
NOTE : Be careful to demount the tyre prior to attempting any wheel repair such as hammering, heating or welding of wheels.

PROPER MOUNTING AND DEMOUNTING

Follow all mounting and demounting procedures and equipment safety cautions. Always keep tools and work areas clean and free of oil and grease.

NOTE : Tyre mounting lubricant is necessary for mounting and demounting tyres.

TUBE-TYPE



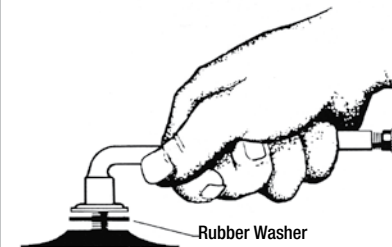
NOTE :

Use of any improper design, size or type of tube may cause tube breakage or damage to your Hankook radial tyre.

Confirm that the tube is the proper type and size with the correct valve stem type to suitably fit the wheel hub and clearances for brakes and wheel parts.

The valve stem should screw into the tube with a rubber bushing or washer. This should be a secure, clean attachment to the tube.

VALVE STEM ATTACHMENT



Do not screw the valve stem in the wrong direction or beyond the recommended tightness.

The step-by-step mounting procedure should be followed :

Insert the new tube in the dry clean tyre and inflate it slightly, just until the tube becomes round.

A proper sized new flap should be used. Definitely don't use used flaps that are brittle, cracked, broken or stretched.

Mount the flap inside the tyre being careful not to buckle the flap edges over or under. Centre the flap and position it so that the valve hole lines up. Inflate little more so that flap is held close between tyre and tube. It will not conform perfectly in shape until later.

- After lubricating the rim flange, tyre bead and the flap where it will touch the rim.
- Slide the tyre/tube/flap assembly onto the rim.
- Combining the side ring and lightly rap the locking ring into proper position. Do not use excessive hammering and avoid hitting the tyre.

SAFETY CAUTION

Use an accurate air gauge and an air line and a remote operating nozzle long enough to allow you a distance of personal safety from the tyre assembly for the remainder of the inflation process.

NOTE : Do not stand in front of any wheel while inflating the tyre.

- Inflate slightly and recheck to ensure the assembled parts are in the proper position. Inflate slightly more and check to ensure tyre bead has seated (slid over to make complete contact with the rim flange). If not, deflate, lubricate and try re- assembly.
- Release any air trapped between the tube, flap and tyre by deflating and then reinflate to get proper conforming fit of the flap.

SETTING FINAL INFLATION PRESSURE

Install a new valve core each time a new tyre is mounted. Use a tyre safety cage and a remote operating air nozzle. Re-check that the assembly is going together properly at every stage of the process.

Inflate in stages, re-checking that the assembly is going together properly at every stage until the recommended inflation pressure is reached. Then add a valve cap after adjusting to the final recommended pressure.

SAFETY CAGE



NOTE :

- Use the safety devices at all times. Do not stand in front of the tyre or the valve during inflation.
- Before final inflation, check the assembly condition carefully.
- Check if there is any air leakage.
- Use only the correct, clean mounting and demounting levers, paying attention that they are not oily or greasy which could cause them to slip.
- Use only the recommended equipment and do not apply excessive force or hammering.

TUBE-TYPE TYRE DEMOUNTING

Tyre should be deflated before dismounting the wheel assembly from the vehicle. Clear away any foreign matter from the valve stem and area, prior to releasing the valve stem to let the air escape.

DEMOUNTING THREE-PIECE WHEEL ASSEMBLIES

Place the wheel assembly on firm clean ground or floor with the lock-ring side facing upward. Then use the tyre demounting lever with a spoon-type tip to pry between the rim flange and the tyre bead.

Work around the tyre operating the lever between the tyre bead and the rim flange. Avoid operating on the same place several times.

After the bead and rim separate, put the lever in the groove at the base, separate the lock-ring and remove the side ring.



