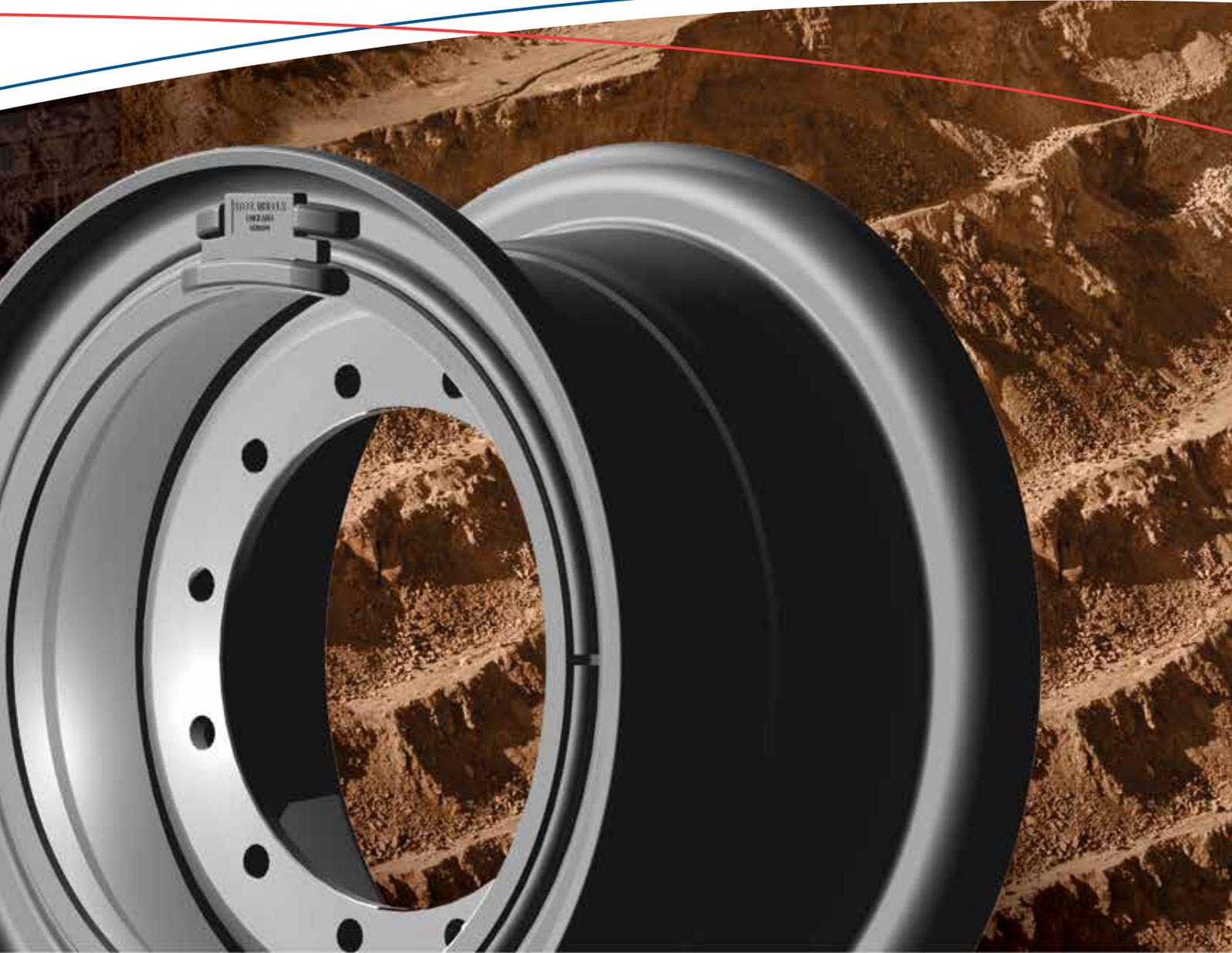


VOLUME 1

# OTR WHEELS



TITAN MOVES THE WORLD®



# Introduction to Titan

## Titan Moves the World

Titan International, the leader of both Titan and Goodyear Farm tire brands, offers a full line of wheels, tires and undercarriage products for a wide variety of off-the-road equipment. With a network of dealers all over the world. Titan is a global brand that original equipment manufacturers and operators can count on for durable products and quality service.

## About Titan Wheel Corporation

A subsidiary of Titan International, Inc. Titan Wheel is the world's largest manufacturer of off-highway wheels. The corporation is headquartered in Quincy, Illinois.

Titan's wheels are manufactured for the world's most respected OEMs, including AGCO, Case, Caterpillar, Hitachi, John Deere, Liebherr, New Holland, Komatsu and Volvo. They rely on Titan's quality wheels ranging in application from agriculture to construction to consumer.

Titan's impressive array of manufacturing capabilities include rotary roll forming, stamping, forging, submerged arc, MIG and flash welding and multiple machining operations. Titan is also the only off-highway wheel maker with a steel processing facility to increase efficiency and provide lower costs. Titan finishes our wheels with e-coat and powder coat paint technology to ensure long product life. Our manufacturing is backed by the world's best wheel engineers, using the latest design tools, including Inventor and Anvil CAM to develop wheels to meet and surpass the needs of your customers. Titan has complete research and development test facilities to validate wheel and rim designs.

Titan is a world-class manufacturer dedicated to quality. Our flagship facilities have achieved ISO certification, a worldwide standard for quality. Titan produces a wide range of wheels — more than 50,000 sizes and types. Simply stated, no other wheel manufacturer in the world can match our manufacturing capability, quality and design. Titan leads the way in off-highway wheel and tire assemblies.

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## Wheels & Rims

## Light Construction



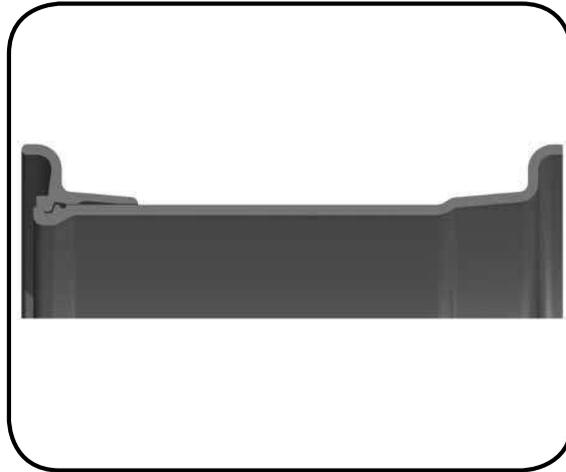
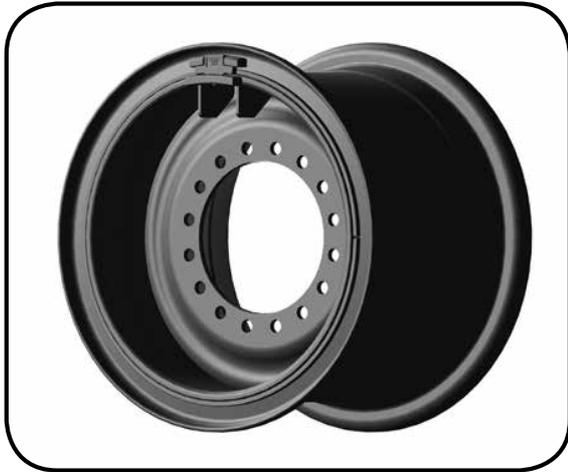
### Titan Single-Piece

- Single Piece roll-formed rim contour
- Formed and press-fit disc for structural integrity and minimized weight
- Tubeless
- Fully e-coated for corrosion protection and superior finish

Rim Size	Type	Origin	Tire Size Imperial	Tire Size Imperial	Tire Size Equivalent			
<b>Skid Steer</b>								
12"	12 x 7JA	Skid Steer	NHS	TL	USA	23x8.50-12	-	-
	12 x 10.5JA	Skid Steer	NHS	TL	USA	26x12.0-12	-	-
15"	15 x 6LB	Skid Steer	NHS	TL	USA	8.25-15	-	-
	15 x 7JA	Skid Steer	NHS	TL	USA	27x8.50-15	-	-
	15 x 8LB	Skid Steer	NHS	TL	USA	27x10.50-15	-	-
	15 x 12LB	Skid Steer	NHS	TL	USA	31x15.50-15	-	-
16.5"	16.5 x 8.25	Skid Steer	NHS	TL	USA	10-16.5	-	-
	16.5 x 9.75	Skid Steer	NHS	TL	USA	12-16.5	-	-
	16.5 x 12.00	Skid Steer	NHS	TL	USA	33x14.50-16.5	33x15.50-16.5	-
19.5"	19.5 x 11.75	Skid Steer	NHS	TL	USA	15-19.5	-	-
<b>LOW SIDE WALL (LSW) Skid Steer</b>								
	210-521 (10-20.5)	LSW	NHS	TL	USA	LSW265-521	-	10-16.5SS
	248-546 (12-21.5)	LSW	NHS	TL	USA	LSW305-546	-	12-16.5SS
	267-597	LSW	NHS	TL	USA	LSW350-597	-	14-17.5?
	317-648	LSW	NHS	TL	USA	LSW385-648	-	15-19.5?
<b>Grader</b>								
24"	24 / 1.5" x 9.00		-	TL	Europe	13.00-24TG	14.00-24TG	-
	24 x 9.00GR		GR	TL	USA	13.00R24	-	-
						14.00R24	-	-
						16.00R24	-	-
25"	25 / 1.3" x 12.00		-	TL	Europe	15.5-25	-	-
	25 / 1.4" x 13.00		-	TL	Europe	15.5-25?	17.5-25?	-
	25 x 13.00LR		LR	TL	USA	15.5R25	17.5R25	-
	25 / 1.3" x 14.00		-	TL	Europe	17.5R25	-	-

## Light Construction

## Wheels &amp; Rims



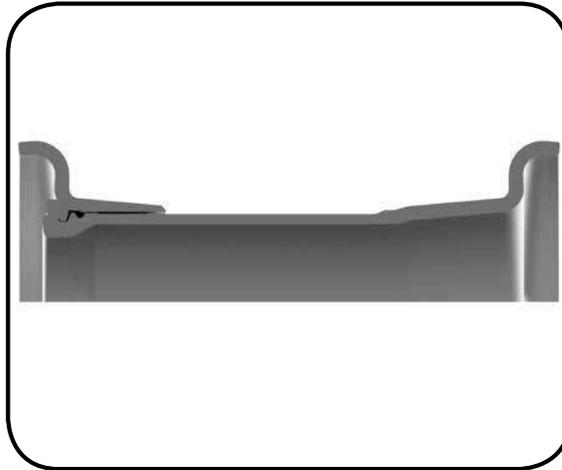
## Titan 3-Piece

- Typically for small wheel loader, grader and harvester applications
- Removable side-ring and lock-ring for ease of tire mounting and servicing
- Square face lock-ring to prevent incorrect installation

	Rim Size	Style	Type	Origin	Tire Size Imperial		Tire Size Metric	
20"	20 - 10.00 / 1.7"	HF	TL	USA	14.00-20NHS	-	-	-
21"	21 - 10.00 / 1.5"	T	TL	USA	14.00-21NHS	16.00-21NHS	-	-
	21 - 18.00 / 1.5"	T	TL	USA	24.00-21	24.00R21	-	-
24"	24 - 8.00 / 1.4"	TG	TL	USA	10.00-24TG	12.00-24TG	13.00-24TG	14.00-24TG
	24 - 10.00 / 1.7"	VA	TL	Europe /USA	13.00-24TG	14.00-24TG	16.00-24TG	-
25"	25 - 10.00 / 1.5"	VA/TG	TL	Europe /USA	14.00-25	14.00R25	-	-
	25 - 12.00 / 1.3"	VA/TG	TL	Europe /USA	15.5-25	15.5R25	-	-
	25 - 14.00 / 1.5"	VA/TG	TL	Europe /USA	17.5-25	17.5R25	-	-
	25 - 17.00 / 1.7"	AL	TL	Europe /USA	20.5-25	20.5R25	-	-
	25 - 30.00 / 1.5"	TH	TL	Europe /USA	67x34.00-25	-	-	-
	25 - 36.00 / 1.5"	TH	TL	Europe /USA	66x43.00-25	66x44.00-25	-	1000/50R25
	25-44.00/1.5"	TH	TL	USA	-	-	-	1250/40R25
32"	32 - 27.00 / 1.7"	VA	TL	USA	VA30.5L-32	-	-	-
	32 - 31.00 / 1.7"	VA	TL	USA	VA35.5L-32	-	-	-
	32 - 36.00 / 1.7"	VA	TL	Europe /USA	73x44.00-32	-	-	1050/50R32
	32-44.00/1.3"	DHM	TL	USA	73x50.00-32	-	-	1250/50R32

## Earthmover / Construction

## Wheels &amp; Rims



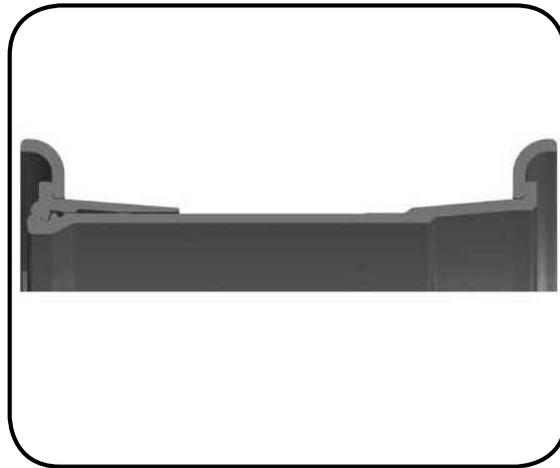
### 3-Piece I.F. Construction

- I.F. (Integral Flange) configuration for construction applications using 3 piece construction using HSLA (High Strength Low Alloy) steels in critical areas to optimize fatigue life
- Fewer components than standard 5-piece
- Reduced tire slippage due to greater contact and friction between tire and integral flange
- Less tire chafing – improved interface between tire and rim interface
- Less tire wind-up with tire fully seated on integral flange and only one loose flange element
- No flange fretting – flange and bead-seat are one unit piece
- Better air seal
  - complete interface between tire and rim
  - machined surface for o-ring seal

	Rim Size	Style	Type	Origin	Tire Size Imperial	Tire Size Imperial	Tire Size Metric
25"	25 - 11.25 / 2.0"	I.F.	TL	USA / Europe	16.00-25	16.00R25	425/95R25
	25 - 13.00 / 2.5"	I.F.	TL	USA / Europe	18.00-25	18.00R25	505/95R25
	25 - 15.00 / 3.0"	I.F.	TL	USA / Europe	21.00-25	21.00R25	-
	25 - 17.00 / 2.0"	I.F.	TL	USA / Europe	20.5-25	20.5R25	550/65R25
	25 - 19.50 / 2.5"	I.F.	TL	USA / Europe	23.5-25	23.5R25	650/65R25
	25 - 22.00 / 3.0"	I.F.	TL	USA / Europe	-	26.5R25	750/65R25
	25 - 25.00 / 3.5"	I.F.	TL	Europe	-	29.5R25	850/65R25
33"	33 - 13.00 / 2.5"	I.F.	TL	Europe	18.00-33	18.00R33	

# Wheels & Rims

# Earthmover / Construction



## 5-Piece Construction

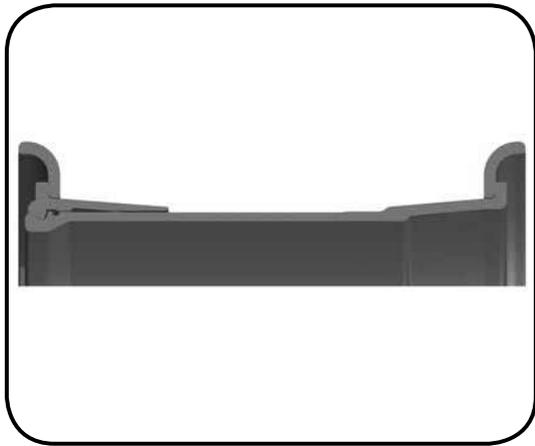
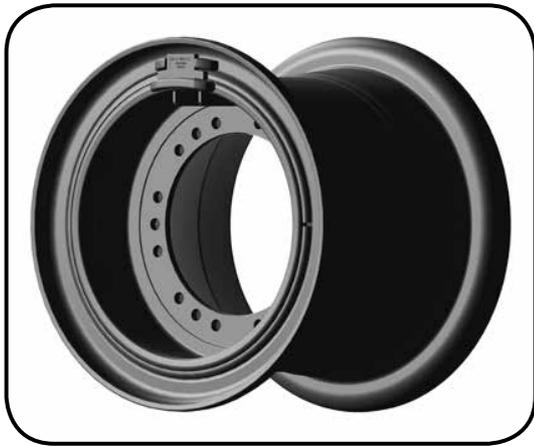
- Removable side flanges, bead-seat, and lock-ring for ease of tire servicing
- Square face lock-ring to prevent incorrect installation
- HSLA (High Strength Low Alloy) materials used to maximize fatigue life
- Forged/Seamless flanges available (optional on some sizes)
- Integral continuous pry bar slot on 33" and above for ease of component servicing

