Multi-piece Rims for Industrial and Construction Vehicles **RIM INSTRUCTION MANUAL**

Warning

In order to handle rims safely, correctly, and reliably, work supervisors and workers involved in handling rims must comply with the following:

- Only begin work after carefully reading and understanding this Rim Instruction Manual. Failure to follow these instructions and safety precautions can be extremely hazardous and result in SERIOUS INJURY or DEATH to the tire changer or bystanders.
- Keep this manual in a designated place where it is easily accessible. Maintain this manual for future use and review it whenever necessary.
- If there are any questions or clarifications required concerning the contents of this manual, please contact your distributor.
- When transferring rims to someone else, be sure to give them this manual.





Introduction

- This Rim Instruction Manual concerns TOPY multi-piece rims for industrial and construction vehicles. It contains detailed information regarding their construction, specifications and handling to ensure the safe use of these products. Failure to follow these instructions and safety precautions can be extremely hazardous and result in SERIOUS INJURY or DEATH to the tyre changer or bystanders.
- Servicing of tyres and rims is very dangerous. This manual sets out important safety points and gives step-by-step explanations of the tasks involved in handling TOPY multi-piece rims.

Read Safety Points in this manual and be sure that you fully understand them before starting tyre and rim servicing.

- When servicing tyres and rims, please refer to the following documents in addition to this manual:
 - ◇OSHA (U.S. Occupational Safety and Health Administration), Code of Federal Regulations 29 CFR Part 1910.177, "Servicing multi-piece and single-piece rim wheels".
 - ♦ MSHA (Mine Safety and Health Adiminstration) Introduction guide series IG60
 - ♦ SAE (Society of Automotive Engineers) J1337 Off-Road Rim Maintenance Procedures and Service Precautions.
 - ◇RMA (U.S. Rubber Manufacturers Association) "CARE AND SERVICE OF OFF-THE-HIGHWAY TYRES"
 - ◇RMA (U.S. Rubber Manufacturers Association) "TYRE INFORMATION SERVICE BULLETIN"

 - ♦ "Work Manual", published by vehicle manufacturer.
- In this manual, the word "rim" is used as a general term which includes wheels with discs.
- Copying this manual for purposes other than ownership transfer is strictly forbidden.



Contents

1. Safety precautions
2. General safety rules for rim handling3
3. Important warnings 4
3.1 Precautions for prevention of "explosive separation of rim components"
3.2 Precautions for reduction or prevention of injury, death or damage from explosive
separation5
3.3 General precautions
4. Definitions of rim components7
4.1 Names and size specifications of rim components7
4.2 Designations of each rim component8
5. Markings9
5.1 Location of markings
5.2 Composition of markings10
5.3 Rim component specifications11
6. Matching charts 14
7. Examples of potentially hazardous matches
8. Procedures for servicing tyres and TOPY rims
8.1 How to demount tyre from TOPY 3-piece rim
8.2 How to mount tyre onto TOPY 3-piece rim
8.3 How to demount tyre from TOPY 5-piece rim
8.4 How to mount tyre onto TOPY 5-piece rim 44
out now to mount type onto not no-piece ninimization and the
8.5 Check point of servicing tyres and rims when rim remains installed on vehicle 53
8.5 Check point of servicing tyres and rims when rim remains installed on vehicle 53 9. Maintenance
8.5 Check point of servicing tyres and rims when rim remains installed on vehicle 53 9. Maintenance
8.5 Check point of servicing tyres and rims when rim remains installed on vehicle 53 9. Maintenance



1. Safety precautions

1. Definition for safety precautions

In this manual, safety precautions utilize signal words that are classified according to the level of risk and displayed as shown below. To ensure safety, understand the meanings of these signal words and follow all precautions.

Warning	Indicates a potential danger. If procedures and instructions are not followed, a serious accident causing death or severe injury could occur.	
Caution	If procedures and instructions are not followed, minor or moderate injury could occur.	
Notice	If the precaution indicated here is not followed, property damage or malfunction/shortened lifespan of the product, etc. could occur.	

2. General safety rules for rim handling

2. General safety rules for rim handling



- Safety shall be given the highest priority in all aspects of work <Safety First>.
- Before any work involving rim handling is carried out, use this manual to confirm the correct method of work as well as the precautions. Be aware of "what must be done" and "what must <u>not</u> be done" during the work.
- If there are any doubts about procedure or work safety while performing mounting, demounting, supplementing, removing, or fitting, suspend the work in progress immediately and seek the expert advice of a competent rim personnel.



3. Important warnings

3. Important warnings

Improper servicing of tyres and rims entails a serious risk of an "explosive separation of the rim", which can lead to serious, even fatal, accidents for the worker as well as to others in the vicinity. Workers and persons responsible for supervising the work must comply strictly with the following warnings.

3.1 Precautions for prevention of "explosive separation of rim components"

Warning

- When servicing tyres and rims, always start by completely deflating the tyre. Completely deflate the tyre, before removing it from the rim.
- Before removing tyre and rim from a vehicle, completely deflate the tyre before removing the clamp components and other parts installed in the rim base.
- Before servicing a tyre, remove the valve core to ensure that all of the air can escape.
- Identify the appropriate combination of rim components using the matching charts and product markings.
- If air pressure has fallen 80% below the pressure at the time of inflation, or the tyre has been punctured, dismantle the rim and determine the cause. After you determine the cause, replace any deformed or damaged rim components that may have caused air leaks.
- Until the above-mentioned checks have been performed, <u>DO NOT</u> inflate.
- DO NOT combine rim components from different manufacturers. There may be differences in terms of shape and other features between components from other companies and components manufactured by TOPY Industries (lock rings, rim bases, bead seat bands, side rings). Always make sure that components are not mixed by checking the manufacturer's markings prior to assembly.
- <u>DO NOT</u> use lock rings with open ends (ends that do not touch). There is a danger that the lock ring will not set correctly.
- <u>DO NOT</u> remove or install components or otherwise modify a rim in such a way that the product specifications are changed.
 <u>DO NOT</u> make modifications involving welding, heating, soldering, etc. Such modifications could lead

to the deformation as well as the deterioration of the strength and structural integrity of the rim components.

- When the tyre is being mounted, it is strictly forbidden to perform tasks that may generate heat, flames, or sparks such as welding, soldering or grinding. There is possibility to lead a explosion or a fire by excessive tyre pressure.
- Prior to inflation, it may be necessary to tap the rim components into position to set them. If it is, <u>DO</u>
 <u>NOT</u> use a steel mallet. Instead use a soft metal or hard plastic mallet. Use of a steel mallet could cause deformation or cracking of components.
- While inflating the tyre, when the air pressure reaches 35kPa (5psi), check whether the rim components are set correctly. If they are not set correctly, immediately stop the work in progress, deflate completely and disassemble the components. Inspect the component's mating surfaces and discard any components or materials that interfere with complete assembly. When the problem is resolved, resume assembly.
- \bullet <u>DO NOT</u> exceed the tyre pressure recommended by the tyre manufacturer.
- Tyre and rim assemblies should be stored so as to prevent unintended movement.
- Store inflated tyres in a manner in which they will not fall and cause accidents. Falling tyres can cause major accidents involving workers, and the impact from a significant fall could lead to the "explosive separation of rim components".
- Comply with the air pressure recommended by your tyre manufacturer. Do not exceed the standard air pressure without checking first with your TOPY rim dealer.



3. Important warnings

3.2 Precautions for reduction or prevention of injury, death or damage from explosive separation

- When inflating tyres, or when deflating tyres for tyre and rim servicing, workers must always be outside the range of the "hazardous trajectory" shown in the diagram below. Exercise extreme caution as the trajectory may widen.
- During inflation and deflation work, <u>DO NOT</u> allow other workers or third parties to approach the area surrounding the hazardous trajectory.