TUBELESS TYRE MOUNTING

TUBELESS TYRE MOUNTING

RIM PREPARATION

Rims must not be broken or damaged.

Remove the rubber bushing from the valve stem hole. Inspect the valve stem for any signs of damage or wear.

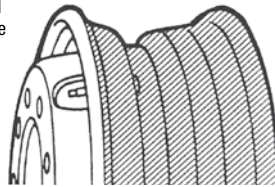
Remove rust, dirt and any foreign materials from the rim. Clean and sand smooth the area marked “///” in the above picture. If rusted, clean and repaint the rim surface to protect it from rusting.

If required, replace any worn or damaged valve stem.

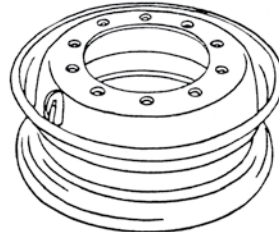
Lubricate the inner parts of the rim surface where the tyre mounts (marked “///”).

BASE PART OF TUBELESS RIM

The Tubeless tyre rim
Parts marked
“///” are to be
cleaned and
lubricated



BASE PART OF TUBELESS RIM



TYRE PREPARATION

In the case of new tyres, wipe the bead clean with a dry cloth. Check at the same time that it is not damaged, kinked or broken. Apply the recommended lubricant to the tyre bead as per the illustration below.

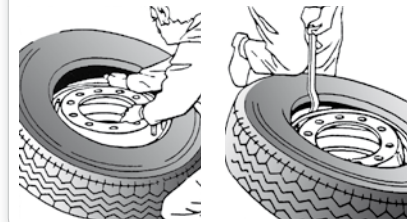
TYRE BEAD CROSS SECTION



INSIDE BEAD ASSEMBLY

Lay the wheel on a clean flat surface with the valve facing upward. Work the bead over the rim flange, using your hands and knees as in the illustration below. If it is difficult to fit over the flange, use the proper tyre mounting lever as per the illustration.

TYRE BEAD CROSS SECTION

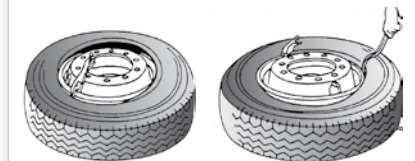


OUTSIDE BEAD ASSEMBLY

Start the outside bead placement over the outside rim flange by hand. Beginning at the point where the valve stem is located. Once hand placement becomes difficult use the proper tubeless tyre bead mounting lever to complete the job as per the following illustrations.

When mounting tyres, do not use excessive force and avoid heavy tools or impact such as hammering on the rim.

OUTSIDE BEAD ASSEMBLY



TUBELESS TYRE INFLATION

Use an inflation gauge, suitable remote air hose nozzle and a safety cage when inflating the new mounted tyre. The lubricated bead should seat firmly to the rim flange at about 10 PSI inflation. Do not stand near or in front of tyre while inflating. Use the safety cage and a safe distance for your protection. If the bead fails to seat first try, then rotate the tyre a few degrees around the rim, ensure the bead and rim flange is lubricated and try again. If for any reason the bead does not appear snugly and evenly seated, do not attempt to inflate further. Repeat the entire assembly process with perhaps more lubricant on the bead and rim areas. Once it seats, and you are assured the bead and rim flange are a snug even fit all the way around. Then inflate the tyre to the recommended inflation pressure to the axle load. Check that the tyre or valve are not leaking and tighten on a valve cap.

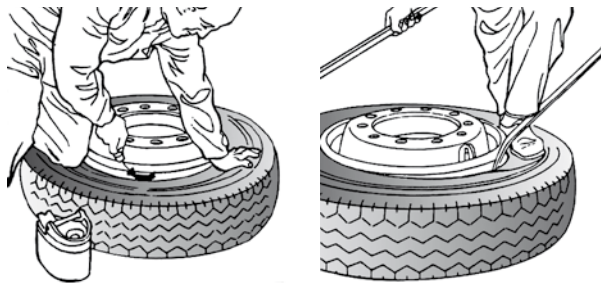
TUBELESS TYRE DEMOUNTING

The tyre should be completely deflated before demounting. This is done by loosening and removing the valve stem core, being careful that there is no foreign matter left in the valve and that the valve stem is not cracked or damaged. Do not stand near the valve stem during the deflating process.