	Rim Size	Style	Type	Origin	Tire Size Imperial	Tire Size Imperial	Tire Size Metric
25"	25 - 11.25 / 2.0"	ST	TL	USA / Europe	16.00-25	16.00R25	425/95R25
	25 - 13.00 / 2.5"	ST	TL	USA / Europe	18.00-25	18.00R25	505/95R25
	25 - 15.00 / 3.0"	ST	TL	USA / Europe	21.00-25	21.00R25	-
	25 - 17.00 / 2.0"	ST/HT	TL	USA / Europe	20.5-25	20.5R25	550/65R25
	25 - 19.50 / 2.5"	ST/HT	TL	USA / Europe	23.5-25	23.5R25	650/65R25
	25 - 22.00 / 3.0"	HT	TL	USA / Europe	-	26.5R25	750/65R25
	25 - 24.00 / 3.0"	HT	TL	USA / Europe	30/65-25	30/65R25	750/65R25
	25 - 25.00 / 3.5"	HT	TL	USA / Europe	-	29.5R25	850/65R25
29"	29 - 17.00 / 3.5"	HTH	TL	USA	24.00-29	24.00R29	
	29 - 22.00 / 3.0"	HTH	TL	USA / Europe	26.5-29	26.5R29	675/65R29
	29 - 24.00 / 3.0"	HTH	TL	USA / Europe	30/65-29	30/65R29	775/65R29
	29 - 24.00 / 3.5"	HTH	TL	USA / Europe	29.5-29	29.5R29	775/65R29
	29 - 25.00 / 3.5"	HTH/HTE	TL	USA / Europe	29.5-29	29.5R29	775/65R29
	29 - 27.00 / 3.5"	HTH/HTE	TL	USA / Europe	33.25-29	33.25R29	875/65R29
33"	33 - 13.00 / 2.5"	HTH	TL	USA / Europe	18.00-33	18.00R33	
	33 - 13.00 / 2.5"	RWH	TL	USA / Europe	18.00-33	18.00R33	
	33 - 28.00 / 3.5"	HTH/HTE	TL	USA / Europe	35/65-33	35/65R33	
	33 - 28.00 / 4.0"	HTH/HTE	TL	USA / Europe	33.5-33	33.5R33	
	33 - 32.00 / 4.5"	HTH/HTE	TL	USA / Europe	37.5-33	37.5R33	

# Earthmover / Construction Wheels & Rims

	Rim Size	Style	Type	Origin	Tire Size Imperial	Tire Size Imperial	Tire Size Metric
35"	35 - 15.00 / 3.0	HTH	TL	USA / Europe	21.00-35	21.00R35	
	35 - 15.00 / 3.0	RWH	TL	USA / Europe	21.00-35	21.00R35	
	35 - 15.00 / 3.0	MRWEGD	TL	USA / Europe	21.00-35	21.00R35	
	35 - 17.00 / 3.5"	HTH	TL	USA / Europe	24.00-35	24.00R35	
	35 - 17.00 / 3.5"	RWH	TL	USA / Europe	24.00-35	24.00R35	
	35 - 17.00 / 3.5"	MRWEG	TL	USA / Europe	24.00-35	24.00R35	
	35 - 27.00 / 3.5"	HTH	TL	USA / Europe	33.25-35	33.25R35	
	35 - 31.00 / 3.5"	HTH	TL	USA / Europe	37.25-35	37.25R35	
39"	39 - 28.00 / 4.0"	HTE	TL	USA	33.5-39	33.25R39	
	39 - 32.00 / 4.0"	HTE	TL	USA	40/65-39	40/65R39	
	39 - 32.00 / 4.5"	HTE	TL	USA	37.5-39	37.5R39	
45"	45 - 36.00 / 4.5"	HTE	TL	USA	45/65-45	45/65R45	
49"	49 - 15.00 / 3.0"	RWH	TL	USA	21.00-49	21.00R49	
	49 - 17.00 / 3.5"	RWH	TL	USA	24.00-49	24.00R49	
	49 - 17.00 / 3.5"	MRWEG	TL	USA	24.00-49	24.00R49	
	49 - 19.50 / 4.0"	RWH	TL	USA	27.00-49	27.00R49	
	49 - 19.50 / 4.0"	RWEG	TL	USA	27.00-49	27.00R49	
	49 - 19.50 / 4.0"	MRWEG	TL	USA	27.00-49	27.00R49	
	49 - 19.50 / 4.0"	MEHWEG	TL	USA	27.00-49	27.00R49	
	49 - 19.50 / 4.0"	MFWEG	TL	USA	27.00-49	27.00R49	
	49 - 22.00 / 3.5"	MEHWEG	TL	USA	31/80-49	31/80R49	

# Underground Mining Wheels & Rims



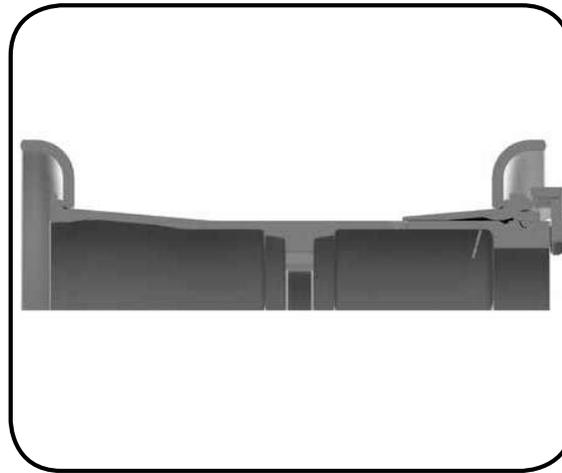
## Underground Mining 3-Piece & 5-Piece

- All the features of 3 and 5-piece construction with the additional benefits of...
- Designed for unique vehicle application and load requirements
- Use of standard construction wheel components

Rim Size		Type		Origin	Tire Size Imperial		Tire Size Metric	
<b>3-Piece</b>								
20"	20 - 10.00		1	USA	14.00-20	-	-	-
24"	24 - 10.0		1	USA	14.00-24	-	-	-
25"	25 - 11.25 / 2.0"	I.F.	TL	USA / Europe	16.00-25	16.00R25	425/95R25	
	25 - 13.00 / 2.5"	I.F.	TL	USA / Europe	18.00-25	18.00R25	505/95R25	
	25 - 15.00 / 3.0"	I.F.	TL	USA / Europe	21.00-25	21.00R25	-	
	25 - 17.00 / 2.0"	I.F.	TL	USA / Europe	20.5-25	20.5R25	550/65R25	
	25 - 19.50 / 2.5"	I.F.	TL	USA / Europe	23.5-25	23.5R25	650/65R25	
	25 - 22.00 / 3.0"	I.F.	TL	USA / Europe	-	26.5R25	750/65R25	
	25 - 25.00 / 3.5"	I.F.	TL	Europe	-	29.5R25	850/65R25	
<b>5-Piece</b>								
25"	25 - 11.25 / 2.0"	ST	TL	USA / Europe	16.00-25	16.00R25	425/95R25	
	25 - 13.00 / 2.5"	ST	TL	USA / Europe	18.00-25	18.00R25	505/95R25	
	25 - 15.00 / 3.0"	ST	TL	USA / Europe	21.00-25	21.00R25	-	
	25 - 17.00 / 2.0"	ST/HT	TL	USA / Europe	20.5-25	20.5R25	550/65R25	
	25 - 19.50 / 2.5"	ST/HT	TL	USA / Europe	23.5-25	23.5R25	650/65R25	
	25 - 22.00 / 3.0"	HT	TL	USA / Europe	-	26.5R25	750/65R25	
	25 - 24.00 / 3.0"	HT	TL	USA / Europe	30/65-25	30/65R25	750/65R25	
	25 - 25.00 / 3.5"	HT	TL	USA / Europe	-	29.5R25	850/65R25	

## Wheels & Rims

## Giant Mining

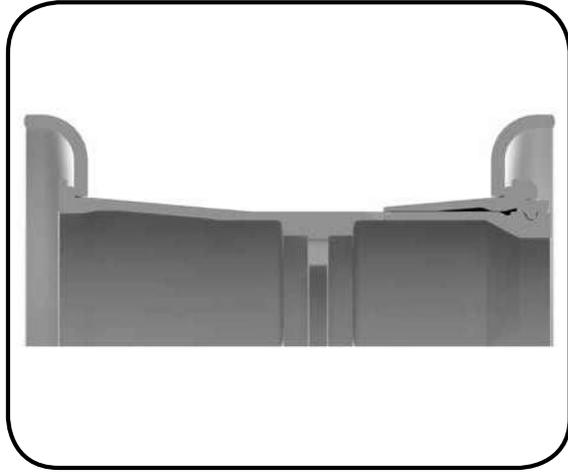
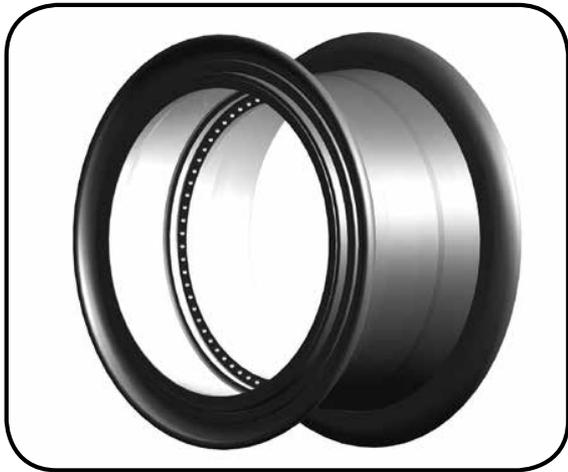


### Rigid Dump Trucks EHD & Wheel Loaders (Extra Heavy Duty)

- All the features of 5-piece construction with the additional benefits of...
- All critical component surface and mating surfaces 100% machined
- Shot peened critical surface for improved wear resistance
- Forged/Seamless flanges (optional)
- Integral continuous pry bar slot for ease of component servicing
- Integral lock-ring protector (Sur-Loc) providing capture of lock-ring for in-advertent removal when inflated

	Rim Size	Style	Type	Origin	Tire Size			
51"	51 - 22.00 / 4.5"	EHD	TL	USA	30.00-51	30.00R51		
	51 - 24.00 / 5.0"	EHD	TL	USA	33.00-51	33.00R51		
	51 - 26.00 / 5.0"	EHD	TL	USA	36.00-51	36.00R51		
	51 - 32.00 / 4.5"	EHD	TL	USA	37.5-51	37.5R51		
	51 - 40.00 / 4.5"	EHD	TL	USA	50.00-51	50.00R51	50/65R51	
57"	57 - 27.00 / 6.0"	EHD	TL	USA	37.00-57	37.00R57		
	57 - 29.00 / 6.0"	EHD	TL	USA	40.00-57	40.00R57	46/90R57	
	57 - 32.00 / 5.0"	EHD	TL	USA	44/80-57	44/80R57		
	57 - 32.00 / 6.5"	EHD	TL	USA	48/95-57	48/95R57	50/90-57	50/90R57
	57" - 34.00 / 5.0"	EHD	TL	USA	50/80-57 (hauler)	50/80R57	40/80-57	40/80R57
	57 - 36.00 / 6.0"	EHD	TL	USA	50/80-57 (loader)	44/95-57	49.5-57	52/80-57
	57 - 44.00 / 5.0"	EHD	TL	USA	55/80-57	53.5/85-57	55.5/80-57	
	57 - 47.00 / 6.0"	EHD	TL	USA	58/85-57			

**Giant Mining** **Wheels & Rims**



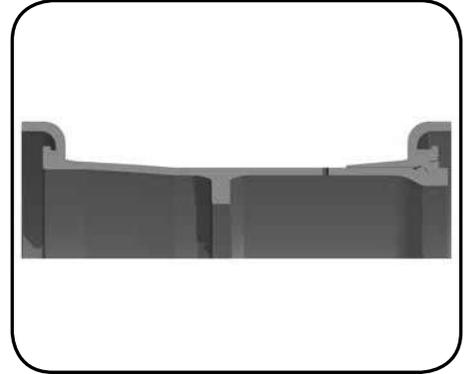
**Rigid Dump Trucks & Wheel Loaders (Advanced Design)**

- All the features of 5-piece construction with the additional benefits of...
- All critical component surface and mating surfaces 100% machined
- Shot peened critical surface for improved wear resistance
- Forged/Seamless flanges (optional)
- Integral continuous pry bar slot for ease of component servicing

	Rim Size	Style	Type	Origin	Tire Size			
51"	51 - 22.00 / 4.5"	Advanced	TL	USA	30.00-51	30.00R51		
	51 - 24.00 / 5.0"	Advanced	TL	USA	33.00-51	33.00R51		
	51 - 26.00 / 5.0"	Advanced	TL	USA	36.00-51	36.00R51		
	51 - 40.00 / 4.5"	Advanced	TL	USA	50.00-51	50.00R51	50/65R51	
57"	57 - 27.00 / 6.0"	Advanced	TL	USA	37.00-57	37.00R57		
	57 - 29.00 / 6.0"	Advanced	TL	USA	40.00-57	40.00R57	46/90R57	
	57 - 32.00 / 5.0"	Advanced	TL	USA	44/80-57	44/80R57		
	57 - 32.00 / 6.5"	Advanced	TL	USA	48/95-57	48/95R57	50/90-57	50/90R57
	57" - 34.00 / 5.0"	Advanced	TL	USA	50/80-57 (hauler)	50/80R57	40/80-57	40/80R57
	57 - 36.00 / 6.0"	Advanced	TL	USA	50/80-57 (loader)	44/95-57	49.5-57	52/80-57
	57 - 44.00 / 5.0"	Advanced	TL	USA	55/80-57	53.5/85-57	55.5/80-57	
	57 - 47.00 / 6.0"	Advanced	TL	USA	58/85-57			

## Wheels & Rims

## Giant Mining

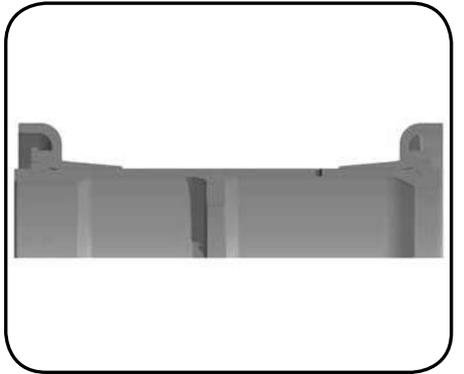


### Rigid Dump Trucks STMT

- Superduty Titan Machine Taper (STMT)
- All the features of Giant Mining with the additional benefits of...
- Double Lock – fully machined vertical curb and taper for precision fit between bead seat and side flange to prevent expulsion and to stop rotation of flange which can result in fretting and tire damage
- Forged/Seamless 100% machined bead-seats, gutters, and other critical components

	Rim Size	Style	Type	Origin	Tire Size		Machine
63"	63 - 36.00 / 5.0	STMT	TL	USA	53/80R63	59/80R63	Komatsu 930E-4
	63 - 38.00 / 5.0"	STMT	TL	USA	53/80R63		Hitachi EH5000
	63 - 41.00 / 5.0"	STMT	TL	USA	56/80R63		Liebherr T282
	63 - 41.00 / 5.0"	STMT	TL	USA	56/80R63	59/80R63	Komatsu 960E
	63 - 41.00 / 5.0"	STMT	TL	USA	56/80R63		Terex MT5500
	63 - 44.00 / 5.0"	STMT	TL	USA	59/80R63		Caterpillar 797B

**Giant Mining** **Wheels & Rims**



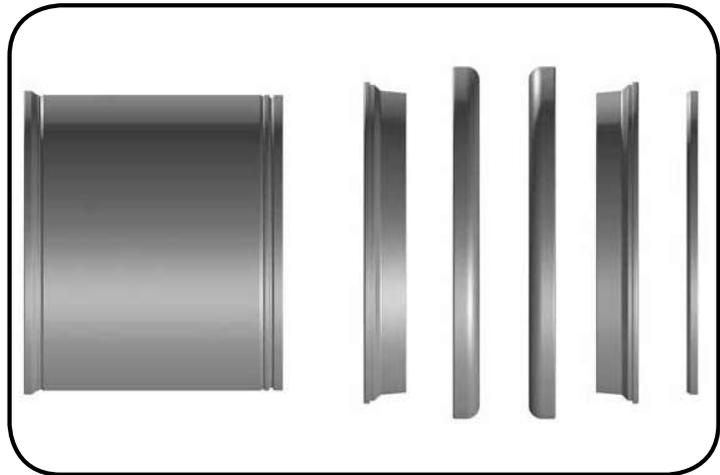
**Rigid Dump Trucks ACT (Quick Change)**

- ACT (Accelerated Change Technology) for significant reduction of tire change-over time allows the rims to remain attached to the vehicle during tire change and servicing. This time savings results in significant gain in operational up time
- All the features of STMT with the additional benefits of...
- 7-piece with removable side flanges, bead-seats and lock-rings from both sides of rim for quick tire change capability of dual tire/wheel arrangements. Used as the outer rim of duals
- All rim components interchangeable between inner and outer rims.