3. Important warnings

3.3 General precautions

- Handling of tyres and rims should be carried out only by workers who have received training and accreditation based on instruction from a qualified work supervisor.
- Check the "Tyre and Rim Handling Manual" published by the tyre manufacturer for information on work and inspections, etc. involving tyre handling.
- When lifting heavy components or equipment, make sure that you use suitable lifting equipment and that you follow the instructions in the manual for the equipment to be used.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure others in the vicinity.
- There are several types of tools for work involving tyre and rim handling. Be sure you have a proper understanding of how the tools are used and carry out the work in accordance with the proper procedures.
- Be sure to perform a visual examination of tyres and rims when conducting regular inspections of vehicles and tyres, or tyre rotations.
- Rim components that are deformed, bent, cracked, worn, corroded, or damaged should be clearly labeled to indicate their condition, and discarded.
- •Use tyres and rims suited to the vehicle, as specified by the vehicle manufacturer and tyre manufacturer.
- In the case of dual assemblies, <u>DO NOT</u> operate the vehicle on a single tyre as the load capacity of the tyre and rim will be drastically reduced and may result in damage.



4. Definitions of rim components

4. Definitions of rim components

4.1 Names and size specifications of rim components

Rims are classified according to the number of components. There are 3-piece and 5-piece rims.

Names and specifications of 3-piece rim components



Names and specifications of 5-piece rim components





4. Definitions of rim components

4.2 Names of rim components



Names of rim component involving an out board driver



Names of gutter section involving a lock ring driver



5. Markings

Markings clarify the specifications of the rim components.

Workers servicing tyres and rims must fully understand "5.1 Location of markings", "5.2 Composition of markings", as well as "5.3 Rim component specifications", and must confirm that the combination of rim components is correct.

Correct combinations (matching) of rim components are provided in "6. Matching charts". Workers servicing tyres and rims should check the markings on the combined rim components and confirm that the combination is correct using the matching chart.



5.1 Location of markings

Rim components manufactured by TOPY have markings in the areas shown below. The markings are positioned so they can be visually confirmed even after tyre assembly.





5.2 Composition of markings

Markings on TOPY rim components consist of [month & year of manufacture], [rim component specification], [TOPY (manufacturer)].

For details regarding the aforementioned [rim component specification], refer to "5.3 Rim component specifications".

Example of markings:	12-06	RM2957EU	ΤΟΡΥ
	[Month & year of manufacture]	[Rim component specification]	[Manufactured by TOPY]
	e.g. manufactured in Dec. 2006	e.g. rim base component, rim width 29 inches, rim diameter 57 inches EU type	

Composition of markings	Marking information
[Month & year of manufacture]	Indicates the month and year in which component was manufactured.
[Rim component specification]	Indicates the rim component specification (component category, size, type). Vital information for confirming combination (matching) of rim components.
[TOPY (manufacturer)]	All TOPY rim components are marked with "TOPY".

Note: The order of month and year of manufacture, rim component specification, and TOPY in the markings may vary.



5.3 Rim component specifications

When servicing tyres and rims, workers must use the matching charts below and the rim component specification to confirm that the combination of rim components is correct.

• If there are any doubts concerning the interpretation of rim component specifications, please contact your TOPY rim dealer.

Markings on [rim component specification] consist of	
[rim component category], [size], and [type].	

Please refer to "5.3.1 Rim component categories" and "5.3.2 Size and type of rim components" for details.

Example of rim component specification markings :	RM	2525	EM	
	[Rim component category]	[Size]	[Type]	

5.3.1 Rim component categories

The first 2 letters in the [rim component specification] markings indicate the "rim component" classification, as shown in the table below.

Marking	Rim component	Special comments
RM	Rim base	 ·RM may be omitted ·D or S might be used instead
LR	Lock ring	·Component of 3-piece and 5-piece rim
SR	Side ring	 Component of 3-piece and 5-piece rim
BB	Bead seat band (bead seat ring)	•Component of 5-piece rim



5.3.2 [Size] and [type] of rim components

Details regarding [size] and [type], which are important specifications for rim components, are described below for each rim component (rim base, lock ring, side ring, bead seat band).

Example of markings:	RM	2957	EU	
	[Component classification]	[Size]	[Type]	

[Component classification]

Various identification letters may be shown depending on detail product specifications.

[Size]

For both of the marking examples in the table below, the rim width and rim diameter are indicated in inches.

Example of [Size]	[Size]		Special commente	
markings	Rim width	Rim diameter	Special comments	
1949	First 2 digits (19) e.g. 19.5 inches	Next 2 digits (49) e.g. 49 inches	In the rim width markings shown below, digits following the decimal point are omitted. 11.25 inches : 11 19.50 inches : 19	
29.00×57	Numbers preceding "×" (29.00) e.g. 29 inches	Numbers following "×" (57) e.g. 57 inches	The order of rim width and rim diameter may vary. "-" may be shown instead of "x" Rim profile code may be shown following rim width. Rim flange height code may be shown following rim width with " / ".	

[Type]

Indicates the type of rim base and identifies the matching lock ring, bead seat band, and side ring.

See "6. Matching charts" for rim component combinations.

Additional letters may be shown depending on detail product specifications.

(2) Lock ring

Example of markings:	LR	57	EU	
	[Component classification]	[Size]	[Type]	

[Component classification]

Some lock ring may not show letters "LR".

[Size]

Indicates the rim diameter of the matching rim base in inches. Some lock ring may show applicable rim size.

[Type]

Indicates the type and identifies the matching rim base and bead seat band. See "6. Matching charts" for rim component combinations. Additional letters may be shown depending on detail product specifications.



(3) Bead seat band

Example of markings:	BB	7557	HS	
	[Component classification]	[Size]	[Type]	

[Size]

Indicates bead seat width and rim diameter of matching rim base in inches.

Example of [Size] markings	[Si	Special comments	
	Bead seat width	Rim diameter	Special comments
7557	First 2 digits (75) e.g. 7.5 inches	Next 2 digits (57) e.g. 57 inches	Decimal places are omitted from bead seat width

[Type]

Indicates the type and identifies the matching rim base, lock ring, and side ring. See "6. Matching charts" for rim component combinations.

Additional letters may be shown depending on detail product specifications.

(4)	Sid	e ri	ng
\' <i>\</i>	UIG	••••	

Example of markings:	SR	5063
	[Component classification]	[Size]

[Component classification]

Some products may not shown letters "SR" and/or additional identification letters may be shown depending on detail product specifications.

[Size]

Indicates flange height of side ring and rim diameter of matching rim base in inches.

Example of [Size]	[Si	Special comments	
markings	Flange height	Rim diameter	Special comments
5063	First 2 digits (50) e.g. 5.0 inches	Next 2 digits (63) e.g. 63 inches	Decimal places are omitted from flange height Size may be shown as rim diameter "-" or "/" and flange height. Some product may show rim size or rim size code. Some product may show rim flange code and diameter.

[Type]

Indicates the type and identifies the matching rim base and bead seat band. See "6. Matching charts" for rim component combinations.

Additional letters may be shown depending on detail product specifications. Some products may not have type letters.

*Special side ring – W type side ring

W type side rings are exclusively for EUW type rim bases and bead seat bands. The size is followed by a W or SW mark.

See "6. Matching charts" for rim component combinations.

Example of markings for W type side ring : SR 5063 W or SW



6. Matching charts

Correctly combining rim components is called "matching", and the tables of rim component combinations are called "matching charts".

In this manual, matching lock rings, bead seat bands, and side rings for each rim base type are shown in the matching charts.

Correctly combine (match) rim components according to the "matching charts" shown starting on the next page.

Warning

• Check the rim component markings and confirm that the combination of rim components is correct using the matching charts.

The wrong combination could cause "explosive separation of the rim" resulting in serious injury or death to workers and possibly bystanders.

- Confirm tyre and rim combinations with your tyre dealer or confirm using the specifications for tyres and rims.
- If there are any doubts concerning combinations or the matching charts, immediately suspend the work in progress and contact your TOPY rim dealer.