BEAD DEMOUNTING

Place the tyre assembly on a clean flat surface with the valve facing upward. Use a tyre demounting lever

BEAD DEMOUNTING



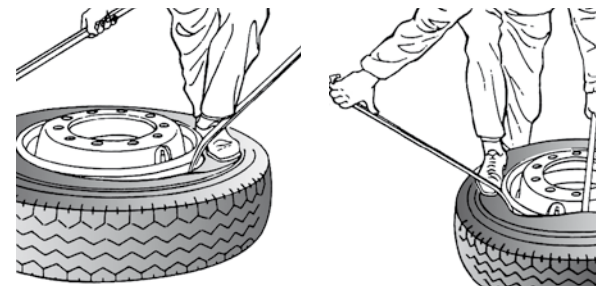
between the tyre bead and rim flange.

OUTSIDE BEAD DEMOUNTING

Use the tyre demounting lever to pry the bead over the rim flange directly in line with the valve stem as per the following illustrations.

A second lever is used about 30 cm around the rim from the first to pry the bead over the flange. Repeat the process around the tyre until the outside bead is fully demounted.

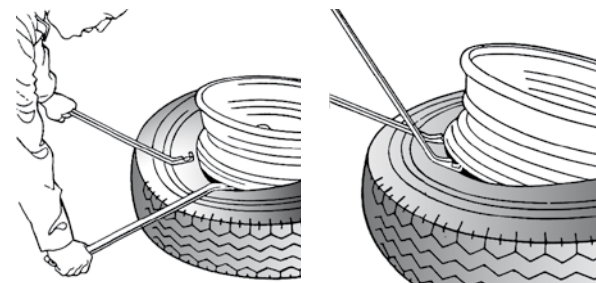
OUTSIDE BEAD DEMOUNTING



INSIDE BEAD DEMOUNTING

Turn the tyre assembly over. Lubricate between the bead and the rim then insert the tip of the tyre lever between the tyre and rim and apply pressure. Use the second lever about 15 cm around the edge of the rim. Repeat the order until that bead is completely demounted.

INSIDE BEAD DEMOUNTING

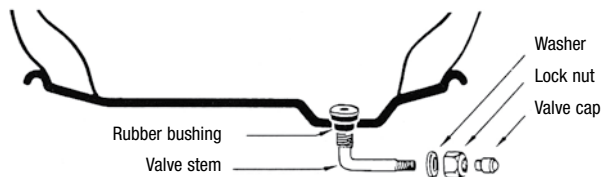


TUBELESS RIM VALVE MOUNTING

A-TYPE RIM VALVE

The valve hole in the rim must be clean, smooth and not damaged. Apply a recommended lubricant to the rubber bushing of the valve. Insert the valve stem through the rim hole, assembling the washer and lock-nut on the inside and tighten the lock-nut with a wrench so that the valve stem is secured to the rim.

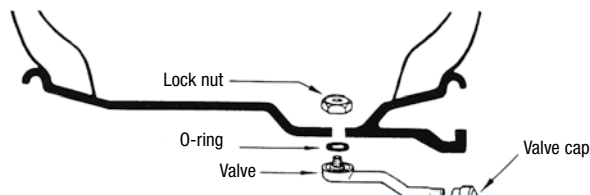
A-TYPE RIM VALVE



B-TYPE RIM VALVE

The valve hole in the rim must be clean, smooth and not damaged. As per the illustration below place a lubricated O-ring on the valve stem, insert the stem into the valve stem hole in the rim so that the valve faces perpendicular to the rim. Then tighten the lock nut with a wrench from the opposite side of the rim until the valve stem is secure.