	Rim Size	Style	Type	Origin	Tire Size		Machine
63"	63 - 36.00 / 5.0	ACT	TL	USA	53/80R63		Komatsu 930E-4
	63 - 38.00 / 5.0"	ACT	TL	USA	53/80R63		Hitachi EH5000
	63 - 41.00 / 5.0"	ACT	TL	USA	56/80R63	59/80R63	Liebherr T282
	63 - 41.00 / 5.0"	ACT	TL	USA	56/80R63		Komatsu 960E
	63 - 41.00 / 5.0"	ACT	TL	USA	56/80R63	59/80R63	Terex MT5500
	63 - 44.00 / 5.0"	ACT	TL	USA	59/80R63		Caterpillar 797B

## Wheels & Rims

## Giant Mining



### Rigid Dump Trucks OVM

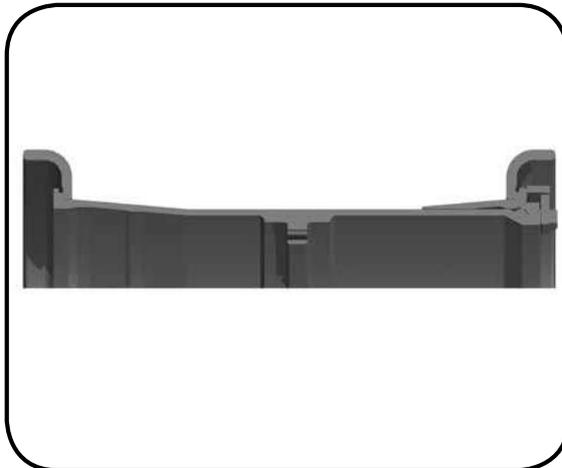
- OVM (Outside Vertical Mount) – the innovative and first outer dual design for quick tire change capability allows the rim to stay attached to the vehicle during tire change and servicing. This time savings results in significant gain in operational up time
- Used as the outer rim of duals. Barrel diameter of OVM is smaller than the complement (SVM) rim typically used in the inner position to facilitate simple removal of inner tire over OVM rim without risk of damage or hang up during removal process
- Unique bead-seats and lock-rings to accommodate smaller barrel diameter

### Rigid Dump Trucks SVM

- SVM (Six-piece Vertical Mount) – complement to OVM outer dual wheel with integrated lock-ring stop and o-ring groove to accommodate the removal of the second bead-seat for quick change vertical mount configuration. Used as the inner rim of duals or in single applications where quick tire change capability is advantageous
- Eliminates the necessity of removing inner lock-rings and the high-risk practice of breaking the rear bead in confined spaces using hydraulic rams

	Rim Size	Style	Type	Origin	Tire Size		
51"	51 - 24.00 / 5.0"	OVM/SVM	TL	AUS	33.00-51	33.00R51	
	51 - 26.00 / 5.0"	OVM/SVM	TL	AUS	36.00-51	36.00R51	
57"	57 - 29.00 / 6.0"	OVM/SVM	TL	AUS	40.00-57	40.00R57	46/90R57
	57 - 32.00 / 6.0"	OVM/SVM	TL	AUS	46/90R57		
63"	63 - 44.00 / 6.0"	OVM/SVM	TL	AUS	55/80R63	58/80R63	59/80R63

**Giant Mining** **Wheels & Rims**



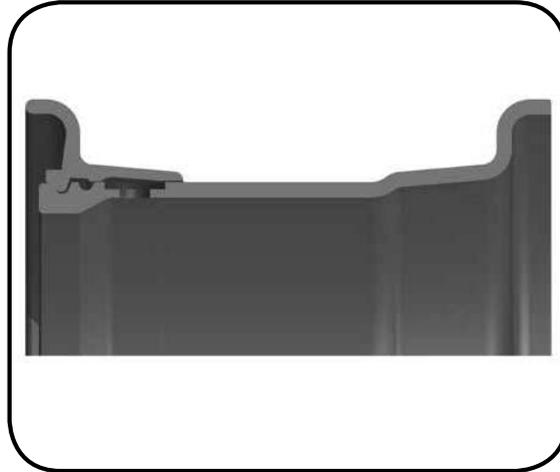
**Large Wheel Loader Super Wide Bead Seat Rims**

- All critical component surface and mating surfaces 100% machined
- Shot peened critical surface for improved wear resistance
- Forged/Seamless flanges
- Integral continuous pry bar slot for ease of component servicing
- Integral lock-ring protector (Sur-Loc) providing capture of lock-ring for in-advertent removal when inflated
- Extra wide bead seat and back section to properly support wide bead tires requiring bead seat support (P min) of 10.00"

	Rim Size	Style	Type	Origin	Tire Size	Tire Size	Tire Size
57"	57 - 52.00 / 5.0"	AEH	TL	USA	65/65-57	65/65R57	
	57 - 60.00 / 6.0"	AEH	TL	USA	70/70-57	70/70R57	

**Wheels & Rims**

**Autocrane**

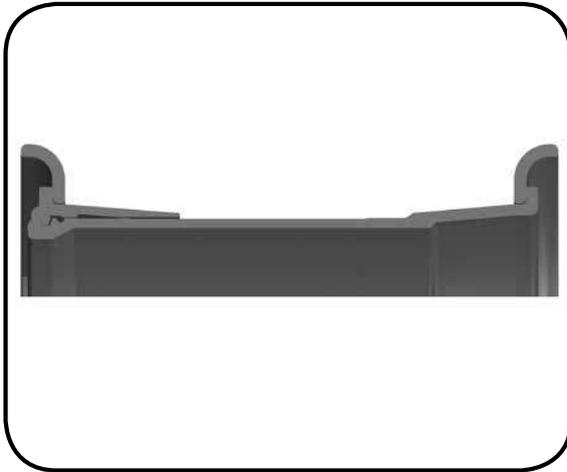


**All Terrain Mobile Cranes 3-Piece ACR**

- Created for 80 & 95 series Highway Service Earthmover Tires.
- Designed and tested for highway speeds of up to 80Km/h.
- 3-piece construction rather than 5-piece.
- Common Loose parts across the CR Rim range.

	Rim Size	Style	Type	Origin	Tire Size	Tire Size
25"	25 - 9.50 / 1.7"	ACR	TL	Europe	14.00R25	385/95R25
	25 - 11.00 / 1.7"	ACR	TL	Europe	16.00R25	445/95R25
	25 - 14.00 / 1.7"	ACR	TL	Europe	17.5R25	445/80R25
	25 - 17.00 / 1.7"	ACR	TL	Europe	20.5R25	525/80R25

**Rough Terrain** **Wheels & Rims**



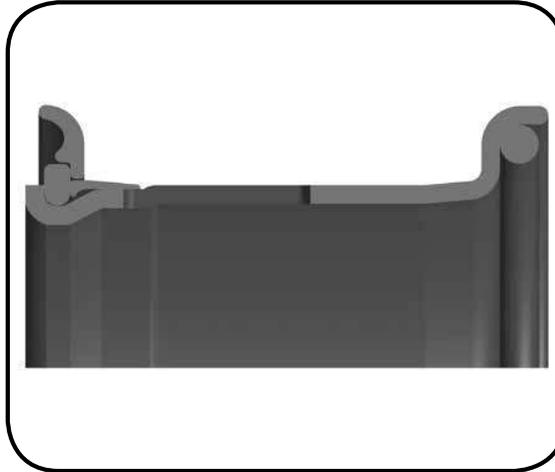
**Rough Terrain Mobile Crane 3-Piece ACR & 5-Piece E.M.**

- Available on 3-piece or 5-piece construction
- Designed for unique vehicle application and load/speed requirements
- Suitable for highway use

Rim Size	Style	Type	Origin	Tire Size	Tire Size	Tire Size	
<b>3-Piece</b>							
25"	25 - 11.25 / 2.0"	I.F.	TL	USA/Europe	16.00-25	16.00R25	425/95R25
	25 - 13.00 / 2.5"	I.F.	TL	USA/Europe	18.00-25	18.00R25	505/95R25
	25 - 15.00 / 3.0"	I.F.	TL	USA/Europe	21.00-25	21.00R25	-
	25 - 17.00 / 2.0"	I.F.	TL	USA/Europe	20.5-25	20.5R25	550/65R25
	25 - 19.50 / 2.5"	I.F.	TL	USA / Europe	23.5-25	23.5R25	650/65R25
	25 - 22.00 / 3.0"	I.F.	TL	USA / Europe	-	26.5R25	750/65R25
	25 - 25.00 / 3.5"	I.F.	TL	Europe	-	29.5R25	850/65R25
<b>5-Piece</b>							
25"	25 - 11.25 / 2.0"	ST	TL	USA / Europe	16.00-25	16.00R25	425/95R25
	25 - 13.00 / 2.5"	ST	TL	USA / Europe	18.00-25	18.00R25	505/95R25
	25 - 15.00 / 3.0"	ST	TL	USA / Europe	21.00-25	21.00R25	-
	25 - 17.00 / 2.0"	ST/HT	TL	USA / Europe	20.5-25	20.5R25	550/65R25
	25 - 19.50 / 2.5"	ST/HT	TL	USA / Europe	23.5-25	23.5R25	650/65R25
	25 - 22.00 / 3.0"	HT	TL	USA / Europe	-	26.5R25	750/65R25
	25 - 24.00 / 3.0"	HT	TL	USA / Europe	30/65-25	30/65R25	750/65R25
	25 - 25.00 / 3.5"	HT	TL	USA / Europe	-	29.5R25	850/65R25

## Wheels & Rims

## Industrial / Dockside

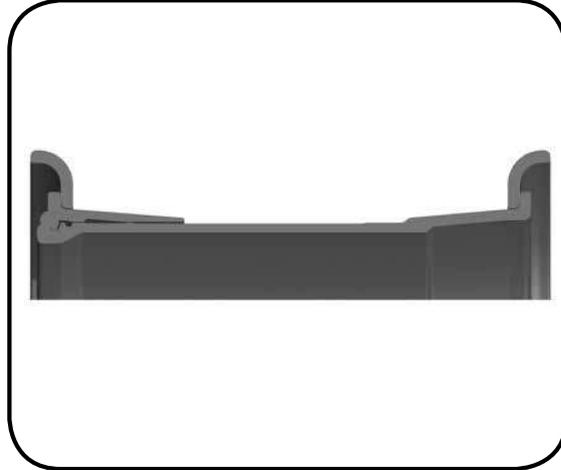


### Heavy Fork Lift Truck 4-Piece S.S.

- 4-piece construction
- Designed for heavy industrial fork lift trucks
- Re-inforced back flange
- Tube type tires only

## Special Application

## Wheels &amp; Rims



## Various Special Applications

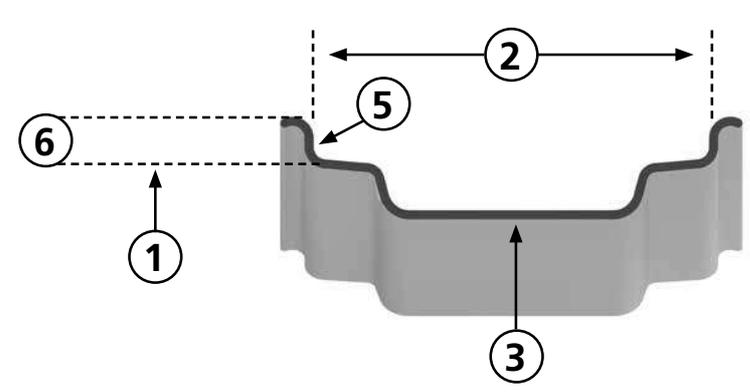
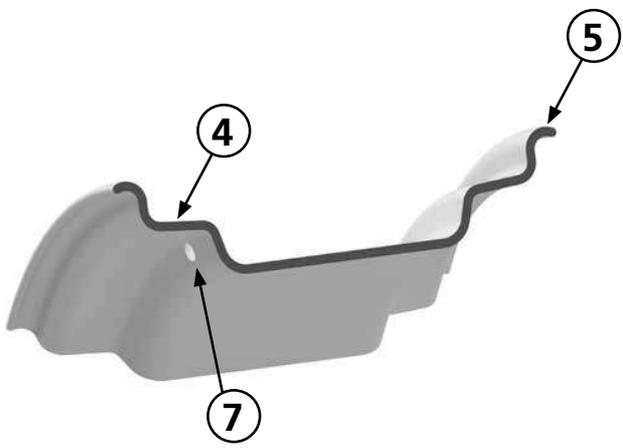
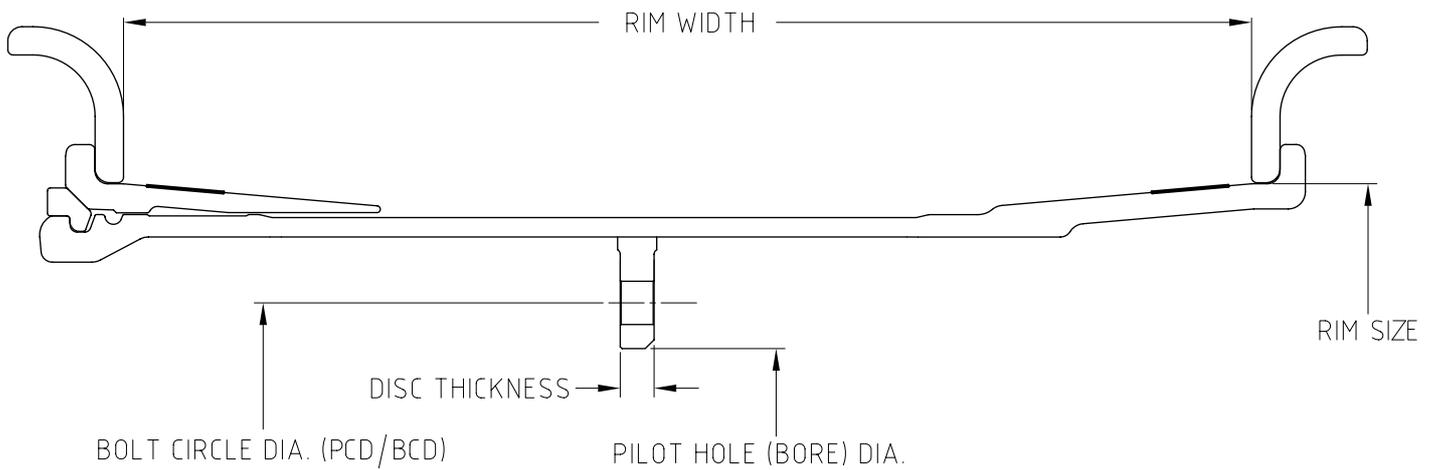
- Variety of designs for special applications
- High load, sand tires, highway speeds and more
- Contact Titan for special use wheels