EUWA TYPE RIM (Rim diameter 63 inches Large base)

Rim size		Rim con	ponent, size and ty	ype (Typical identi	fication)
(Dia×width/ Flange height)		Rim base	Lock ring	Bead Seat Band	Side ring
63×36.00/5.0	53/80R63	D3663EUWA	LR63EUSB	BB7563HSW	SR5063SW
63×41.00/5.0	55/80R63	D4163EUWA	LR63EUSB	BB7563HSW	SR5063SW
	56/80R63				
63×44.00/5.0	59/80R63	D4463EUWA	LR63EUSB	BB7563HSW	SR5063SW

EUW TYPE RIM (Rim diameter 63 inches Standard base)

Rim size	Rim size Rim component, size and type (Typical identif			fication)	
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring
63×36.00/5.0	53/80R63	D3663EUW	LR63EUS	BB7563HSWI	SR5063SW
63×38.00/5.0	53/80R63	D3863EUW	LR63EUS	BB7563HSWI	SR5063SW
63×41.00/5.0	55/80R63	D4163EUW	LR63EUS	BB7563HSWI	SR5063SW
	56/80R63				
63×44.00/5.0	59/80R63	D4463EUW	LR63EUS	BB7563HSWI	SR5063SW

EU TYPE RIM (Rim diameter 63 inches)

Rim size	_	Rim con	nponent, size and t	ype (Typical identi	fication)
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring
63×41.00/5.0	55/80R63	D4163EU	LR63EU	BB7563HS	SR5063SB
	56/80R63				
63×44.00/5.0	59/80R63	D4463EU	LR63EU	BB7563HS	SR5063SB

EU TYPE (Rim diameter 57, 51 inches)

Rim size		Rim component, size and type (Typical identification)				
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring	
51×22.00/4.5	30.00R51	D2251EU	LR51EU	BB7551HS	SR4551	
51×24.00/5.0	33.00R51	D2451EU	LR51EU	BB7551HS	SR5051	
51×26.00/5.0	36.00R51	D2651EU	LR51EU	BB7551HS	SR5051	
51×40.00/4.5	50/65-51	D4051EU	LR51EU	BB7551HS	SR4551	
57×27.00/6.0	37.00R57	D2757EU	LR57EU	BB7557HS	SR6057	
57×29.00/6.0	40.00R57	D2957EU	LR57EU	BB7557HS	SR6057	
57×32.00/6.0	46/90R57	D3257EU	LR57EU	BB7557HS	SR6057	
57×34.00/6.0	50/80-57	D3457EU	LR57EU	BB7557HS	SR6057	
57×34.00/6.5	50/90-57	D3457EU	LR57EU	BB7557HS	SR6557	
57×36.00/6.0	52/80-57	D3657EU	LR57EU	BB7557HS	SR6057	
57×44.00/6.0	53.5/85R57	D4457EU	LR57EU	BB7557HS	SR6057	
	55.5/80R57					
57×47.00/6.0	60/80R57	D4757EU	LR57EU	BB7557HS	SR6057	

EUS TYPE (Rim diameter 57 inch for loaders)

Rim size		Rim component, size and type (Typical identification)			
(Dia $ imes$ width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring
57×32.00/6.0	46/90R57	D3257EU	LR57EUS	BB7557ES	SR6057
57×47.00/5.0	60/80R 57	D4757EU	LR57EUS	BB7557ES	SR5057
57×47.00/6.0	58/85-57	D4757EU	LR57EUS	BB7557ES	SR6057
57×52.00/6.0	65/65-57	D5257EU	LR1057EUS	BB1057ES	SR6057



EV, EVR TYPE (Rim diameter 49, 35, 33 inches)

Rim size		Rim con	nponent, size and t	ype (Typical identi	fication)
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring
33×13.00/2.5	18.00R33	D1333EV	LR33EV	BB5533EV	SR2533
33×15.00/3.0	21.00R33	D1533EV	LR33EV	BB5533EV	SR3033
33×28.00/3.5	35/65R33	D2833EV	LR33EV	BB5533EV	SR3533
35×15.00/3.0	21.00R35	D1535EV	LR35EV	BB5535EV	SR3035
35×17.00/3.5	24.00R35	D1735EV	LR35EV	BB5535EV	SR3535
49×17.00/3.5	24.00R49	D1749EV	LR49EV	BB5549EV	SR3549
49×19.50/4.0	27.00R49	D1949EV	LR49EV	BB5549EV	SR4049

EMV TYPE (Rim diameter 35, 33 inches)

Rim size		Rim con	nponent, size and t	ype (Typical identi	fication)
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring
33×13.00/2.5	18.00R33	D1333EM	LR33EM	BB5533EV	SR2533
33×28.00/3.5	35/65R33	D2833EM	LR33EM	BB5533EV	SR3533
35×15.00/3.0	21.00R35	D1535EM	LR35EM	BB5535EV	SR3035
35×17.00/3.5	24.00R35	D1735EM	LR35EM	BB5535EV	SR3535
35×31.00/4.0	39/65R35	D3135EM	LR35EM	BB5535EV	SR4035

ES TYPE (Rim diameter 45, 39 inches for loaders)

Rim size		Rim component, size and type (Typical identification)			
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring
39×32.00/4.5	45/65R39	D3239EMR	LR39ES	BB5539ES	SR4539
	41.25/70-39				
45×36.00/4.5	45/65-45	D3645EMR	LR45ES	BB5545ES	SR4545

EMR TYPE (Rim diameter 45, 39 inches)

Rim size		Rim component, size and type (Typical identification)				
(Dia $ imes$ width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring	
39×32.00/4.5	45/65R39	D3239EMR	LR39EM	BB5539EV	SR4539	
	41.25/70-39					
45×36.00/4.5	45/65-45	D3645EMR	LR45EM	BB5545EV	SR4545	

EM, EMH TYPE (Rim diameter 33, 29, 25 inches)

Rim size		Rim con	Rim component, size and type (Typical identification)				
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring		
25×11.25/2.0	16.00R25	D1125EM(D)	LR25EM(D)	BB4025EM(D)	SR2025		
25×13.00/2.5	18.00R25	D1325EM(D)	LR25EM(D)	BB4025EM(D)	SR2525		
25×14.00/2.0	17.5R25	D1425EM(D)	LR25EM(D)	BB4025EM(D)	SR2025		
25×15.00/3.0	21.00R25	D1525EM(D)	LR25EM(D)	BB4025EM(D)	SR3025		
25×17.00/2.0	20.5R25	D1725EM(D)	LR25EM(D)	BB4025EM(D)	SR2025		
25×19.50/2.5	23.5R25	D1925EM(D)	LR25EM(D)	BB4025EM(D)	SR2525		
25×22.00/3.0	26.5R25	D2225EM	LR25EM	BB5525EM	SR3025		
25×25.00/3.5	29.5R25	D2525EM	LR25EM	BB5525EM	SR3525		
29×25.00/3.5	29.5R29	D2529EM	LR29EM	BB5529EM	SR2529		
29×27.00/4.0	875/65R29	D2529EM	LR29EM	BB5529EM	SR4029		
33x×13.00/2.5	18.00R33	D1333EM	LR33EM	BB5533EM	SR2533		
33×28.00/3.5	35/65R33	D2833EM	LR33EM	BB5533EM	SR3533		



GR TYPE (Rim diameter 25 inch)

Rim size		Rim component, size and type (Typical identification)			
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	
25×10.00/1.5	14.00R25	25x10.00/1.5	LR25GR	SR25-15	
25×12.00/1.3	15.5R25	25x12.00/1.3A	LR25GR	SR1225A	
25×14.00/1.5	17.5R25	25x14.00/1.5	LR25GR	SR25-15	
25×17.00/1.7	20.5R25	25x17.00/1.7	LR25GR	SR1725-1.7	