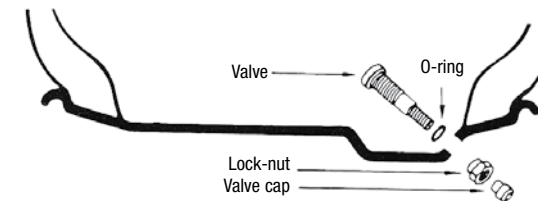
B-TYPE RIM VALVE



C-TYPE RIM VALVE

The valve hole in the rim must be clean, smooth and not damaged. As per the illustration below, lubricate the O-ring and insert a new valve stem through the O-ring and then through the valve stem hole in the rim from the inside. From the other side, securely hand tighten on the lock nut.

C-TYPE RIM VALVE



ABOUT DUAL SPACING

Mismatched duals have the same effect on the life of tyres as low inflation or overload. An **underinflated tyre** on a dual assembly shifts its share of the load to its mate, which then **becomes overloaded** and frequently fails prematurely.

When mounting duals on a truck, there will generally be some difference in the diameter of the 2 tyres (within the limits described below).

Mount the small tyre on the inside. The outside tyre wears faster than the inside tyre. As it wears its diameter will approach that of the inside tyre.

Additionally, any crown on the road will favor the placement of the smaller diameter tyre on the inside.

The difference in dimensions of the tyres on a dual assembly should never exceed the figures shown in table. The measurement and mating of duals is very important when mounting a new set of radial recaps. Just because the caps are all on the same type and all have the same overall diameter. The service they were subjected to prior to capping may have an effect on the size of the retreaded tyre.

Dual Matching Tolerances			
Tyre Size	Diameter (in.)	Circumference (in.)	Radius (in.)
8.25R20 and under	0 to 1/4	0 to 3/4	0 to 1/8
9.00R20 and up	0 to 1/2	0 to 1-1/2	0 to 1/4
Twin screw (all sizes)	0 to 1/4	0 to 3/4	0 to 1/8

RIM WIDTH AND TYRE SPACING

Radial and Bias Ply Tyres			
Tyre Size	Alternate Rim(Wide) Design Rim Alternate Rim(Narrow)	Tyre Section Width	Minimum Dual Spacing Without Chains
7.50	6.5	8.65	9.9
	6.0*	8.45	9.7
	5.5	8.25	9.5
8.25	7.0	9.50	10.8
	6.5*	9.30	10.6
	6.0	9.10	10.4
9.00	7.50	10.40	11.9
	7.0*	10.20	11.7
	6.5	10.00	11.5
10.00	8.0	11.15	12.7
	7.5*	10.95	12.5
	7.0	10.75	12.3
11.00	8.5	11.75	13.2
	8.0*	11.55	13.0
	7.5	11.35	12.8

Tubeless (Highway Service)			
Tyre Size	Alternate Rim(Wide) Design Rim Alternate Rim(Narrow)	Tyre Section Width	Minimum Dual Spacing Without Chains
9	7.50	9.30	10.6
	6.75*	9.00	10.3
	6.00	8.70	10.0
10	7.50*	10.00	11.4
	6.75	9.70	11.1
11	8.25*	11.00	12.6
	7.50	10.70	12.3
12	9.00*	11.80	13.5
	8.25	11.50	13.2

Low Profile Tubeless			
Tyre Size	Alternate Rim(Wide) Design Rim Alternate Rim(Narrow)	Tyre Section Width	Minimum Dual Spacing Without Chains
225/70	6.00	8.60	9.70
	6.75*	8.90	10.00
244/70	6.75*	9.46	10.68
245/75	7.50*	9.76	10.98
255/70	7.50*	10.04	11.30
265/70	7.50*	10.31	11.61
265/75	8.25	10.61	11.91
275/70	8.25	10.86	12.24
285/70	7.50*	10.84	12.22
285/75	8.25*	11.14	12.52
296/75	8.25	11.43	12.89
9.00*	11.73	13.19	