	Rim Size	Style	Type	Origin	Tire Size	Tire Size	Tire Size
20"	20 - 10.0	S.S.	TT	Europe	14.00-20TT	14.00R20TT	365/80R20 405/70R20
	20 - 11.00	SDC	TT	Europe			
	20 - 13.00	SDC	TT	Europe			
	20 - 17.00	SDC	TT	Europe			
21"	21 - 10.00 / 1.5"	3pc	TL	USA	16.00R21		
	21 - 18.00 / 1.5"	3pc	TL	USA	24.00R21		
24"	24-10.00 / 2.0"	AG	TT	USA	13.00-24NHS	14.00-24NHS	
25"	25 - 9.50 / 1.5"	ASTG	TL	USA			385/95R25
	25 - 11.25 / 2.0"	ASTG	TL	USA	16.00-25	16.00R25	445/95R25
	25 - 11.25 / 2.0"	R1TEG	TL	USA	16.00-25	16.00R25	445/95R25
	25 - 13.00 / 2.5"	RSTG	TL	USA	18.00-25	18.00R25	505/95R25
	25 - 13.00 / 2.5"	MR1TELX	TL	USA	18.00-25	18.00R25	505/95R25
	25 - 15.00 / 3.0"	MR1THG	TL	USA	21.00-25	21.00R25	575/95R25
	25 - 19.50 / 2.5"	R1TEG	TL	USA	23.5-25	23.5R25	605/80R25
	25 - 19.50 / 3.5"	R1TEG	TL	USA	23.5-25	23.5R25	605/80R25

# Wheels & Rims

# Identification & Terminology

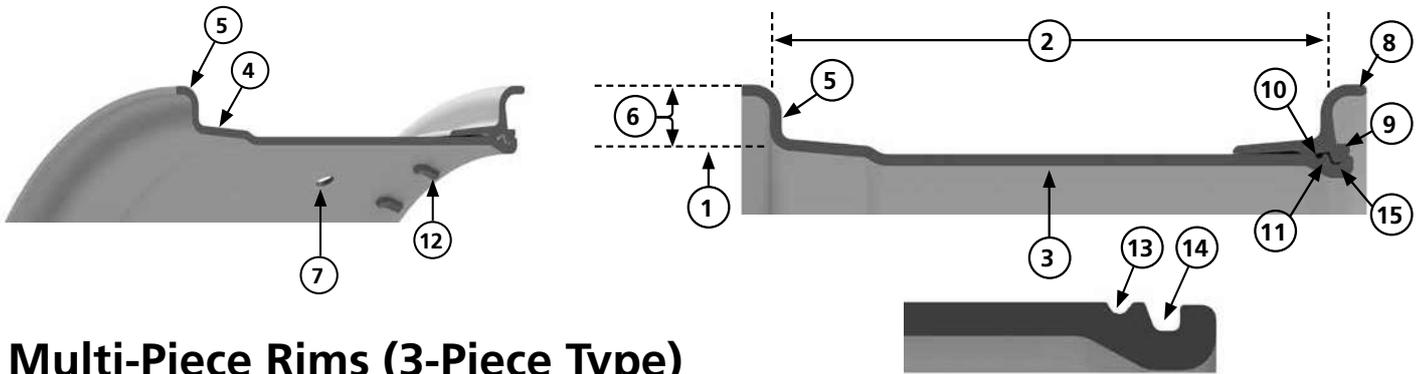
## Identification/Terminology



## Single-Piece Rims

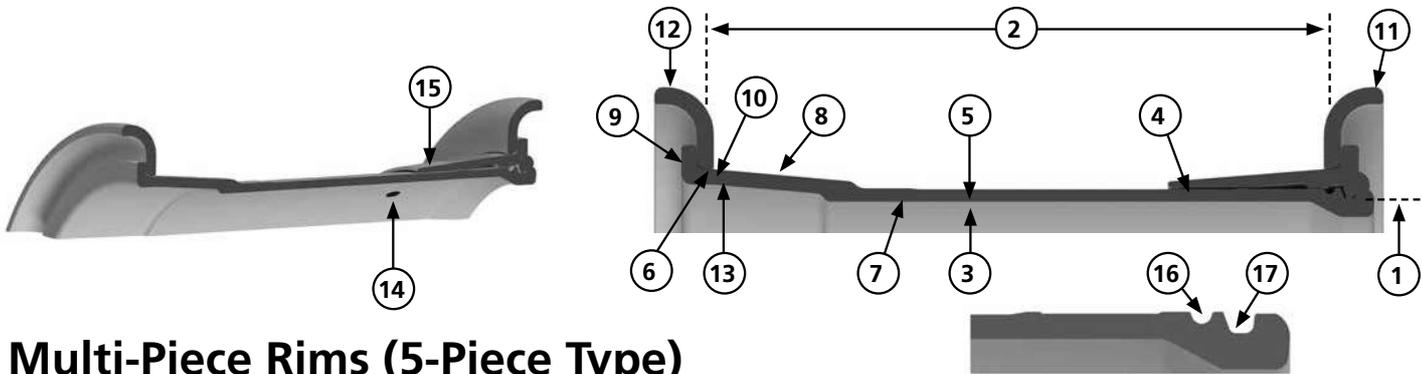
1. Rim Size (Nom. Bead Seat Dia.)
2. Rim Width
3. Rim Inside Dia.
4. Bead Seat Area
5. Flange
6. Flange Height
7. Valve Hole (Location and size can vary)

# Identification & Terminology Wheels & Rims



## Multi-Piece Rims (3-Piece Type)

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1. Rim Size (Nom. Bead Seat Dia.)</li> <li>2. Rim Width</li> <li>3. Rim Inside Dia.</li> <li>4. Bead Seat Area</li> <li>5. Flange-Fixed</li> <li>6. Flange Height</li> <li>7. Valve Hole (Location and size can vary)</li> <li>8. Flange-Removable (Side Ring)</li> </ul> | <ul style="list-style-type: none"> <li>9. Lock Ring</li> <li>10. O-Ring (For tubeless application only)</li> <li>11. 28° Mounting Bevel (utilized for demountable application only)</li> <li>12. Rim Stop Plate (Used for demountable application only; size, shape and location can vary.)</li> <li>13. O-Ring Groove</li> <li>14. Lock Ring Groove</li> <li>15. Gutter portion of rim</li> </ul> |
|--|--|

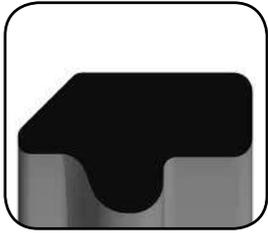


## Multi-Piece Rims (5-Piece Type)

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1. Rim Size (Nom. Bead Seat Dia.)</li> <li>2. Rim Width</li> <li>3. Rim Inside Dia.</li> <li>4. Back Flange Portion of Rim Base</li> <li>5. Center Band Portion of Rim Base</li> <li>6. Gutter Band Portion of Rim Base</li> <li>7. Rim Base (Entire Shaded Area)</li> <li>8. Bead Seat Band (Removable, Gutter Side only)</li> <li>9. Lock Ring</li> <li>10. O-Ring</li> <li>11. Flange, Inner (Removable)</li> </ul> | <ul style="list-style-type: none"> <li>12. Flange, Outer (Removable) *Note: Inner and Outer Flanges are identical</li> <li>13. 28° Mounting Bevel (Utilized for demountable application only)</li> <li>14. Valve Hole (Location, size and configuration can vary)</li> <li>15. Knurl (Located on Back Flange Portion of Rim Base and Bead Seat Band tire mating surfaces)</li> <li>16. O-Ring Groove</li> <li>17. Lock Ring Groove (size and shape can vary depending on style of lock ring)</li> </ul> |
|---|---|

# Components

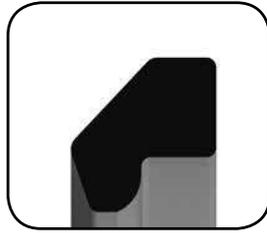
## Lockrings



HD



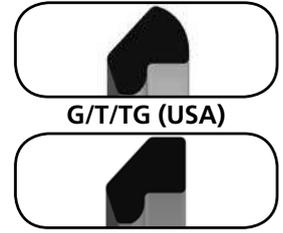
W



TM



TN



G/T/TG (USA)



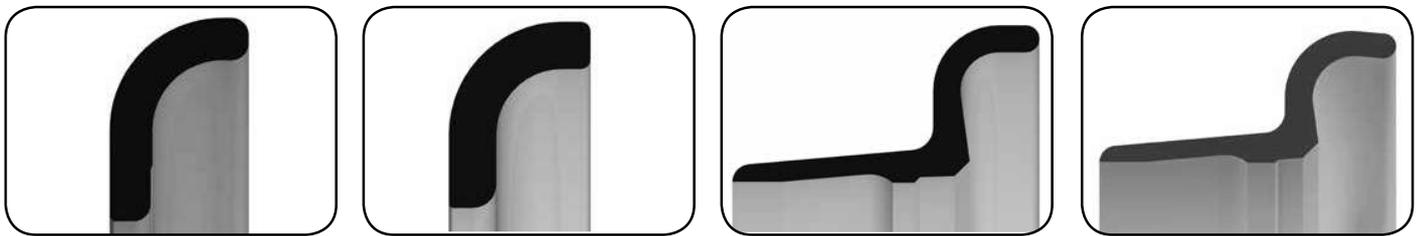
G/T/TG (UK)

		Origin	Part Number	Type
UNDERGROUND MINING	20"	USA	LR1020G	
	24"	USA	-	
3 PIECE AUTOCRANE	25"	EU	29351031	VA
3 PIECE LIGHT CONSTRUCTION	20"	USA	LR1020G	VA
	21"	USA	LR21T	VA
	24"	USA	LR1024G	VA
	24"	EU	26350951	VA
	25"	USA	LR25T	VA
	25"	EU	29351031	VA
	32"	USA	LR32TG	VA
3 PIECE I.F. Construction	25"	USA	LR255TN	
	25"	EU	55355003	EM
	33"	EU	62355004	EM
5 PIECE Construction	25"	USA	LR255TN	5TN
	25"	EU	51355008	5TN
	25"	USA	LR255TM	5TM
	25"	EU	51355008	EM
	29"	USA	LR295TM	5TM
	29"	EU	58355007	EM
	33"	USA	LR335TM	EM
	33"	EU	62355004	EM
	35"	USA	LR355TM	EM
	35"	EU	64355005	EM
	39"	USA	LR395TM	EM
	45"	USA	LR455TM	EM
	33"	USA	LR33W	W
35"	USA	LR35W	W	
49"	USA	LR49W	W	
GIANT MINING	51"	USA	LR51HD	HD
	57"	USA	LR57HD	HD
	57"	USA	LR57HDS	HD
OVM / SVM	51"	EU		
	57"	EU		
	63"	EU		
STMT	63"	USA	LR63HD28	
ACT	63"	USA	LR63HD28SW	

# Components

		Origin	Part Number	Type
INDUSTRIAL / DOCKSIDE	24"	EU	77355236	EM
	25"	EU	55355003	EM
	33"	EU	62355004	EM
	35"	EU	64355005	EM
SPECIAL APPLICATION	20"	EU	41355002	4pc
	20"	EU	06355012	SDC
	21"	USA	LR21T	VA
	25"	USA	LR255TM	

## Flanges / Side Rings



			Origin	Part Number	Type
3 PIECE AUTOCRANE	25"	1.7"	EU	29405282	ACR
3 PIECE LIGHT CONSTRUCTION	20"	1.7"	USA	F1020HF	HF
	21"	1.5"	USA	F1021T	T
	24"	1.4"	USA	F8024TG	TG
		1.7"	USA	F1024TG	VA
	25"	1.3"	USA	F25TU1.3	T
		1.3"	EU	77401030	VA
		1.5"	USA	F1025T	T
		1.5"	EU	29401029	VA
		1.7"	USA	531070	VL
		1.7"	EU	29405027	VA
	1.7"	EU	29405604	VA(M)	
	1.7"	USA	F25TG	AL	
3 PIECE I.F. Construction	25"	2.0"	EU	51405440	IFG Knurled
				51405441	IFG Non Knurled
				51405398	IFM Knurled
				51405406	IFM Non Knurled
	25"	2.5"	EU	55405685	IFG Knurled
				55405686	IFG Non Knurled
				55405551	IFM Knurled
				55405680	IFM Non Knurled
	25"	2.5"	USA	5346552	IFM Knurled
	25"	3.0"	EU	56405611	IFG Knurled
				56405612	IFG Non Knurled
				56405464	IFM Knurled
				56405489	IFM Non Knurled
	25"	3.0"	USA	5348551	IFG Knurled
25"	3.5"	EU	57405268	IFG Knurled	

# Components

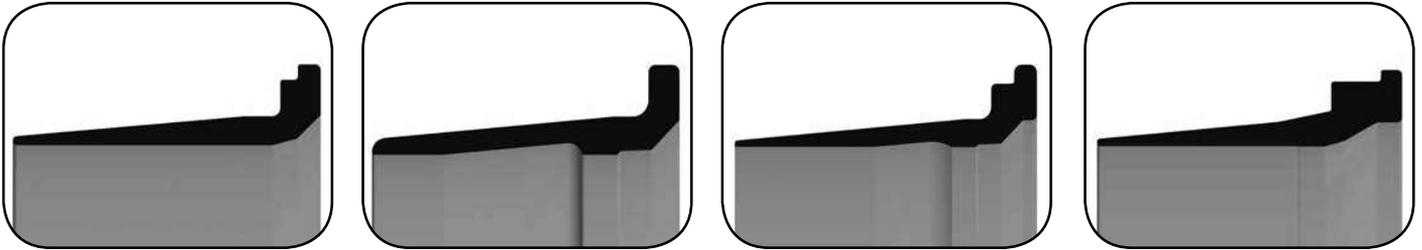
			Origin	Part Number	Type
				57405269	IFG Non Knurled
				57405200	IFM Knurled
				57405262	IFM Non Knurled
	33"	2.5"	EU	-	IFG Knurled
				69405385	IFG Non Knurled
				-	IFM Knurled
				56405393	IFM Non Knurled
5 PIECE Construction	25"	2.0"	USA	S2025	EM
		2.0"	EU	51405007	EM
		2.5"	USA	S2525	EM
		2.5"	EU	52405006	EM
		3.0"	USA	S3025	EM
		3.0"	EU	53405006	EM
		3.5"	USA	S3525	EM
		3.5"	EU	54405004	EM
	29"	3.0"	USA	S3029	EM
		3.0"	EU	58405004	EM
		3.5"	USA	S3529	EM
		3.5"	EU	58405004	EM
	33"	2.5"	USA	S2533	EM
		2.5"	EU	69405010	EM
		3.5"	USA	S3533	EM
		3.5"	EU	62405002	EM
		4.0"	USA	S4033	EM
		4.0"	EU	63405001	EM
		4.5"	USA	S4533	EM
	35"	3.0"	USA	S3035	EM
		3.0"	EU	69401081	EM
		3.5"	USA	S3535	EM
		3.5"	EU	64405021	EM
		4.0"	USA	S4035	EM
	39"	4.0"	USA	S4039	EM
		4.5"	USA	S4539	EM
	45"	4.5"	USA	S4545	EM
	49"	3.0"	USA	S3049H	EM
		3.5"	USA	S3549H	EM
		3.5"	USA	H3549A	EM
		4.0"	USA	R4049H	EM
		4.0"	USA	R4049EH	EM
GIANT MINING	51"	4.5"	USA	H4551	EHD
		5.0"	USA	R5051H	EHD
		5.0"	USA	5348389-00	Advanced
		5.0"	USA	R5051MS	EHD Seamless
		5.0"	USA	R5051HMS	Advanced Seamless
	57"	5.0"	USA	R5057MS	EHD Seamless
		6.0"	USA	R6057H	EHD