TG Rim and Others (Rim diameter 25, 24 inches)

Rim size		Rim component, size and type (Typical identification)			
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	
24×8.00TG	13.00R24TG	8.00TGx24	LR8024	SR8024	
	14.00R24TG				
24×10.00VA	14.00R24TG	24x10.00VA	LR1024	SR1024	
	16.00R24TG				
25×12.00/1.3	15.5R25	12.00x25	LR1225	SR1225	

WI TYPE (Rim diameter 24, 20 inches)

Rim size		Rim component, size and type (Typical identification)			
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	
20×8.50V-W	12.00R20	W-20x8.50V	20x8.50V	W-Vx20	
20×10.00WI	14.00R20	20x10.00WI	20x10.00WI	SR20x10.00WI	
24×8.50V-W	12.00R24	W-24x8.50V	24x8.50V	W-Vx24	
24×10.00WI	14.00R24	24x10.00WI	24x10.00WI	SR24x10.00WI	

WI TYPE (Rim diameter 24, 20 inches for tubeless tyres)

Rim size		Rim componen	l identification)	
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band
20×10.00WI-T	14.00R20	20x10.00WI	LR20WIA-T	SR20WI-T
24×8.50V-W-T	12.00R24	W-24x8.50V	LR24WIA-T	SRWV24-T
24×10.00WI-T	14.00R24	24x10.00WI	LR24WIA-T	SR24WI-T



7. Examples of potentially hazardous matches

Warning

- If you are assembling these combinations, be especially careful. Incorrect assembly can result in serious injury or death.
- If you have any questions about safe combinations, stop working and contact your TOPY rim dealer.

(1) EUW, EU type rim with rim diameter 63 inches

The contact shapes of rim components (rim bases, lock rings, bead seat bands, side rings) for EUW type and EU type rims vary. Always make sure you assemble them correctly.

Diagrams showing the correct assembly of EUW type rim components and EU type rim components



Characteristics of EUS, EU type 63-inch rim diameter Verify the grooves and markings to distinguish between EUS and EU type lock rings

Rim type	EUS	type	EU type
Rim base diam eter	61"	60.5"	60.5"
Rim base	EUWA type	EUW type	EU type
Lock ring	LR63EUSB	LR63EUS	LR63EU
Bead seat band	BB7563HSWB	BB7563HSW	BB7563HS
Side ring	SB5063SW	SB5063SW	SB5063S
Lock ring Cross-sectional shape	Grooves for i	45°	
Marking	EUSB	EUS	EU



Rim size		Rin	Rim component, size and type (Typical identification)				
(Dia×width/ Flange height)	Typical Tyre	Rim base	Lock ring	Bead Seat Band	Side ring		
EUW(60.5")	EU	D4463EU	LR63EU	BB7563HS	SR5063SB		
	EUW	D36.00x63 EUWAIR	LE63EUS	BB7563HSWA	SR5063SWB		
		SRM36.00x63EUWIR	LR63EUSH	BB7563HSWFI	SR5063SWB		
		S36.00x63EUW AC STS	LR63EUS2	BB7563HSWI	SR5063SWB		
		D4163EUW	LR63EUSA	BB7563HSW	SR5063SWB		
		D41.00x63EUW STS	LR63EUS2	BB7563HSWA	SR5063SWBT		
		D44.00x63EUWIR	LE63EUS	BB7563HSWVI	SR5063SWD		
EUWA(61")	EUWA	D3663EUWA	LR63EUSBH	BB7563HSWBA	SR5063SWB		
		RM44.00x63EUWA IP	LR63EUSBH	BB7563HSWCA	SR5063SWBT		
		RM44.00x63EUWA FP	LR63EUSBH	BB7563HSWHI	SR5063SWBT		
		D44.00x63EUWA IP	LR63EUSBH	BB7563HSWCA	SR5063SWBT		
		D4463EUWA SSS	LR63EUSBH	BB7563HSWCA	SR5063SWBT		

Examples of name (Stamp) of 63" rim and components



- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts.
- Incorrect assembly could lead to a fatal accident. Always verify the compatibility of components before assembling.
- Lock ring ends should not touch after assembled.



(2) Rim base and lock ring combination

For rim diameters 63, 57, 51 inches

On gutters of EU type and EJ type rim bases, or on gutters of other manufacturers rim base, the shape of the lock ring groove differs. Ensure that they are combined with the correct lock ring.



* PHASE II: PHASE II is manufactured by another company. As far as TOPY Industries is aware of, this is the current name by which this lock ring is referred to in the industry. Please note that the name and/or shape may change in the future.

- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts.
- <u>NEVER</u> mix TOPY rim components with PHASE II type rim components manufactured by another company. Incorrect assembly could lead to a serious injury or death. Always verify the compatibility of components before assembling.



(2) Rim base and lock ring combination (cont'd)

For rim diameter 49, 35, 33 inches

On gutter of EV type and EM type rim bases, the shape of the lock ring groove differs. Make sure that they are combined with the correct lock ring.



- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts.
- Incorrect assembly could result in serious injury or death. Always verify the compatibility of components before assembling.



(3) Lock ring and bead seat band combination

For rim diameter 63,57,51 inches

On EUS type and EU type lock rings, or on lock rings of other manufacturers, the contact angle with the bead seat band differs. Make sure that they are combined with the correct bead seat band.



* TSR : TSR is made by another company. As far as TOPY Industries is aware of, this is the current name which this part is referred in the industry. Please note that the name and/or shape may change in the future.

Characteristic of EUS, EU type lock ring and bead seat band

Pim Type	EUG	EU
Кіштуре	EUS	EO
Lock ring	EUS type	EU type
Bead seat band	HSW type, ES type	HS type
Lock ring and bead seat band contact angle	35 degree	45 degree
Lock ring cross-sectional shape	Grooves for identification	



- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts.
- Incorrect assembly could result in serious injury or death. Always verify the compatibility of components before assembling.



(3) Lock ring and bead seat band combination (cont'd)

For rim diameters 49",45,39,35,33 inches

On EV type, EM type and ES type lock rings, the contact angle and/or retaining mechanism with the bead seat band differs. Make sure that they are combined with the correct bead seat band.



Characteristic of EV, EM and ES type lock ring and bead seat band

Rim Type	EV	EMV	EM	ES
Lock ring	EV type	EM type	EM type	ES type
Bead seat band	EV type	EV type	EM type	ES type
LR and BB contact angle	45 degree	45 degree	45 degree	35 degree
Lock ring cross-sectional shape		45°		35°
Bead seat band cross-sectional shape		45°		35°

- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts.
- Incorrect assembly could lead result in serious injury or death. Always verify the compatibility of components before assembling.



(4) Facing of lock ring

The correct installation of the locking ring can only be achieved if the markings on the locking ring can be seen before, during, and after installation.

If the locking ring is installed back to front it will not interface properly with the gutter band and there is a risk of the locking ring dislodging under pressure.

<Typical example> For WI type lock ring



- Prior to installing the locking ring, confirm that the locking marking is visible so that the installation can be carried out correctly.
- If the locking ring is installed back to front, the markings are not visible, and continuing assembly could result in an explosion and serious injury or death.



8. Procedures for servicing tyres and TOPY rims

8. Procedures for servicing tyres and TOPY rims

- Servicing tyres and rims can be very dangerous. Failing to heed the warnings could result in serious injury or death.
- Servicing of tyres and rims should be carried out only by workers who have received adequate training from a qualified supervisor on safe handling of tyres and rims. This training must include reading this manual completely.
- Tyres should be deflated while standing outside the range of the "hazardous trajectory" shown by the arrows in the diagram below. Exercise extreme caution as the direction of the trajectory may widen.
- While deflating, <u>DO NOT</u> allow other workers or third parties to approach the area of the trajectory.
- Check the "Tyre and Rim Handling Manual" published by the tyre manufacturer for information on work and inspections, etc. involving tyre handling.
- There are several types of tools for servicing work. Be sure you have a proper understanding of how the tools are used and carry out the work in accordance with the proper procedure.
- Ensure that protective equipment is worn when servicing tyres and rims. (Wear gloves, safety shoes, safety glasses, face protection, earplugs, hard hat, etc.)
- If there are any doubts during demounting, mounting, or inflating tyres and rims, immediately stop the work in progress and seek instruction from a supervisor.