# Components

			Origin	Part Number	Type
		6.0"	USA	534838850	Advanced
		6.0"	USA	R6057MS	EHD Seamless
		6.0"	USA	R6067HMS	Advanced Seamless
		6.5"	USA	R6557MS	EHD Seamless
		6.5"	USA	R6567HMS	Advanced Seamless
	63"	5.0"	USA	R5063HMS	Advanced Seamless
OVM / SVM	51"	5.0"	EU	800-990-321	Seamless
	57"	6.0"	EU	800-990-504	Seamless
	63"	6.0"	EU	SR5063HDFMT	Seamless
STMT & ACT	63"	5.0"	USA	75063STMT	Seamless
INDUSTRIAL / DOCKSIDE	24"	2.0"	EU	42405004	4pc S.S.
	25"	2.0"	EU	51405441	IFG Non-Knurled
	25"	2.5"	EU	55405686	IFG Non-Knurled
	33"	2.5"	EU	69405385	IFG Non-Knurled
	33"	2.5"	EU	69405010	EM
	35"	3.0"	EU	69401081	EM
	35"	3.5"	EU	64405021	EM
SPECIAL APPLICATION	20"	2.0"	EU	41405003	4pc S.S.
	20"	1.0"	EU	06405011	SDC
	20"	1.0"	EU	29405303	SDC
	20"	1.0"	EU	29405290	SDC

# Components

## Bead Seat Bands



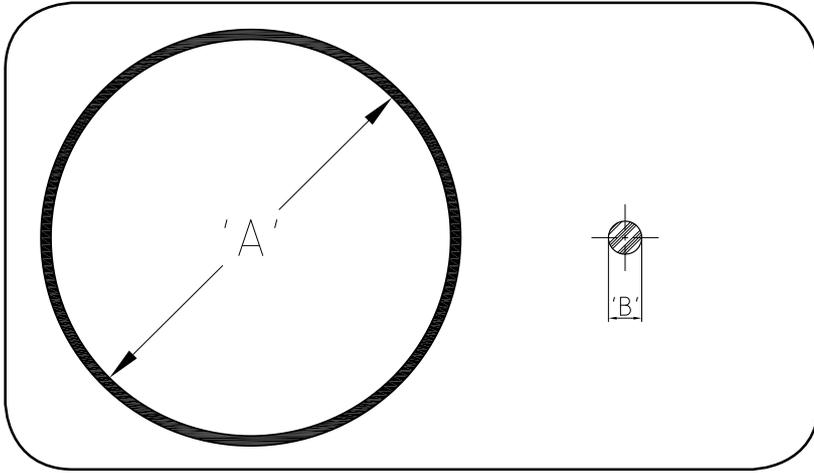
		Origin	Part Number	Description	Type
20"	-	EU	03455005	-	4-pc S.S.
24"	-	EU	42455005	-	4-pc S.S.
25"	STG	USA/EU	51455030	BB25STG	EM
	STN	USA/EU	51455005	BB25STN	EM
	STM	USA/EU	51455038	BB25STM	EM
	STMM	EU	56455231	-	EM
	HTG	USA/EU	56455024	BB25HTG	EM
	HTN	USA/EU	54451128	BB25HTN	EM
	HTM	USA/EU	54455024	BB25HTM	EM
	HTMM	EU	56455276	-	EM
29"	HTG	USA/EU	58455012	BB29HTG	EM
	HTM	USA/EU	58450911	BB29HTM	EM
	HTMM	EU	61455075	-	EM
33"	STG	USA/EU	69455012	BB33STG	EM
	STM	USA/EU	69455008	BB33STM	EM
	HTG	USA/EU	62455012	BB33HTG	EM
	HTM	USA/EU	62455011	BB33HTM	EM
	RTG	USA	BB33RTG	BB33RTG	EM
	RTL	USA	BB33RTL	BB33RTL	EM
35"	HTG	EU	64455022	BB33MHTG	EM
	HTM	EU	64455002	BB35HTM	EM
	HTL	USA	BB35HTL	BB35HTL	EM
	RTG	USA	BB35RTG	BB35RTG	EM
39"	HTL	USA	BB39HTL	BB39HTL	EM
	RTL	USA	BB39RTL	BB39RTL	EM
45"	HT	USA	BB45HT91	BB45HT91	EM
49"	RTG	USA	BB49RTG	BB49RTG	EM
	RTG(N)	USA	BB49RTG(N)	BB49RTG(N)	EM
51"	EHD	USA	BB51EHD	BB51EHD	EM
	EHDM	USA	5146946-50	BB751EHDM	EM
57"	EHD	USA	BB57EHD	BB57EHD	EM
	EHDM	USA	5348169-50	BB757EHDM	EM
	AEHDW	USA	BB57AEHDW	BB57AEHDW	EM
63"	EHDM	USA	5150839-50	BB763EHDM	EM

# Components

		Origin	Part Number	Type
OVM	51"	EU	851-001-002	OVM
	57"	EU	BB53FMF	OVM
	63"	EU	BB63OVMT	OVM
SVM	51"	EU	N/A	N/A
	57"	EU	BB57FMF	SVM
	63"	EU	BB63SVMT	SVM
STMT	63"	USA	BB63STMT	
ACT	63"	USA	BB63STMT	



## O'-Rings



Size	Part Number	Origin
20"	OR220TG	USA
21"	OR21T	USA
24"	OR224TG	USA
25"	OR25T	USA
25"	OR325T	USA
29"	OR329T	USA
32"	OR232T	USA
33"	OR333T	USA
35"	OR335T	USA
45"	OR345T	USA
49"	OR349T	USA
51"	OR451T	USA
57"	OR457T	USA
63"	OR463T	USA

## Safety Information

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# **WARNING**

The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. Failure to heed this warning could lead to serious injury or death. Read and understand the "Safety Information" in this catalog. We urge that the following is mandatory reading for all those involved in the servicing of tires and wheels:

Department of Labor Occupation Safety and Health Administration (OSHA) 29 CFR part 1910.177, titled Servicing of Single Piece and Multi-piece Rim Wheels. NOTE: Single piece rims have a rim made out of a single piece of material as shown on page S:20 and multiple-piece rims have a loose flange or flanges and lock ring as depicted on pages S:20 and S:21.

Rubber Manufacturers Association, "Care and Service of Farm Tires"  
 Rubber Manufacturers Association, "Care and Service of Off-the-Highway Tires"  
 Rubber Manufacturers Association, "Care and Service of Highway Truck Tires"  
 Rubber Manufacturers Association, "Demounting and Mounting"

Procedure Wall Charts:

Automobile and Light Truck Tires on Single piece Rims  
 Truck Tires (Radial and Bias ply)  
 Truck/Bus Tires  
 Agricultural Tires

We have shown step by step procedures for the servicing of single piece, three piece and five piece rims with the emphasis on safety operations for these rims in this catalog. Information on other types of rims can be found in the above RMA publications or in the catalogs published by the rim manufacturer. This and any other safety related information in Titan's catalog is issued as assistance to supervisory and operational personnel in the actual tire/rim service environment. The responsibility for implementation of this safety information rests with operational and supervisory personnel carrying out the actual service work. Read and fully understand all procedures before attempting tire/wheel servicing.

If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process **STOP!** Seek out expert assistance from a qualified person.



Wear protective gloves, footwear, safety glasses, hearing protection and head gear when servicing tires and wheels.

Further references explaining safety procedures can be found in literature published by the Rubber Manufacturers Association, Washington D.C.; the Tire Association of North America, Washington D.C.; the National Wheel and Rim Association, Jacksonville, FL; and OSHA, Washington D.C.

## **SAFETY FIRST!**

# **IMPORTANT!**

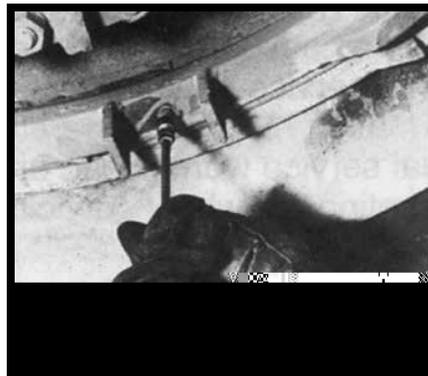
## **THIS IS THE FIRST STEP IN ALL DEMOUNTING OPERATIONS**

**!** Always remove the valve core and exhaust all air from a single tire and from both tires of a dual assembly. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

**!** READ AND FOLLOW SAFETY INSTRUCTIONS.  
FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.



Removing valve core from single piece wheel.



Running wire through the stem of an single piece wheel.

## Safety Information

---

# GENERAL WARNINGS



This symbol indicates a warning message.



Failure to heed warnings could lead to serious injury or death.

- The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools, and following the procedures presented here and in manufacturers' catalogs, instruction manuals, or other industry and government instruction material.
- Several types of tire changing equipment are available. Installers should be fully trained in correct operating procedures and safety instructions for the specific machine being used. Always read and understand any manufacturer's warning contained in the product literature or posted on the equipment.
- Always use approved tire and rim combinations for sizes and contours.
- Always wear personal protection equipment such as gloves, footwear, eye protection, hearing protection and head gear, when servicing tire and wheels.
- Never exceed manufacturer's recommended tire inflation pressure.
- Always use proper lifting techniques and mechanized lifting aids to move heavy components and assemblies.
- Always take care when moving tires and wheels that other people in the area are not endangered.
- Never leave a tire, wheel or assembly unsecured in a vertical position.
- Parts that are cracked, worn, pitted with corrosion or damaged must be destroyed, discarded and replaced with good parts.
- Always exhaust all air from the tire prior to demounting.
- Never try to repair wheel, rim or tire component parts. Replace all damaged, worn or suspect parts with good parts.
- Never reinflate a tire that has lost air pressure or has been reinflated without determining and correcting its problem.
- When conducting routine tire inspections also conduct a visual inspection of wheel and rim components. Always correct any non-conformities found.
- Always use restraining devices (safety cages) when inflating tires.
- Never exceed 35 psi when seating beads.
- Misapplication, improper inflation, overloading and exceeding maximum speed may cause tire failure.
- Always inspect both sides of the tire to assure proper bead seat.

# GENERAL WARNINGS

## **WARNING**

**15.3" DIAMETER: 9" WIDTH EUROPEAN RIMS**  
Certain European implement equipment has been imported into North America with unique diameter rims for which no North American produced replacement tire sizes are available.

Any attempt to mount and inflate 15" nominal bead diameter tires on these rims may ultimately cause one of the tire beads to break, possibly resulting in serious physical injury or even death.

The rims in question are 15.3" in diameter and 9" wide. However, rims manufactured in 1981 and earlier are marked as 15" diameter; only those manufactured in 1982 and 1983 are marked as 15.3" diameter. **The key to avoiding this potentially dangerous situation is the 9" width.** The U.S.A. (or Canada) wheel industry does not manufacture a 9" width rim for implement use.

The European tires sizes that may be mounted on these rims are:

10.0/75 – 15.3 (or 15)  
10.5/85 – 15.3  
11.5/80 – 15.3 (or 15)  
12.5/80 – 15.3

**U.S.A. (OR CANADA) PRODUCED IMPLEMENT TIRES ARE NOT TO BE MOUNTED ON ANY 9" WIDE IMPLEMENT RIM.**

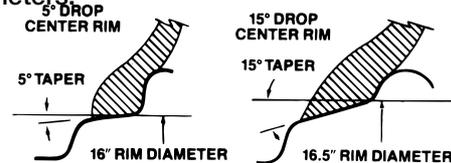
## **WARNING**

There is a danger of serious injury or death if a tire of one bead diameter is installed on a rim or wheel of a different rim diameter.

Always replace a tire with another tire of exactly the same bead diameter designation and suffix letters. For example: A 16" tire goes on a 16" rim. Never mount a 16" tire on a 16.1" or 16.5" rim. A 16.5" tire goes on a 16.5" rim. Never mount a 16.5" tire on a 16" or 16.1" rim.

While it is possible to pass a 16" diameter tire over the lip or flange of a 16.1" or 16.5" size diameter rim, it cannot be inflated enough to position itself against the rim flange. If an attempt is made to seat the tire bead by inflating, the tire bead will break with explosive force and could cause serious injury or death.

Rims of different diameters and tapers cannot be interchanged. The following diagram illustrates the difference between rims of two different tapers and diameters:



The following diagram shows how beads of a 16" tire will not seat on a 16.5" rim. The beads cannot be forced out against the rim flanges by using more air pressure because this will break the beads and the tire will explode with force sufficient to cause serious injury or death.



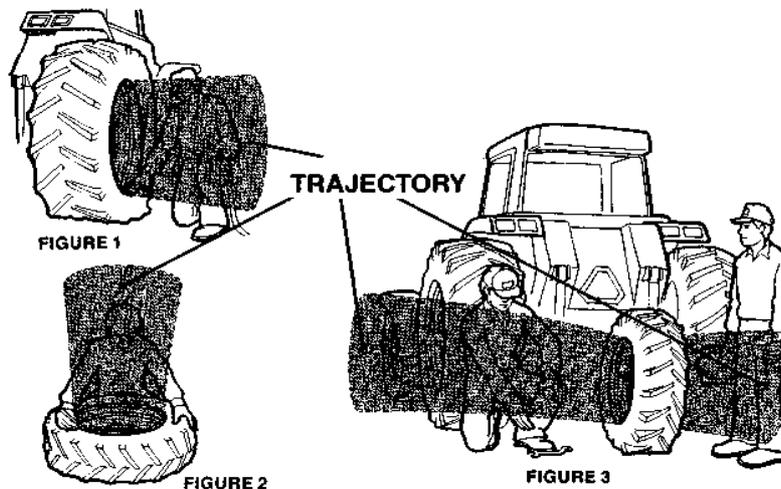
## Safety Information

# GENERAL WARNINGS

## **WARNING**

STAY OUT OF THE TRAJECTORY AS INDICATED BY SHADED AREA. ALWAYS USE A SAFETY CAGE OR OTHER RESTRAINING DEVICE IN COMPLIANCE WITH OSHA REGULATIONS.

Note: Under some circumstances, the trajectory may deviate from its expected path.

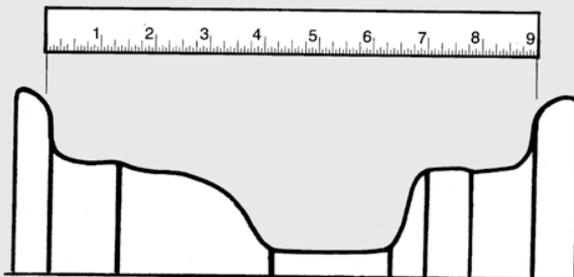


NEVER stand, lean or reach over the assembly during inflation.

## TO DETERMINE COMPATIBLE RIM WIDTH FOR TIRE SIZES

Determine the vehicle's actual rim width by measuring, in inches, the distance between the vertical bead flanges as shown. A simple ruler or yardstick may be used, as rims are manufactured in half inch increments of width.

Find permissible replacement tire sizes in RMA's Care and Service Tires Manual (Washington, D.C.). Most tires will fit on more than one rim width.



## Demounting Single Piece Wheel and Tire Assemblies (On-The-Vehicle)

Tools Required: Cap and core removal tools, bead unseating tool, two 36" tire irons, two 18" tire irons, vegetable-based lubricant.

**!** If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process STOP! Seek out expert assistance from a qualified person.

**!** Due to the variety of vehicle/equipment configurations and the range of conditions and situations under which on-vehicle demounting (wheel/tire assembly still attached to vehicle or equipment) can occur, proper procedures for blocking, jacking, cribbing of the vehicle/ equipment must be done in accordance with the manufacturers operator's manual, maintenance manual or the information as provided by the vehicle/ equipment manufacturer.

Tools required: Jack, cribbing, blocking or other items as needed to jack and block the vehicle/equipment per the manufacturers instructions, hydraulic demounting tool, hooked tire iron, pry bar and lifting device or boom truck.

1. Remove the fluid fill from the tire. Deflate the tire by removing the valve core housing. For tube-type tires, remove the rim nut and push the valve through the valve hole.

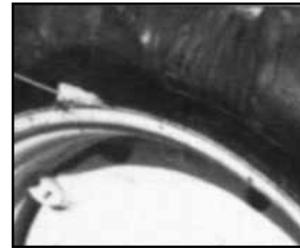
**!** Always completely deflate tire (both tires of a dual assembly) by removing valve core(s) from valve(s) before attempting any demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

**!** Stand clear of trajectory danger zone when deflating (page S:5).



2. After the tire is completely deflated, place a hydraulic "bead unseating" tool between the tire bead and rim flange and force the bead off the bead seat. Be careful not to damage the tire's bead area. The beads should be unseated on both sides of the rim.

**!** Demounting tools apply pressure to rim flanges to unseat tire beads. Keep your fingers clear. Always stand to one side when you apply hydraulic pressure.



3. Thoroughly lubricate the tire bead area and rim flange with a vegetable-based lubricant.

**!** Never use a petroleum-based lubricant. Only use vegetable-based lubricant.



4. Lock the wheel with the valve at the top. At the bottom, force the outside bead into the well. At the top, insert long tire irons under the bead and pry the bead over the rim flange. Take small bites and avoid extremely hard prying, which will damage the tire bead.

**!** Do not release your grip on either iron, as they may spring back.

**!** Keep fingers clear of pinch points.



5. After the first section of the bead is over the rim flange, use one tire iron to pry the next section over the flange. Do not attempt to pry too large a section of the bead over the rim flange at one time. Continue prying tire over rim flange until the complete tire is on the outside of the rim flange.

## Safety Information

### **Demounting Single Piece Wheel and Tire Assemblies (On-The-Vehicle)**

Tools Required: Cap and core removal tools, bead unseating tool, two 36" tire irons, two 18" tire irons, vegetable-based lubricant.

**⚠** If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process **STOP!** Seek out expert assistance from a qualified person.

**⚠** Do not release your grip on either iron, as they may spring back.

**⚠** Keep fingers clear of pinch points.



6. For tube-type tires, pull the tube out of the casing, starting at the bottom. If only the tube requires repair or replacement, this can be removed, repaired, and replaced in the tire without removing the tire completely from the wheel. Before reinstalling the tube, thoroughly inspect the inside of the casing for damage or other foreign material. Remove any remaining fluid from inside the tire.

**⚠** Tires or tubes with excessive or uneven wear, cracks, tears, punctures, blisters and or other damage may explode during inflation or service. If tire or tube failure potential is suspected, destroy the tire and replace with known good tire or tube of correct size, type and manufacturer for assembly, machine, and application.



7. To remove the tire completely from the wheel, insert tire irons under the inside bead at the side of the tire. Pry the rest of the inside bead over the rim flange. When starting this operation, be sure that the bead area on the opposite side of the tire is down in the well of the rim.

**⚠** Do not release your grip on either iron, as they may spring back.

**⚠** Keep fingers clear of pinch points.

## Mounting Single Piece Wheel and Tire Assemblies (On-The-Vehicle)

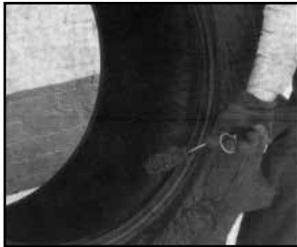
Tools Required: vegetable-based lubricant, wire brush, two 36" tire irons, two 18" tire irons, rubber mallet, extension hose with in-line gauge and clip-on air chuck, air/water inflation gauge, restraining device.

**!** If you have any doubt in the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process STOP! Seek out expert assistance from a qualified person.

**!** ALWAYS replace a tire on a rim with another tire of exactly the same rim diameter designation.

**!** Rims of different diameters and tapers CANNOT be interchanged.

**!** Remove water and foreign material from tire. Tubes or tires with excessive wear, cracks, tears, punctures, blisters, or other damage may explode during inflation or service. If tube or tire failure potential is suspected, render the tube or tire unusable and replace with known good tube or tire.



1. Thoroughly lubricate the tire bead area and rim flange with a vegetable-based lubricant.

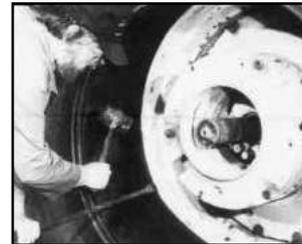
**!** Never use petroleum-based lubricant. Only use vegetable-based lubricant.

2. With a wire brush, clean and inspect rim for fatigue cracks. Replace any cracked, badly worn, damaged and severely rusted rims or wheels. Coat the rim with paint or a rust inhibitor if necessary.

**!** Follow procedures and safety precautions of the paint manufacturer.

**!** Do not, under any circumstances, attempt to re-work, weld, heat, or braze any rim base or wheel components.

3. Before placing tire on rim, be sure the rim's valve hole is at the bottom of wheel. Also take care to ensure directional bead tires are mounted for correct rotation direction.



4. To put the tire on the wheel, place the inner bead over the flange at the top. Be sure the bead is not "hung up" on the bead seat, instead the bead is guided into the rim well, while the tire irons and/or rubber mallet are used to work the first bead over the rim. With the first bead on the rim, pull the tire toward the outside of the rim as far as possible to make room for the tube.

**!** Keep fingers clear of pinch points.

**!** Keep a firm grip on the tire iron(s), as they may spring back.



5. Tubeless-type tires, skip to step seven. For tube-type tires, be sure the valve is at the bottom of the wheel. Align the stem with the valve hole and starting at the bottom, place the tube in the tire. Place the valve in valve hole and screw the rim nut in place. Be sure that the tube is well inside the rim before proceeding to the next step.

## Safety Information

### **Mounting Single Piece Wheel and Tire Assemblies (On-The-Vehicle)**

Tools Required: vegetable-based lubricant, wire brush, two 36" tire irons, two 18" tire irons, rubber mallet, extension hose with in-line gauge and clip-on air chuck, air/water inflation gauge, restraining device.

**!** If you have any doubt in the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process STOP! Seek out expert assistance from a qualified person.

6. In tube-type tires, the tube should be partially inflated and areas that contact the rim should be relubricated to prevent localized stretching.

**!** Never use petroleum-based lubricant. Only use vegetable-based lubricant.

**!** Keep fingers clear of pinch points.



7. Starting at the top, use the tire irons to lift the outer bead up and over the rim flange, then down into the rim well. Be careful not to pinch the tube in this operation.

**!** Keep fingers clear of pinch points.

**!** Do not release your grip on either iron, as they may spring back.



8. After getting the first section of the outer bead into the rim well, remove the tire iron and place one hand against that section to hold it in then pry the remainder of the bead over the flange with the tire iron in the other hand.

**!** Keep fingers clear of pinch points.

**!** Keep firm grip on tire iron(s), as they may spring back.

9. With the valve stem at the bottom, lower the jack until the tire is centered on the rim. Centering of the tire and rim assembly is extremely important to prevent broken beads.



10. Place a safety restraint over the rim and tire. Using an extension hose with an in-line air gauge and clip-on chuck (with valve core removed), inflate the tire to seat the beads. Do not exceed 35 psi. Check for correct concentric centering of tire on rim.

**For tubeless tires**, successful mounting depends on how well the shape of the tire has been maintained. If the beads are in or near their molded position, they can be seated by inflating the tire, through the valve spud. Where the beads have been squeezed together, the use of an inflator ring (either horizontally or vertically) will be required to provide a seal between the tire bead and rim.

**!** If assembly is incorrect, – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.

11. Raise the vehicle and rotate wheel assembly to have the valve at the top. **If the tire is tube-type**, completely deflate by removing the valve core housing to remove buckles and uneven stresses from the tube and flap before reinflation.

12. If assembly is correct, re-insert the valve core (for tube-type tires) and continue to inflate to recommend pressure.

**!** If assembly is incorrect – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.

**!** Stand clear of trajectory danger zone when inflating (page S:5).

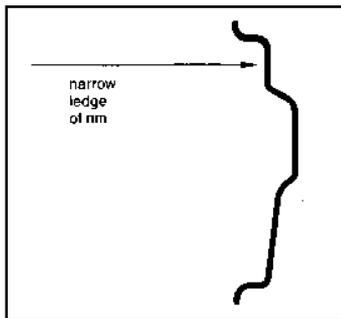
**!** Never inflate beyond manufacturer's recommended tire pressure.

**NOTE:** A filter on the air inflation equipment to remove moisture from the airline prevents corrosion. Check the filter periodically to be sure it's functioning properly.

## Demounting Single Piece Wheel and Tire Assemblies (Off-The-Vehicle)

Tools Required: Cap and core removal tools, bead unseating tool, vegetable-based lubricant, two 18" tire irons.

**!** If you have any doubt in the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process STOP! Seek out expert assistance from a qualified person.



1. Remove any fill from the tire. Completely deflate tire by removing valve core from valve before attempting any demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged. Lay the assembly on the floor with the narrow ledge on the bottom.

**!** Stand clear of trajectory danger zone when deflating (page S:5 & S:17).



2. Drive a bead unseating tool between the tire bead and rim flange, being careful not to damage the tire bead area. After the bead has been completely released around the tire, turn the tire and rim over and repeat the bead unseating procedure with the narrow ledge up.

**!** Keep fingers clear of pinch points.



3. With the narrow ledge on top, thoroughly lubricate the rim flange and tire bead area with a vegetable-based lubricant.

**!** Never use petroleum-based lubricant. Only use vegetable-based lubricant.



4. Force the part of the bead that is directly across from the valve into the well. Starting at the valve, pry the bead over the rim flange using two 18" long tire irons. Take small bites to avoid damaging the bead. Continue until the top bead is completely over the rim flange.

**!** Keep a firm grip on tire irons as they may spring back.

**!** Keep fingers clear of pinch points.



5. For tube-type tires, bring the assembly to an upright position and pull the tube out of the tire. If only the tube requires repair or replacement, this can be removed, repaired, and replaced in the tire without removing the tire completely from the rim. Thoroughly inspect the inside of the casing for damage or other foreign material. Remove any remaining fluid from inside the tire.

**!** Tire or tubes with excessive or uneven wear, cracks, tears, punctures, blisters or other damage may explode during inflation or service. If tire or tube failure potential is suspected, destroy the tire and replace with known good tire or tube of correct size, type and manufacturer for assembly, machine, and application.

## Safety Information

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### ***Demounting Single Piece Wheel and Tire Assemblies (Off-The-Vehicle)***

Tools Required: Cap and core removal tools, bead unseating tool, vegetable-based lubricant, two 18" tire irons.

**⚠** If you have any doubt in the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process **STOP!** Seek out expert assistance from a qualified person.



6. To completely remove the tire from the rim, turn assembly over so the narrow ledge is down and lubricate the second tire bead and rim flange. Be sure the bead still on the rim is in the rim well and insert the tire irons under the opposite side of the bead. Work the rim slowly out of the tire by taking small bites alternately using both tire irons.

**⚠** Never use petroleum-based lubricant. Only use vegetable-based lubricant.

**⚠** Keep a firm grip on the tire irons, as they may spring back.

**⚠** Keep fingers clear of pinch points.

## Mounting Single Piece Wheel and Tire Assemblies (Off-The-Vehicle)

Tools required: Two 18" tire irons, wire brush, locking pliers, vegetable-based lubricant, valve retrieval tool (tube-type tires), extension hose with in-line gauge and clip-on air chuck, air/water inflation gauge, safety cage.

 If you have any doubt in the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process STOP! Seek out expert assistance from a qualified person.

 ALWAYS replace a tire on a rim with another tire of exactly the same rim diameter designation.

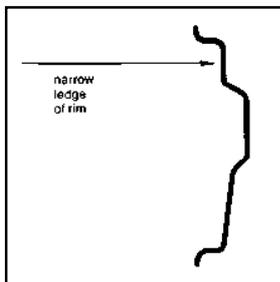
 Rims of different diameters and tapers CANNOT be interchanged.

 Remove water and foreign material from tire. Tubes or tires with excessive wear, cracks, tears, punctures, blisters or other damage may explode during inflation or service. If tube or tire failure potential is suspected, render the tube or tire unusable and replace with known good tube or tire.

1. With a wire brush, clean and inspect rim for fatigue cracks. Replace all cracked, badly worn, damaged and severely rusted rims and wheels. Coat the rim and components with paint or a rust inhibitor if needed.

 Follow procedures and safety precautions of the paint manufacturer.

 Do not, under any circumstances, attempt to rework, weld, heat or braze any rim base or wheel components.



2. Lay the rim on the floor with the narrow ledge on the top. Thoroughly lubricate the tire bead area and rim flange with a vegetable-based lubricant.

Never use petroleum-based lubricant. Only use vegetable-based lubricant.

3. Push the bottom bead over the rim flange as far as possible. Use 18" tire irons to work the first tire bead completely over the rim flange, taking small bites and being careful not to damage the bead. Make sure directional tread tires are mounted for correct rotation direction.



Keep a firm grip on the tire irons as they may spring back.

Keep fingers clear of pinch points.

4. For tube-type tires, partially inflate the tube and insert it into the tire casing with the valve located near the valve hole in the rim. Attach a valve retrieval tool to the valve and thread the tool through the valve hole. (Inserting the tube and attaching the tool may be eased by placing a block under the tire.)



Keep a firm grip on the tire irons as they may spring back.

Keep fingers out of pinch points.

## Safety Information

### **Mounting Single Piece Wheel and Tire Assemblies (Off-The-Vehicle)**

Tools required: Two 18" tire irons, wire brush, locking pliers, vegetable-based lubricant, valve retrieval tool (tube-type tires), extension hose with in-line gauge and clip-on air chuck, air/water inflation gauge, safety cage.

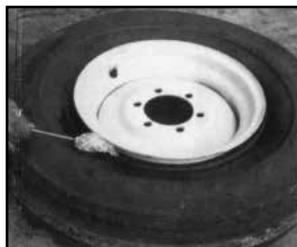
**!** If you have any doubt in the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process STOP! Seek out expert assistance from a qualified person.

6. When the bead is well started, lubricate the remaining unmounted portion of the tire bead and rim flange. Taking small bites, spoon the tire bead over the rim flange until the final section drops over at the valve.

**!** Never use petroleum-based lubricant. Only use vegetable-based lubricant.

**!** Keep a firm grip on the tire irons as they may spring back.

**!** Keep fingers out of pinch points.



7. Thoroughly lubricate the tire bead area and rim beadseats on both sides of the tire.

**!** Never use petroleum-based lubricant. Only use vegetable-based lubricant.

8. Centering of the tire and rim assembly is extremely important to prevent broken beads.

9. Place the tire in a safety cage. Using an extension hose with an in-line air gauge and clip-on chuck (with valve core removed), inflate the tire to seat the beads. Do not exceed 35 psi. Check for correct concentric centering of tire on rim. **For tubeless tires**, successful mounting depends on how well the shape of the tire has been maintained. If the beads are in or near their molded position, they can be seated by inflating the tire, through the valve spud. Where the beads

have been squeezed together, the use of an inflator ring (either horizontally or vertically) will be required to provide a seal between the tire bead and rim.

**!** If assembly is incorrect – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.

10. If the tire is tube-type, completely deflate by removing the valve core housing to remove buckles and uneven stresses from the tube and flap before reinflation.

11. If assembly is correct, re-insert the valve core and continue to inflate to recommended pressure.

**!** If assembly is incorrect – STOP – DEFLATE – CORRECT THE ASSEMBLY – repeat procedure.

**!** Stand clear of trajectory danger zone when inflating (page S:5 & S:17).

**!** Never inflate beyond manufacturer's recommended tire pressure.

**NOTE:** A filter on the air inflation equipment to remove moisture from the airline prevents corrosion. Check the filter periodically to be sure it's functioning properly.

## **WARNING**

The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. Failure to heed this warning could lead to serious injury or death. Read and understand the “Safety Information” in this catalog. We urge that the following is mandatory reading for all those involved in the servicing of tires and wheels:

Department of Labor Occupation Safety and Health Administration (OSHA) 29 CFR part 1910.177, titled Servicing of Single Piece and Multi-piece Rim Wheels. NOTE: Single piece rims have a rim made out of a single piece of material as shown on page S:20 and multiple-piece rims have a loose flange or flanges and lock ring as depicted on pages S:20 and S:21.

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If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, adding or removing fill, or inflating process **STOP!** Seek out expert assistance from a qualified person.



Wear protective gloves, footwear, safety glasses, hearing protection and head gear when servicing tires and wheels.

Further references explaining safety procedures can be found in literature published by the Rubber Manufacturers Association, Washington D.C.; the Tire Association of North America, Washington D.C.; the National Wheel and Rim Association, Jacksonville, FL; and OSHA, Washington D.C.