[Required tools]

- •Valve tool •Wire for valve cleaning •Wire brush
- •Tyre lever for tyre mount/demount (confirm specifications of tool type with your tyre dealer) •Lifting equipment (crane, chains, nylon sling, forklift, tyre handler, etc.)
- Release all air

① Prior to demounting tyre from rim, release all air by removing the valve core housing with the valve tool.



- First, remove the valve core and release all air from the tyre.
- Be aware of the trajectory of the valve core as it may shoot out during its removal.
- If there is any foreign matter inside the valve, the air will not be released. Insert wire, etc. into the valve to clear away foreign matter.
- When removing tyre and rim from a vehicle, prior to removing the parts (clamps, nuts, etc.), secure the rim base accessories (extension valve fixing brackets, etc.) and rim base to the vehicle and release all air from the tyre.
- When demounting outer tyres and rims of dual assemblies, make sure you release all air from the inner tyres as well.
- Tyres should be deflated outside the range of the "hazardous trajectory" shown by the arrow in the diagram below. Exercise extreme caution as the range of the trajectory may widen.
- During deflation work, <u>DO NOT</u> allow other workers or third parties to approach the area of the trajectory.
- When releasing air, stand in a safe location as foreign matter or frozen particles inside tyre might be discharged.
- Do not allow high pressure air to hit skin.





UP

Set up the tyre and rim

 After fully releasing the air, place the tyre and rim on the ground with the gutter side facing up.



Warning

- Because this work involves handling heavy items, where necessary, you must use appropriate lifting equipment.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



Detach tyre bead seat from side ring

 Insert the tyre lever between the tyre bead and the side ring. Unseat the bead from the side ring by using the lever to push the tyre down around the entire circumference.





When mounting and demounting tyres, maintain a firm grip on the tyre lever as it may jerk loose and cause injury.



Remove lock ring

STEP

- ①Use the tyre lever to lift one end of the locking ring from the locking ring groove.
- With a second tyre lever continue to dislodge the locking ring around the circumference of the rim until the locking ring is free from the assembly.





- Discard lock rings with open ends (ends aren't touching) as they will not set correctly (see above) and could result in serious injury or death.
- When removing the lock ring, <u>DO NOT</u> spread the ends excessively as they will no longer touch and will have to be discarded.
- Keep fingers away from lock ring.
- Be careful when removing the lock ring as it may literally fly off as it is being freed.
- Maintain a firm grip on the tyre lever as it may be thrown and cause injury.





Remove O-ring

①Use the tyre lever to push down on the side ring so that the O-ring may be removed. Remove the O-ring.





- Keep fingers away from side ring.
- When mounting and demounting tyres, maintain a firm grip on the tyre lever as it may be jerk loose and cause injury.

Notice

Once used, O-rings become deformed and can result in air leaks. Used O-rings should be cut and discarded.

Remove side ring

1 Use the tyre lever to remove the side ring.



- Keep fingers away from side ring.
- When mounting and demounting tyres, maintain a firm grip on the tyre lever as it may be jerk loose and cause injury.
- Be careful not to drop components on your feet.



Turn over tyre and rim

①Use lifting equipment to turn over the tyre and rim, and place them on the ground.





STEP

- Because this work involves handling heavy items, where necessary, you must use appropriate lifting equipment.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.

Detach tyre bead from rim base, and remove rim base.

- ①As in Step 3, insert the tyre lever between the tyre bead and the rim base.
- Push down the tyre around the entire circumference, and detach tyre bead from the rim base.
- **3** Remove the rim base.

STEP



- Because this work involves handling heavy items, where necessary, you must use appropriate lifting equipment.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.
- Be careful not to get your fingers caught.
- When mounting and demounting tyres, maintain a firm grip on the tyre lever as they may jerk loose and cause injury.



[Required tools]

- •Valve tool •Wire for cleaning valve core •Tyre seating blocks
- •Tyre lever for tyre mount/demount (confirm specifications of tool type with your tyre dealer) •Soft metal or hard plastic hammer (not steel)
- •Lifting equipment (crane, chains, nylon sling, forklift, tyre handler, etc.)
- •Lubricant for tyre mounting (product recommended by tyre dealer)
- •Wire brush •Air gauge •Air chuck



Confirm tyre and rim component combination

 ${f I}$ Check tyre size and markings on rim base, and make sure that the combination is correct.

(2) Check markings on rim components and matching charts, and make sure that the combination is correct.

Warning

- Confirm tyre and rim combinations with your tyre dealer or confirm using the specifications for tyres and rims.
- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts. The wrong combination could cause "explosive separation of the rim" resulting in severe injury or death to workers and bystanders.
- <u>DO NOT</u> combine TOPY rim components with rim components manufactured by other companies.
- If there are any doubts concerning combinations or matching charts, immediately suspend the work in progress and contact your TOPY rim dealer.



Clean rim components and check condition

- Clean rim components with a wire brush so that examination, maintenance, and mounting can be done correctly.
- Check that there is no deformation, bent, cracking, wear, corrosion, or damage on the rim components.



Warning

- Discard any rim components that are deformed, bent, cracked, weared corroded, or damaged, or are suspected of being so, and replace them with undamaged components.
- Discard any lock rings with open ends (ends aren't touching).
- <u>DO NOT</u> make modifications that change the product specifications.
- <u>DO NOT</u> make modifications involving welding, heating, soldering, etc. Such modifications could lead to the deformation as well as the deterioration of the strength and structural integrity of the rim components.

Notice

If there's any foreign matter, etc. adhering to the lock ring grooves on the rim base or to O-ring grooves, proper assembly will not be possible and air leaks will occur. Make sure all grooves are clean before assembly.



Recoat

① Recoat any areas where the anti-corrosive oil or paint is peeling.

L Caution

- Anti-corrosive oil and paint may contain toxic ingredients. Follow any safety instructions provided by the manufacturers of the anti-corrosive oil or paint.
- Depending on the vehicle, some parts have certain areas that may be uncoated in order to prevent loosening of parts attaching the rim base to the vehicle (clamps, nuts, etc.) and slipping of rim components, etc. If you're not sure, check with the vehicle manufacturer or your TOPY rim dealer.

Set up rim base and install valve

①Place rim base on rim base stand with gutter side up.

2 Install valve.

STEP



Warning

- Because this work involves handling heavy items, where necessary, you must use appropriate lifting equipment.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.
- For valve selection and installation, follow instructions in the manuals provided by your tyre dealer and valve manufacturer. If in doubt, contact the dealer or manufacturer for guidance.



1 Confirm absence of tyre defects.



• Check with tyre dealer to confirm that there are no tyre defects. Using defective tyres could result in tyre failure while you are mounting the tyre and rim or during use, resulting in tyre separation and possible severe injury or death.



Mount tyre on rim base

- Apply a vegetable oil-based lubricant to both tyre bead seats.
- **2** Place tyre on rim base.



Notice

- <u>DO NOT</u> apply tyre lubricant to areas other than where the rim components come in contact with the tyre. Doing so could cause circumferential slippage between rim components when the vehicle is being driven.
- Consult your tyre dealer when selecting tyre lubricant.

Warning

- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



1 Insert side ring into rim base and fit edge section to tyre bead.





• Keep fingers away from side ring.





①Apply lubricant to new O-ring and install it in the O-ring groove.





• Keep fingers away from side ring.

Notice

• Check with your tyre dealer for O-ring specifications or when selecting lubricant.

•Be careful not to twist the O-ring.



Fit lock ring

- ① Place the end of the lock ring into the lock ring groove in the rim base. Use the tyre lever to successfully install the lock ring around the entire circumference.
- Starting opposite the locking ring gap, lightly tap the locking ring with a soft metal or hard plastic hammer in both directions back to the locking ring gap to ensure the locking ring is clamped into the locking ring groove.







Warning

- $\bullet \underline{\text{DO NOT}}$ use lock rings with open ends (ends aren't touching).
- Check the facing of the lock ring. The lock ring is installed correctly if its markings are visible after tyre assembly.
- <u>DO NOT</u> use a steel mallet.

! Caution

- Be careful when handling the lock ring as it may fly off.
- Be careful not to get your fingers caught.



STEP

Confirm that rim components are assembled correctly

 ${f 0}$ Make sure the combinations (matching), facings, and positions of rim components are correct.

Warning

- Recheck the tyre and rim component combinations (matching) and make sure they are correct.
- Recheck the facing of the lock ring and make sure it is installed correctly and is securely in the lock ring groove.
- <u>DO NOT</u> inflate, hammer, weld or solder to position the rim components. Doing so can lead to the deformation as well as the deterioration of the strength and structural integrity of the rim components.



Inflating the tyre and rim

- Wherever possible, place tyre and rim inside a tyre inflation safety cage, then inflate tyre. During inflation, keep away from the tyre.
- (2) When tyre has been inflated to a pressure of approximately 35kPa (5psi), check assembly of tyre and rim components.
- (3) If assembled correctly, continue inflating up to the rated value.



Warning

If assembly has been done incorrectly, inflation could result in an explosive separation of the rim. This separation could result in serious injury or death to you or bystanders. Workers and persons responsible for supervising the work must comply strictly with the following warnings.

- Wherever possible, ensure that the work is carried out with the tyre inside a tyre inflation safety cage.
- While inflating, workers and bystanders must always be outside the range of the "hazardous trajectory". Exercise extreme caution as the trajectory may widen.
- During inflation, use an air pressure gauge and regulator valve.
- To ensure that the worker inflating the tyre can remain outside of the "hazardous trajectory", use an air pressure gauge and a hose of adequate length, and use an air chuck.
- During inflation, <u>DO NOT</u> allow the air pressure to exceed the pressure recommended by tyre manufacturer.
- If you notice a mistake in the assembly, immediately stop inflation, release the air, and reassemble the tyre and rim components.
- <u>NEVER</u> attempt to position the rim components by inflating the tyre.
- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.
- Lay the assembled and inflated tyre rim so it is flat and stable and not subject to impacts.

Notice

In order to prevent corrosion of the rim components, inflate tyres with dry air.



[Required tools]

- •Valve tool •Wire for valve cleaning
- •Tyre lever for tyre mount/demount (confirm specifications of tool type with your tyre dealer)
- •Lifting equipment (crane, chains, nylon sling, forklift, tyre handler, etc.)
- •Hydraulic bead breaker

Release all air

① Prior to demounting tyre from rim, release all air by removing the valve core housing with the valve tool.



- First, remove the valve core and release all air from the tyre.
- Be aware of the trajectory of the valve core as it may shoot out during its removal.
- If there is any foreign matter inside the valve, the air will not be released. Insert wire, etc. into the valve to clear away foreign matter.
- When removing tyre and rim from a vehicle, prior to removing the parts (clamps, nuts, etc.), secure the rim base accessories (extension valve fixing brackets, etc.) and rim base to the vehicle and release all air from the tyre.
- •When demounting outer tyres and rims of dual assemblies, make sure you release all air from the inner tyres as well.
- •Tyres should be deflated outside the range of the "hazardous trajectory" shown by the arrow in the diagram below. Exercise extreme caution as the range of the trajectory may widen.
- •During deflation work, <u>DO NOT</u> allow other workers or third parties to approach the area of the trajectory.
- When releasing air, stand in a safe location as foreign matter or frozen particles inside tyre might be discharged.
- Do not allow high pressure air to hit skin.





UP

Set up tyre and rim

 After fully releasing the air, place the tyre and rim on the ground with the gutter side facing up.

STEP

STEP





Warning

- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.

Unseat the tyre bead from the bead seat band

- **1** Mount bead breaker on bead seat band.
- Operate the bead breaker, push down the side ring, and unseat the tyre bead from the bead seat band.



Caution

- Be careful not to get your fingers caught.
- When loading using the bead breaker, stand to one side and carry out the work carefully as the bead breaker could fly off.
- <u>DO NOT</u> apply tools to welded areas of the bead seat band, side ring, or rim base. If welds are damaged, discard the component.
- When handling the bead breaker, refer to the instructions provided by the manufacturer.





①For rims fitted with a driver key, remove the driver key.





Be careful not to get your fingers caught.

Remove lock ring

- ①Use a tyre lever to force the bead seat band free from the locking ring.
- **(2)** Use the tyre lever to leave out one end of the locking ring from the locking groove.
- (3) With a second tyre lever, continue to dislodge the locking ring around the circumference of the rim until the locking ring is free from the assembly.





- Discard lock rings with open ends (ends aren't touching) as they will not set correctly (see above) and could result in serious injury or death.
- When removing the lock ring, <u>DO NOT</u> spread the ends excessively as they will no longer touch and will have to be discarded.
- Keep fingers away from lock ring.
- Be careful when removing the lock ring as it may literally fly off as it is being freed.
- Maintain a firm grip on the lever tools as they may jerk loose and cause injury.





Remove O-ring

- ①Use the tyre lever to push down on the bead seat band so that the O-ring is freed.
- 2 Remove O-ring.





- Be careful not to get your fingers caught.
- When mounting and demounting tyres, maintain a firm grip on the tyre lever as they may jerk loose and cause injury.

Notice

Once used, O-rings become deformed and can result in air leaks. Used O-rings should be cut and discarded.

Remove bead seat band

①Use lifting equipment to raise and remove the bead seat band.



- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



Remove side ring

1 Use lifting equipment to remove the side ring.





- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



①Use lifting equipment to turn over the tyre and rim, and place them on the ground.



- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



Unseat the tyre bead from the rim base

1 Mount bead breaker on rim base.

STEP

② As in Step 3, operate the bead breaker, push down the side ring, and unset the tyre bead from the bead seat band.



! Caution

- Be careful not to get your fingers caught.
- When loading using the bead breaker, stand to one side and carry out the work carefully as the bead breaker could fly off.
- <u>DO NOT</u> apply tools to welded areas of the bead seat band, side ring, or rim base. If welds are damaged, discard the component.
- When handling the bead breaker, refer to the instruction provided by the manufacturer.



①Use the lifting equipment to remove the rim base.





- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.





Remove side ring

1 Use the lifting equipment to remove the side ring.



- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving tyres and rims, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



[Required tools]

- •Valve tool •Wire for cleaning valve core •Tyre seating blocks
- •Tyre lever for tyre mount/demount (confirm specifications of tool type with your tyre dealer) •Soft metal or hard plastic hammer (Not steel)
- •Lifting equipment (crane, chains, nylon sling, forklift, tyre handler, etc.)
- •Lubricant for tyre mounting (product recommended by tyre dealer)
- •Wire brush •Air gauge •Air chuck



Confirm tyre and rim component assembly

 ${f I}$ Check tyre size and markings on rim base, and make sure that the combination is correct.

(2) Check markings on rim components and matching charts, and make sure that the combination is correct.

Warning

- Confirm tyre and rim combinations with your tyre dealer or confirm using the specifications for tyres and rims.
- Check the rim component markings and confirm that the combination of rim components is correct using the matching charts. The wrong combination could cause "explosive separation of the rim" resulting in severe injury or death to workers and bystanders.
- <u>DO NOT</u> combine TOPY rim components with rim components manufactured by other companies.
- If there are any doubts concerning combinations or matching charts, immediately suspend the work in progress and contact your TOPY rim dealer.