## **SAFETY FIRST!**

## Safety Information

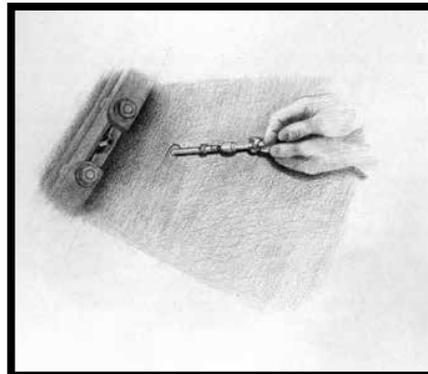
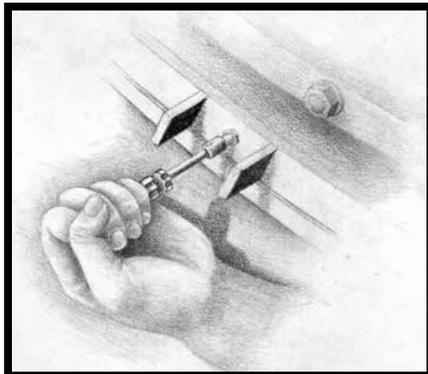
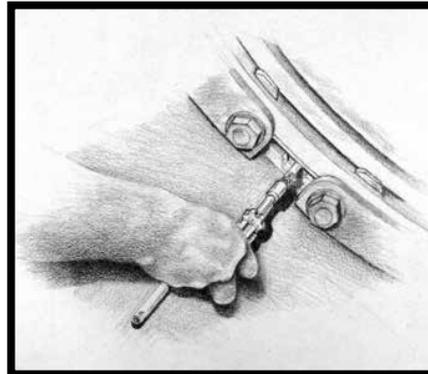
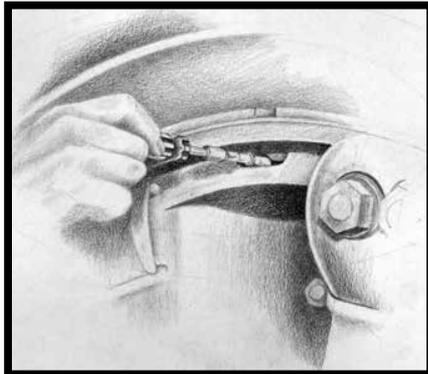
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# **IMPORTANT!**

## **THIS IS THE FIRST STEP IN ALL DEMOUNTING OPERATIONS**

**⚠** Always remove the valve core and exhaust all air from a single tire and from **both** tires of a dual assembly prior to loosening the first rim clamp nut. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

**⚠** READ AND FOLLOW SAFETY INSTRUCTIONS.  
**FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.**



# GENERAL WARNINGS



This symbol indicates a warning message.



Failure to heed warnings could lead to serious injury or death.

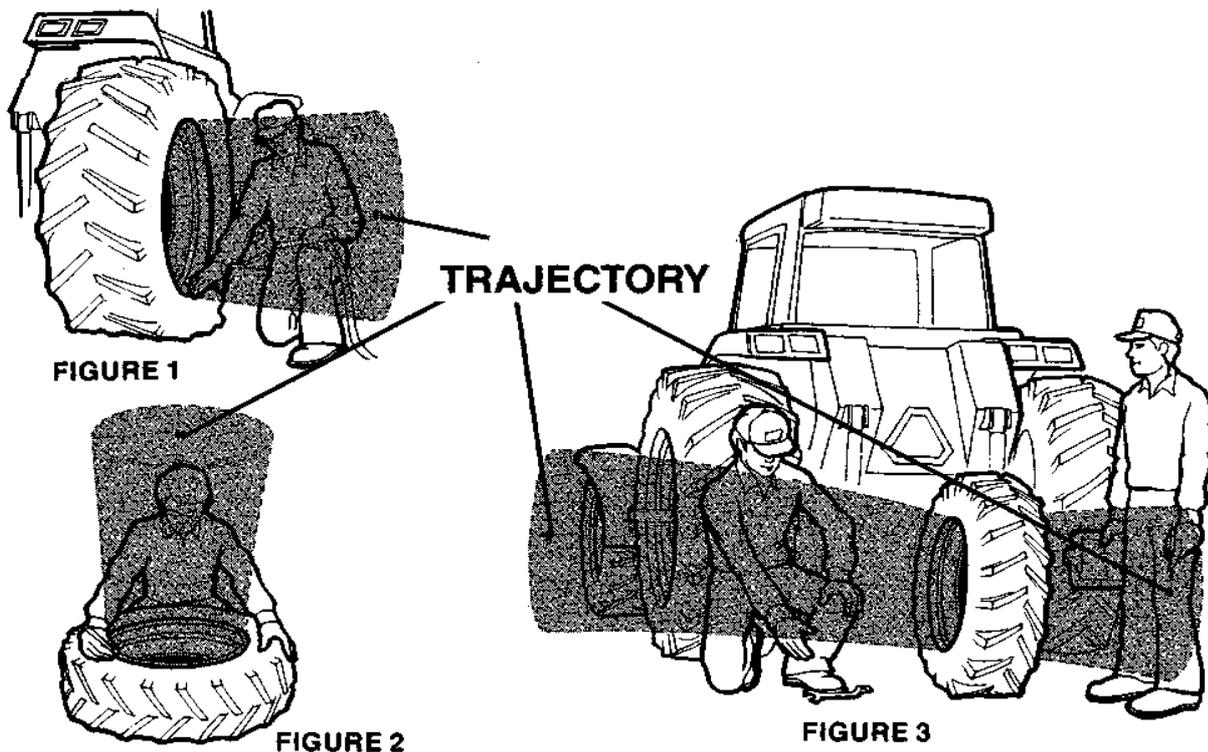
- The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools, and following the procedures presented here and in manufacturer's catalogs, instruction manuals, or other industry and government instruction material.
- Always use approved tire and rim combinations for sizes and contours.
- Always wear personal protection equipment such as gloves, footwear, eye protection, hearing protection and head gear when servicing tire and wheel components.
- Never exceed manufacturer's recommended tire inflation pressure.
- Always use proper lifting techniques and mechanized lifting aids to move heavy components and assemblies.
- Always take care when moving tires and wheels that other people in the area are not endangered.
- Never leave a tire, wheel or assembly unsecured in a vertical position.
- Parts that are cracked, worn, pitted with corrosion or damaged must be destroyed, discarded and replaced with good parts.
- Always exhaust all air from the tire prior to demounting.
- Never try to repair wheel, rim or tire component parts. Replace all damaged, worn or suspect parts with good parts.
- Never reinflate a tire that has lost air pressure or has been run flat without determining and correcting the problem.
- When conducting routine tire inspections also conduct a visual inspection of wheel and rim components. Always correct any non-conformities.
- Always verify that part numbers and size designation of component parts are correctly matched for the assembly. See pages S:23 and S:24 for part number location.
- Always place wheel and tire assemblies in restraining devices when inflating tires. See page S:19, item 11.

## Safety Information

### **WARNING**

STAY OUT OF THE TRAJECTORY AS INDICATED BY SHADED AREA. ALWAYS USE A SAFETY CAGE OR OTHER RESTRAINING DEVICE IN COMPLIANCE WITH OSHA REGULATIONS.

Note: Under some circumstances, the trajectory may deviate from its expected path.



 Never stand, lean or reach across the potential tire and wheel component trajectory danger zones, as shown.

- Additional safety information can be found in literature published by the Rubber Manufacturer's Association, Washington, D.C.; The National Tire Dealer and Retreading Association, Washington, D.C.; The National Wheel and Rim Association, Jacksonville, FL.; and OSHA, Washington, D.C.
- Always completely deflate the tire (both tires of a dual tire assembly) by removing the valve core(s) from valve(s) before attempting any demounting or disassembling. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

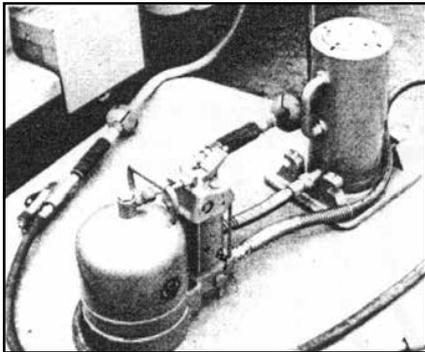
 Note: Under some circumstances, the trajectory may deviate from its expected path. Always use a safety cage or other restraining device in compliance with OSHA regulations.

## Tools and Equipment Required

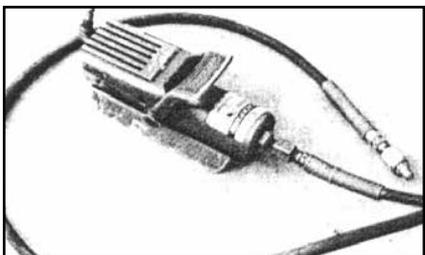
The following tools and equipment are required to service the various types of multi-piece rims included in this section of the catalog.

- A. Hard wood blocks
- B. A valve extension tool
- C. A set of cap and core removal tools
- D. A wire brush
- E. Chain or cable slings of adequate length
- F. Bead Lubricant (Non-Petroleum base)
- G. A mallet or its equivalent
- H. Inflation hose with clip-on chuck, in-line gauge and control valve
- I. Piece of wire (to unplug valve stem)

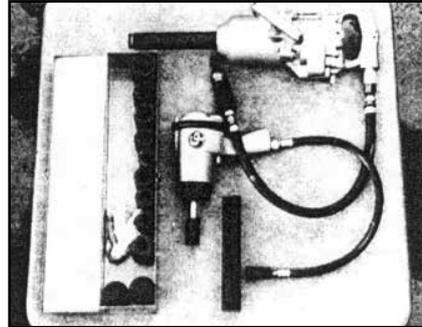
Plus the following:



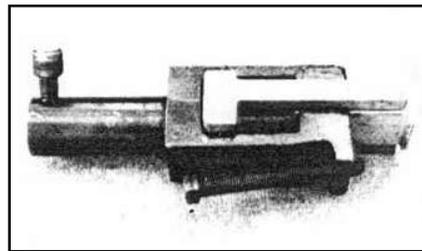
1. Air-Hydraulic Pump and 50-ton jack. Air supplied to the pump develops hydraulic pressure to lift the jack. This equipment is essential in servicing extra-heavy construction equipment.



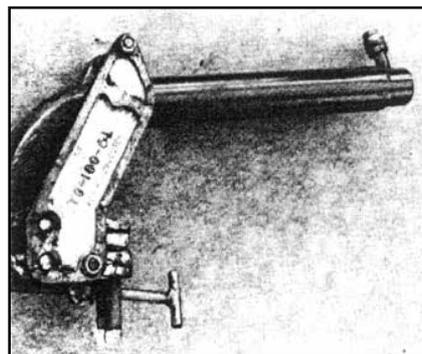
2. Air-Hydraulic Pump, activates hydraulic tools such as the bead breakers and hydraulic rams.



3. Air wrenches and their sockets are used to tighten and loosen nuts on wheels assemblies.

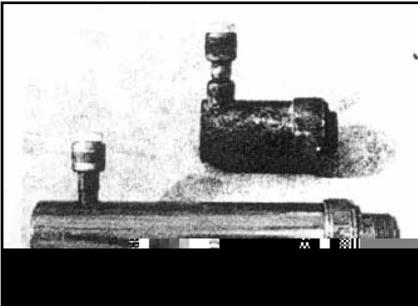


4. Bead Breaker, used for loosening tires from bead seats when the rim has prying slots.



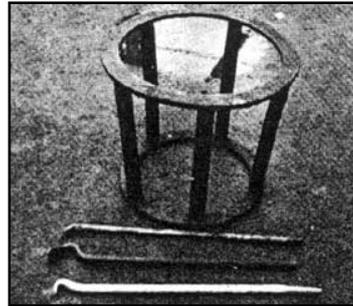
5. Bead Breaker, used for loosening tire from bead seats when the rim has no prying slots.

# Safety Information

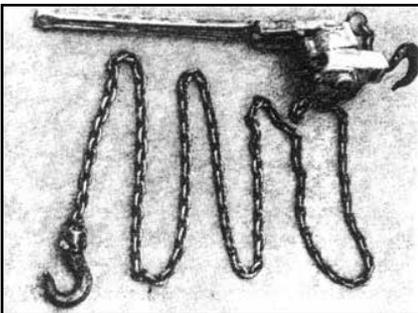


6. Top: 4" ram Hydraulic Demounting tool. Bottom: 6"-8" ram Hydraulic Demounting tool.

Rams apply pressure to the inside bead flange when removing tires from 15° tapered rims.



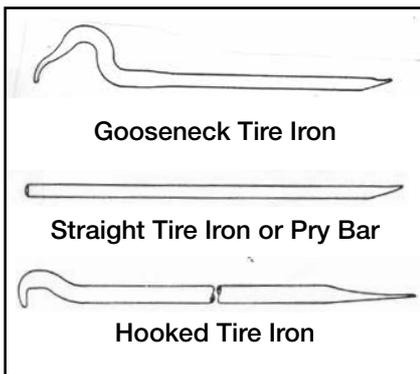
9. Mounting stand, used when mounting tires on rims that have been removed from a vehicle.



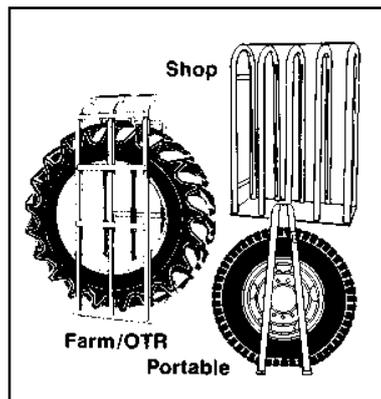
7. Coffin hoist (1/2 ton capacity). This tool expands the bead on tapered bead seats, so that a tubeless tire will take air.



10. A service truck with a hydraulic hoist is essential to installing and removing today's heavy off-the-road tires.



8. These tire irons are used to pry apart wheel components.



11. A cage of restraining device in which to place the wheel/tire assembly while inflating.

**Titan “W” Series Rims are not interchangeable with other types**

 If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process STOP! Seek assistance from a qualified person.

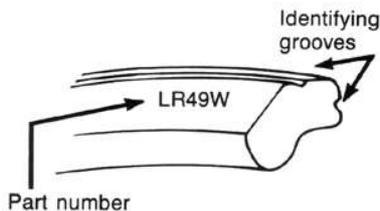
 Rim and Wheel Components are not always interchangeable check part numbers carefully before assembling.

 Titan’s “W” SERIES LOCK RINGS ARE NOT INTERCHANGEABLE WITH OTHER TYPES, it is vitally important that you must check part numbers carefully before rim assembly. Following is a summary of the changes.

**“W” Style Lock Ring**

A “W” appears after the part number, which is stamped on the 45 degree face near the lock ring split (e.g. LR49W for a 49” rim), see illustration below.

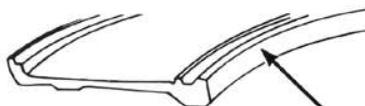
A circumferential groove gives the ring a unique appearance. This lock ring can only be used with the new “W” style gutters.



**“W” Style Rim Base**

There are two types of rim bases, the old version contains a “T” in the part number, whereas the new style contains a “W.” A “W” style rim base must be matched only with a “W” style lock ring.

OLD	NEW
B1735HTHGD	B1735RWHGD
B3239HTEL	B3239RWEL



The faces of the “W” style rim base carries a caution stamping advising the user of the proper lock ring part number.

**Bead Seat Bands**

There are two types of bead seat bands, the old version contains an “H” in the part number, whereas the new style contains an “R.” These bead seat bands are interchangeable.

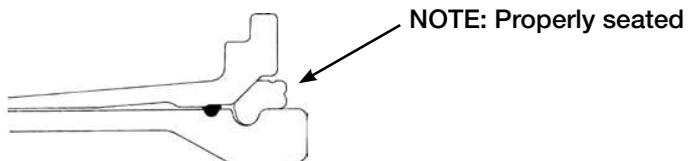
The R and H Bead Seats are interchangeable.