Clean rim components and check condition

- Clean rim components with a wire brush so that examination, maintenance, and mounting can be done correctly.
- Check that there is no deformation, bent, cracking, wear, corrosion, or damage on the rim components.



L Warning

- Discard any rim components that are deformed, bent, cracked, corroded, weared or damaged, or are suspected of being so, and replace them with undamaged components.
- Discard any lock rings with open ends (ends aren't touching).
- <u>DO NOT</u> make modifications that change the product specifications.
- <u>DO NOT</u> make modifications involving welding, heating, soldering, etc. Such modifications could lead to the deformation as well as the deterioration of the strength and structural integrity of the rim components.

Notice

If there's any foreign matter, etc. adhering to the lock ring grooves on the rim base or to 0-ring grooves, proper assembly will not be possible and air leaks will occur. Make sure all grooves are clean before assembly.



Recoat

① Recoat any areas where the anti-corrosive oil or paint is peeling.

! Caution

- Anti-corrosive oil and paint may contain toxic ingredients. Follow any safety instructions provided by the manufacturers of the anti-corrosive oil or paint.
- Depending on the vehicle, some parts have certain areas that may be uncoated in order to prevent loosening of parts attaching the rim base to the vehicle (clamps, nuts, etc.) and slipping of rim components, etc. If you're not sure, check with the vehicle manufacturer or your TOPY rim dealer.

Set up rim base and install side ring

 $\ensuremath{\textcircled{}}$ Place rim base on rim base stand with gutter side up.

2 Install the side ring.

STEP



Warning

• Because this work involves handling heavy items, correctly use lifting equipment when necessary.

• When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



1 Install valve.

Warning

• For valve selection and installation, follow instructions in the manuals provided by your tyre dealer and valve manufacturer. If in doubt, contact the dealer or manufacturer for guidance.



Confirm absence of tyre defects

1 Confirm absence of tyre defects.

STEP

Warning

• Check with tyre dealer to confirm that there are no tyre defects. Using defective tyres could result in tyre failure while you are mounting the tyre and rim or during use, resulting in tyre separation and possible severe injury or death.



- ①Apply a vegetable oil-based lubricant to both tyre bead seats.
- **2** Place tyre on rim base, and assemble.



Notice

 <u>DO NOT</u> apply tyre lubricant to areas other than where the rim components come in contact with the tyre. Doing so could cause circumferential slippage between rim components when the vehicle is being driven.
 Consult your tyre dealer when selecting tyre lubricant.



- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



Fit side ring

1 Fit the side ring.





- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.



Install bead seat band

1 Insert bead seat band into side ring and rim base.

(2) Use the tyre lever to push in the bead seat band so that its edge fits with the tyre bead.

*Use in conjunction with auxiliary equipment (tyre handler, crane, press machine, etc.), when necessary.





- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.
- If a mallet is used to aid in pressing down on the bead seat band, make sure you use soft metal or hard plastic hammer.
- <u>DO NOT</u> use a steel mallet.
- Insert the bead seat band carefully. Failure to keep the bead seat band horizontal during insertion will damage the inner surface.





①Apply lubricant to new O-ring and install it in the O-ring groove.





• Be careful not to get your fingers caught.

Notice

- Check with your tyre dealer for O-ring specifications or when selecting lubricant.
- \bullet Be careful not to twist the 0-ring.



Fit lock ring

- ① Place the ends of the lock ring into the lock ring groove in the rim base. Use the tyre lever to successfully install the lock ring around the entire circumference.
- Starting opposite the locking ring gap, lightly tap the locking ring with a soft metal or hard plastic hammer in both directions back to the locking ring gap to ensure the locking ring is clamped into the locking ring groove.







Warning

- <u>DO NOT</u> use lock rings with open ends (ends aren't touching).
- Check the facing of the lock ring. The lock ring is installed correctly if its markings are visible after tyre assembly.
- <u>DO NOT</u> use a steel mallet.

Caution

- \bullet Be careful when handling the lock ring as it may fly off.
- Be careful not to get your fingers caught.





①For rims set with a driver key, install the driver key.





• Be careful not to get your fingers caught.

Confirm that rim components are assembled correctly

① Make sure that the combinations (matching), facings, and positions of rim components are correct.

- Recheck the tyre and rim component combinations (matching) and make sure they are correct.
- Recheck the facing of the lock ring and make sure it is installed correctly and is securely in the lock ring groove.
- <u>DO NOT</u> inflate, hammer, weld or solder to position the rim components. Doing so can lead to the deformation as well as the deterioration of the strength and structural integrity of the rim components.



Inflating the tyre and rim

- Wherever possible, place the tyre and rim inside a tyre inflation safety cage, then inflate tyre. During inflation, keep away from the tyre.
- When tyre has been inflated to a pressure of approximately 35kPa (5psi), check assembly of tyre and rim components.
- (3) If assembled correctly, continue inflating up to the rated value.

Tyre inflation safety cage



Warning

If assembly has been done incorrectly, inflation could result in an explosive separation of the rim. This separation could result in serious injury or death to you or bystanders.

Workers and persons responsible for supervising the work must comply strictly with the following warnings.

- Wherever possible, ensure that the work is carried out with the tyre inside a tyre inflation safety cage.
- While inflating, workers and bystanders must always be outside the range of the "hazardous trajectory". Exercise extreme caution as the trajectory may widen.
- During inflation, use an air pressure gauge and regulator valve.
- To ensure that the worker inflating the tyre can remain outside of the "hazardous trajectory", use an air pressure gauge and a hose of adequate length, and use an air chuck.
- During inflation, <u>DO NOT</u> allow the air pressure to exceed the pressure recommended by your tyre manufacturer.
- If you notice a mistake in the assembly, immediately stop inflation, release the air, and reassemble the tyre and rim components.
- <u>NEVER</u> attempt to position the rim components by inflating the tyre.
- Because this work involves handling heavy items, correctly use lifting equipment when necessary.
- When moving rim components, be careful to avoid accidental drops or falls that could injure you or others in the vicinity.
- Lay the assembled and inflated tyre rim so it is flat and stable and not subject to impacts.

Notice

In order to prevent corrosion of the rim components, inflate tyres with dry air.



8.5 Checkpoint of servicing tyres and rims when rim remains installed on vehicle

If servicing tyre and rim when the rim remains installed on the vehicle, be sure to comply strictly with the following points.

Release all air from the tyre





- Ensure that the power is off and vehicle is blocked so it can't move.
- When jacking up the vehicle during tyre and rim servicing work, carefully read the vehicle manufacturer's instruction manual and make sure that all protective measures are in place to prevent the vehicle or jack from moving.
- Remove the valve core and release all air from the tyre.
- Be aware of the trajectory of the valve core as it may shoot out during its removal.
- If there is any foreign matter inside the valve, the air will not be released. Insert wire, etc. into the valve to clear away foreign matter.
- Before removing rim base accessories (extension valve fixing brackets, etc.), remove all air from the tyre.
- When removing the outer tyre and rim of dual assemblies, also fully release the air from the inner tyre.
- Tyres should be deflated outside the range of the "hazardous trajectory" shown by the arrow in the diagram below. Exercise extreme caution as the range of the trajectory may widen.
- During deflation work, <u>D0 NOT</u> allow other workers or third parties to approach the area of the trajectory.
- When releasing air, stand in a safe location as foreign matter or frozen particles inside type might be discharged.
- Do not allow high pressure air stream to hit skin.





8.5 Checkpoint of servicing tyres and rims when rim remains installed on vehicle

Mount bead breaker securely

Warning

• When the bead breaker is to be pressed against part of the vehicle, follow the instructions and manual published by the vehicle manufacturer for the pressing location, and mount the bead breaker as instructed. Damage to vehicle components and the bead breaker falling due to coming loose can be extremely dangerous.



POINT

Protection against explosive separation of tyre and rim components



- Always work outside the range of the "hazardous trajectory" shown in the diagram below. Exercise extreme caution as the range of the trajectory may widen.
- During work, <u>DO NOT</u> allow other workers or third parties to approach the area near the hazardous trajectory.
- "Explosive separation of the rim" could cause severe injury, not just to workers but also to bystanders in the vicinity.
- When servicing tyres still on the vehicle, take protective measures against the hazardous trajectory, such as using the crane arm or tyre handler.





9. Maintenance

Comply with the warnings and precautions given here, in order to fully utilize the performance of tyres and rims when used with industrial and construction vehicles, and to prevent accidents during maintenance, servicing, and operation.

- Maintenance work should be carried out only by workers who have received adequate training from a qualified supervisor on safe handling of tyres and rims.
- During maintenance work, <u>DO NOT</u> allow other workers or third parties to approach the area near the hazardous trajectory.
- Check the "Tyre and Rim Handling Manual" published by the tyre manufacturer for information on work and inspections, etc. involving tyre handling.
- Be sure you have a proper understanding of how the tools are used and carry out the work in accordance with the proper procedure.
- Ensure that protective equipment is worn during maintenance work. (Wear gloves, safety shoes, safety glasses, face protection, earplugs, hard hat, etc.)
- Refer to "8. Procedures for tyre and rim servicing" of this manual for performing servicing and maintenance work on tyres and rims.
- When performing maintenance with the tyre and rim installed on a vehicle, ensure that the power is off and vehicle is blocked so it can't move during maintenance.
- When jacking up the vehicle during tyre and rim servicing work, etc., carefully read the vehicle manufacturer's instruction manual and make sure that all protective measures are in place to prevent the vehicle or jack from moving.
- Record rim maintenance history because it is a vital reference in safe application.



9.1 Regular inspection checkpoints

The following is an explanation of regular inspections performed with the tyre mounted on the rim.

Warning

- During tyre inspections, check that there is no cracking, wear, or deformation etc. on the rim components. Conduct a thorough inspection of the gutter section and back flange section, indicated by the red circle in the diagram below. The diagram below also shows check points for "9.2 inspections when servicing tyres and rims".
- •Conduct daily inspections in order to maintain the performance and the safety of tyres and rims.
- When servicing tyres, make sure that inspections are performed in accordance with "9.2 Inspections when servicing tyres and rims".

Notice

Before starting maintenance work, it is recommended that tyre pressure records are updated to ensure early detection of air leaks which may be caused by cracks in rim components.





9.2 Inspections when servicing tyres and rims

9.2.1 Ensuring safety when servicing tyres and rims



9.2.2 Cleaning prior to inspection

Cleaning rim components using a wire brush makes examination and tyre installation easier. Pay particular attention to cleaning the O-ring grooves and lock ring grooves on the gutter.



9.2 inspections when servicing tyres and rims

9.2.3 Inspection

Perform inspections based on the check methods and checkpoints presented in the tables that follow.

Warning

• Perform inspections based on the check methods and checkpoints in the tables below.

• For tyre inspections, check the "Tyre and Rim Handling Manual", published by the tyre manufacturer.



			Checkpoint				
Inspected part	Check method	Cracking	Wear	Deformation/ Ellipse	Corrosion	Surface roughness	
O_ring groovo	Visual inspection	0			0	0	
U-Thig grouve	Non-destructive inspection	0					
Lock ring groove	Visual inspection	0	0		0	0	
LUCK TING GIOUVE	Non-destructive inspection	0					
Contact zone with side	Visual inspection	0	0		0	0	
ring	Non-destructive inspection	0					
Raco R nart	Visual inspection	0	0		0	0	
	Non-destructive inspection	0					
Rim circumference	Visual inspection	0					
weld zone	Non-destructive inspection	0					
Valve hole	Visual inspection	0			0		
	Non-destructive inspection						
Disc weld zone	Visual inspection	0					
	Non-destructive inspection	0					
Disc halt hales	Visual inspection	0	0	0			
	Non-destructive inspection						
Contact zone with tyre	Visual inspection		0		0		
bead	Non-destructive inspection						
Tire side outer surface	Visual inspection				0		
	Non-destructive inspection						
Weld zone for	Visual inspection	0					
accessories	Non-destructive inspection						

Note: Non-destructive inspections include magnetic particle inspections, ultrasonic inspections, and dye penetrant inspections, etc.

* Always verify the actual product for the weld zones of rim components as they vary by type.



9.2 Inspections when servicing tyres and rims

For 3-piece rims For 5-piece rims Contact zone with side ring Contact z

Lock ring inspections

Contact zone with gutter section

Contact zone with gutter section

		Checkpoint					
Inspected part	Check method	Cracking	Wear	Deformation/ Ellipse/ Spread Edges	Corrosion	Surface roughness	
Contact zone with bead seat band or side ring	Visual inspection	0	0			0	
	Non-destructive inspection						
Contact zone with gutter of rim base	Visual inspection	0	0		0	0	
	Non-destructive inspection						
Overall form	Visual inspection			0			
	Non-destructive inspection						

Note: Non-destructive inspections include magnetic particle inspections, ultrasonic inspections, and dye penetrant inspections, etc.



9.2 Inspections when servicing tyres and rims

Bead seat band inspections



Contact zone with lock ring

Inspected part	Check method	Checkpoint					
		Cracking	Wear	Deformation/ Ellipse	Corrosion	Surface roughness	
Base R part	Visual inspection	0	0		0	0	
	Non-destructive inspection	0					
Contact zone with side ring	Visual inspection	0	0		0	0	
	Non-destructive inspection	0					
Contact zone with lock ring	Visual inspection	0	0			0	
	Non-destructive inspection						
Contact zone with tyre bead	Visual inspection		0		0		
	Non-destructive inspection						
Inner and outer surface	Visual inspection				0		
	Non-destructive inspection						
Overall form	Visual inspection			0			
	Non-destructive inspection						
Weld zone for accessories	Visual inspection	0					
	Non-destructive inspection						

Note: Non-destructive inspections include magnetic particle inspections, ultrasonic inspections, and dye penetrant inspections, etc.

* Always verify the actual product for the weld zones of rim components and accessories as they vary by type.



9.2 Inspections when servicing tyre and rims

Side ring inspections



Inspected part	Check method	Checkpoint					
		Cracking	Wear	Deformation/ Ellipse	Corrosion	Surface roughness	
Contact zone with rim base (for 5-piece rims)	Visual inspection	0	0			0	
	Non-destructive inspection	0					
Contact zone with bead seat band (for 5-piece rims)	Visual inspection	0	0			0	
	Non-destructive inspection	0					
Base R part (for 3-piece rims)	Visual inspection	0	0		0	0	
	Non-destructive inspection	0					
Inner and outer surface (for 3-piece rims)	Visual inspection				0		
	Non-destructive inspection						
Contact zone with tyre	Visual inspection		0		0		
	Non-destructive inspection						
Overall form	Visual inspection			0			
	Non-destructive inspection						

Note: Non-destructive inspections include magnetic particle inspections, ultrasonic inspections, and dye penetrant inspections, etc.



9.3 Action as a result of inspection

9.3 After inspection

If any problems are found as a result of inspection, take appropriate measures to correct them.

Warning

- Any rim components with cracks or wear/damage/deformation/corrosion judged to be unusable, should be clearly labeled to indicate their condition and disposed.
- Lock rings with open ends (ends aren't touching) will not set correctly. Clearly label such rings to indicate they are unusable and dispose them.
- For installation and removal of rim drivers, valve guards, etc. or to perform other repairs, obtain approval from your TOPY rim dealer and be sure to remove the tyre before carrying out any work.

! Caution

- Recoat parts where anti-corrosive oil or paint is peeling off.
- Anti-corrosive oil and paint may contain toxic ingredients. Follow the instructions provided by the manufacturers of the anti-corrosive oil or paint.



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