OLD	NEW
BB49HTG	BB49RTG
BB39HTL	BB28RTL

 **DO NOT MISMATCH LOCK RINGS AND RIM BASES**

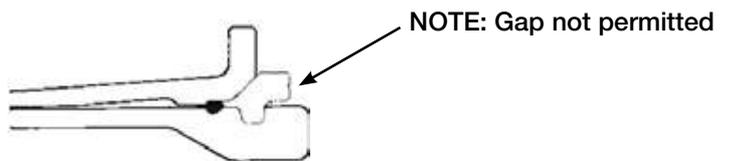
**Correct Assembly:**

“W” style lock ring with grooves assembled with “W” style rim base.



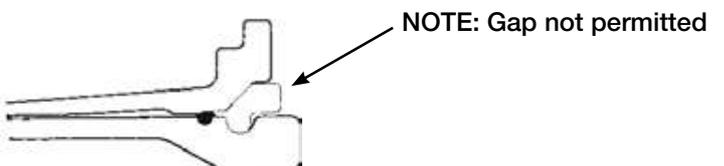
**Incorrect Assembly:**

“W” lock ring with old rim base. Note poor fit and gap between lock ring and gutter. DO NOT USE. REASSEMBLE USING PROPER COMPONENTS.



**Incorrect Assembly:**

“W” lock ring with old rim base. Note poor fit and gap between lock ring and gutter. DO NOT USE. REASSEMBLE USING PROPER COMPONENTS.



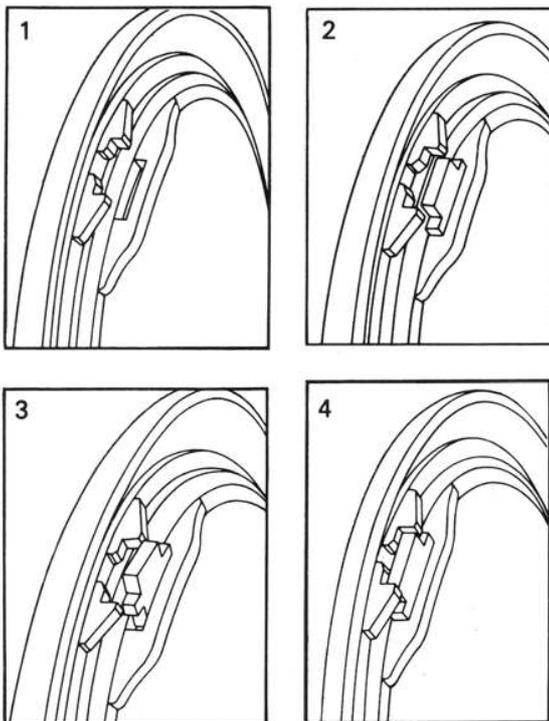
## Safety Information

# Outboard Driver Keys

## Instructions

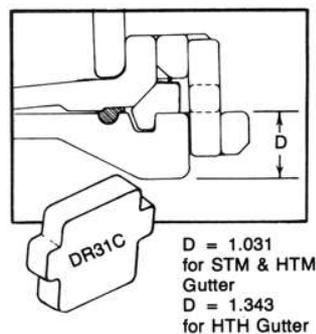
 If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process STOP! Seek assistance from a qualified person.

### Outboard Driver Keys

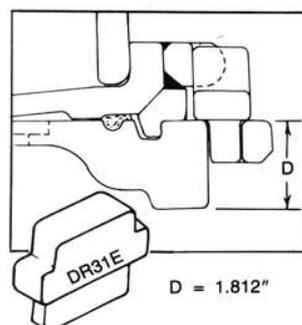


1. Align driver pockets in bead seat band and base as shown.
2. Inset driving key into driver pocket on base.
3. Make certain that all parts are properly aligned, as shown, before inflation.
4. When properly aligned, the bead seat band and pocket will move out and lock the driver key during inflation.

Outboard drivers are on those rims used in high torque and/or low inflation pressure applications, preventing circumferential movement of the rim components. Rim assemblies with an "M" or "L" near the end of the style designation (part number) are so equipped.



The DR31C driver key is used on rim bases with 1.0" and 1.3" approximate thickness gutter sections; basic styles STM, HTM, HTHM and HTHL.



The DR31E driver key is used on rim bases with the 1.8" approximate thickness gutter section; basic style HTEL.

## Demounting Tires from Titan Assemblies

### 3-Piece Rim Assemblies

**Tools Required:** One (1) straight tire iron tool; Two (2) gooseneck tire iron tools; Rubber lubricant; Rubber, lead, plastic or brass-faced mallet and valve core removal tool, wire.

**⚠** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process **STOP!** Seek assistance from a qualified person.

**⚠** Always completely deflate tire (both tires of a dual assembly) by removing valve core(s) from valve(s) before attempting any demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

**⚠** Stand clear of trajectory danger zone when deflating (p. S:5 & S:17).



1. After complete deflation, place the assembly on the floor (on blocks with loose side flange side up).

2. Drive the goose-necked end of two gooseneck tire iron tools between the tire and side flange about 5 inches apart.



3. Pry both tools down and out as shown. Leave one tool in position and place the second about 5 inches beyond. Repeat in successive steps until the tire bead is completely unseated.

**⚠** Never release your grip on the tire irons, as they may spring back.



4. After the tire bead is unseated, stand on side flange and tire sidewall to depress the side flange down along the rim base. Pry the lock ring loose, starting at the split then remove the lock ring.

**⚠** Keep fingers clear of pinch points.



5. Hold the side flange down with hooked end of gooseneck tire iron to remove the "O" ring from ring groove. It is a good idea to cut and discard the "O" ring and replace it with a new "O" ring.

**⚠** Keep fingers clear of pinch points.



6. Remove the side flange.

7. Turn tire and rim over and unseat second bead by inserting both gooseneck tire iron tools between tire and fixed rim flange as in step 3. Repeat steps 2 and 3 until the tire bead is completely broken loose from the rim on the fixed flange side. Lift rim base out of tire.

**⚠** Do not release your grip on the tire irons, as they may spring back.

**⚠** Keep fingers clear of pinch points.

## Safety Information

# Mounting Tires on Titan Assemblies

## 3-Piece Rim Assemblies

Tools Required: One (1) straight tire iron tool; Two (2) gooseneck tire iron tools; Rubber lubricant; Rubber, lead, plastic or brass-faced mallet and safety cage.

**!** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process STOP! Seek assistance from a qualified person.

1. Clean the rim base and all components thoroughly with a wire brush to facilitate inspection, maintenance and mounting.

**!** Clean all dirt and rust from inter-locking faces of multi-piece rim components particularly the gutter sections which hold the lock ring and "O" ring in place. Failure to adequately clean all components will inhibit efforts to inspect, maintain, and reassemble the tire and wheel correctly.

2. Inspect rim base and wheel components for cracks, wear, corrosion and damage.

**!** Parts that are cracked, worn, pitted with corrosion, or damaged must be destroyed and replaced with good parts.

**!** In situations where part condition is suspect or in doubt destroy the part, discard and replace with good part.

**!** Do not, under any circumstances, attempt to rework, weld, heat, or braze any rim base or wheel components.

**!** Verify that the replacement parts are the correct size and type and manufacturer for the wheel being assembled.

3. After the rim and wheel component inspection is complete, and rim base and wheel components are verified to be in good usable condition, repaint all bare metal with a rust inhibitor to retard detrimental effects of corrosion.

**!** Follow procedures and safety precautions of the paint manufacturer.

4. Inspect the tire for wear, cracks, tears, punctures and other damage.

**!** Tires with excessive or uneven wear, cracks, tears, punctures, blisters or other damage may explode during inflation or service and tire should be destroyed and replaced with good tire of correct size, type and manufacturer for assembly, machine, and application.

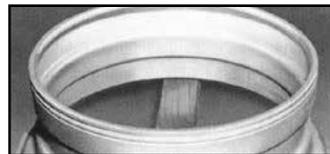
**!** If in doubt of the condition of the rim base, wheel components, or tire - STOP - contact the manufacturer or distributor for assistance.

Make sure parts are clean, repainted if necessary and have been inspected for damage and cracks before proceeding with mounting.

**!** Parts that are cracked, worn, pitted with corrosion, or damaged must be rendered unusable, discarded and replaced with good parts.

5. Install valve spud on rim.

**!** Follow valve spud manufacturer's recommendations and installation instructions.



6. Place rim base on blocks with fixed flange side down. Lubricate both bead seats of the tire with vegetable base lubricant. Place tire over rim base.

**!** Never use petroleum-based lubricant; use vegetable-based lubricant only.



7. Place side flange over rim base and push straight down with hands as far as possible. Make sure side flange does not bind on rim base.

**!** First, double check to make sure correct parts are being assembled, then proceed.

**!** Keep fingers clear of pinch points.

# Mounting Tires on Titan Assemblies

## 3-Piece Rim Assemblies

**!** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process **STOP!** Seek assistance from a qualified person.



8. Lubricate a new rubber “O” ring. Place “O” ring in groove on one side and stretch “O” ring snapping it into place rather than rolling it into place. Then lubricate the entire “O” ring area. (NOTE: It may be necessary to hold the side flange down with the flat end of the gooseneck tire iron tool in order to expose the “O” ring groove.)

**!** Keep fingers clear of pinch points.

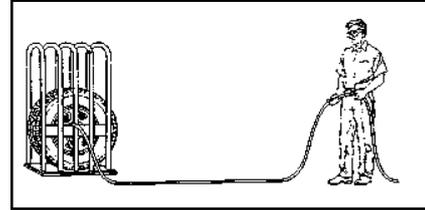
**!** Never use petroleum-based lubricant; use vegetable-based lubricant only.



9. Stand on side flange to position it below both grooves in the rim base and snap lock ring into lock ring (upper) groove. Be certain the lock ring is installed with the correct side facing the operator as illustrated on page S:23.

10. Check components to make sure that parts are correctly assembled. (NOTE: Lock ring should be fully seated in gutter.)

**!** Lock Ring must be properly seated in gutter, see p. S:23.



11. Place rim and tire in a safety cage during tire inflation. Stand to the side of the tire during inflation as illustrated. Inflate to approximately 3 psi and again check for proper engagement of all components. If assembly is correct, continue to inflate to recommended pressure.

**!** Stand clear of potential trajectory danger zone (see diagram). Refer to page S:5 and S:17.

NOTE: It is advisable to use a clip-on chuck with an in-line pressure gauge and enough air line hose to permit the person inflating the tire to stand clear of the potential trajectory danger zone.

**!** If assembly is incorrect STOP-DEFLATE-CORRECT THE ASSEMBLY-AND REPEAT PROCEDURE.

**!** Never attempt to align or seat side flange, lock ring or other components by inflation, hammering, welding, heating or brazing.

NOTE: A filter on the air inflation equipment to remove moisture from the air line prevents corrosion. Check the filter periodically to be sure it's functioning properly.

**!** Never inflate beyond manufacturer's recommended tire pressure.

## Safety Information

# Demounting Tires on Titan Assemblies

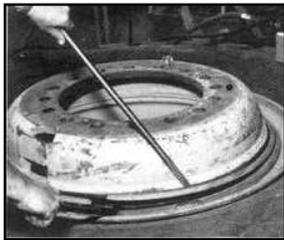
## 5-Piece Rim Assemblies

Tools Required: hydraulic demounting tool and two straight tire irons, screwdriver, piece of wire.

**⚠** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process STOP! Seek assistance from a qualified person.

**⚠** Always completely deflate tire (both tires of a dual assembly) by removing valve core(s) from valve(s) before attempting any demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged. Remove driving key if present. See page S:24.

1. Place the assembly gutter side up on blocks.



2. Remove the lock ring, using two tire irons (NOTE: If this is not possible, the tire bead may be unseated as shown in step 4 with the lock ring and "O" ring in place. However, these items must be removed before removal of bead seat bands and flanges in step 7).

**⚠** Keep fingers clear of pinch points.

**⚠** Do not release your grip on the tire irons, as they may spring back.



3. Remove the "O" ring by prying the bead seat band back and inserting a pry bar or screwdriver under the "O" ring and pulling it from the groove. It is good practice to cut and discard the "O" ring and replace with a new "O" ring.

**⚠** Keep fingers clear of pinch points.



4. Place hook of the hydraulic demounting tool into one of the pry bar pockets. A continuous lip is provided on some bases. Adjust the ram adjusting screw to enable the tool to remain vertical when under pressure. In some cases, the pressure foot may have to be removed to ensure a good hold. Activate the hydraulic pump and apply pressure. If necessary, release pressure and readjust the ram adjusting screw. Depress flange about 1/2"-3/4" and place a nut or similar object between the flange and the lip of the bead seat band by laying it on the rim flange and sliding it into position with a screwdriver.

**⚠** Keep fingers clear of pinch points.

**⚠** Always stand to one side of the tool and hold it with one hand. This allows control should the tool not seat properly and fly off.

5. Release the pressure and move about 2 feet around the rim or to the next pocket for the second bite. Continue the procedure until the tire bead is unseated.

Do not use tool in the vicinity of the butt weld area of the bead seat band, the flanges, or rim base.



6. Remove bead seat band using hoist or pry bars.

**⚠** Keep fingers clear of pinch points.

7. Remove outer flange (ref. p. S:21) using a hoist or pry bars.



**⚠** Always stand clear when using mechanical lifting devices.

8. Turn assembly over and repeat tire bead unseating procedure on the back side. (Steps 4 & 5)

9. Lift rim base from tire using hoist.

10. Remove inner flange. (ref. p. S:21)



In some cases it may be advantageous to use a more powerful hydraulic demounting tool with a longer stroke. However, caution

must be used to avoid bending the flange or breaking the butt weld. Follow procedure outlined in step 4.

**⚠** If the flange or butt weld are damaged, destroy the parts, discard, and replace with good parts.

# Mounting Tires on Titan Assemblies

## 5-Piece Rim Assemblies

Tools Required: Rubber, lead, plastic or brass-faced mallet; rubber lubricant, mounting machine to depress beads, if necessary and safety cage.

**!** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting or inflating process STOP! Seek assistance from a qualified person.



1. Before mounting, always clean all rim components, removing rust and dirt, especially from the lock ring groove and "O" ring groove to insure proper seating and seal. Inspect parts for damage. Replace all cracked, badly worn, damaged and severely rusted components; paint or coat all parts with a rust inhibitor. Double check to be sure correct parts are being assembled. Also inspect the tire for foreign matter.

**!** Tires with excessive or uneven wear, cracks, tears, punctures, blisters or other damage could explode during inflation or service. Discard the tire and replace with good tire of correct size, type and manufacturer for assembly, machine and application.

**!** Follow procedures and safety precautions of the paint manufacturer.

**!** Parts that are damaged or suspected of being damaged must be destroyed, discarded and replaced with good parts.

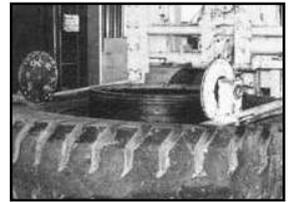
**!** Do not attempt to rework, weld, heat or braze any rim base or wheel components.



2. Place rim base on blocks (4" to 6" high) on floor, gutter side up. Place inner flange (ref. p. S:21) on rim base, lubricate tire beads with vegetable lubricant. Place tire on rim using tire handler or hoist with sling.

**!** Never use petroleum-based lubricant; use vegetable based lubricant only.

3. Depress the tire so that the lower tire bead is driven onto the back 5° Bead Seat taper of the rim. This will expose more of the gutter at the upper side of the rim base to facilitate assembly.



4. Place the outer flange (ref. p. S:21) over the rim base on the tire.



**!** Keep fingers clear of pinch points.



5. Place the bead seat band on the rim base. If present, driver pockets must be aligned. See page S:24. Due to limited clearance between bead seats and rim base, bead seat band will bind if cocked slightly. Band should slide freely over base.

**!** DO NOT HAMMER BEAD SEAT BAND INTO PLACE!

**!** If necessary, remove and re-install, or use rubber-, lead-, plastic- or brass-faced mallet to tap, lightly upward on the bead seat band in order to get it to seat properly.



6. Place a new, lubricated "O" ring into the "O" ring groove, then lubricate the entire "O" ring area with an approved vegetable-base lubricant. Snap "O" ring into place by placing in groove on one side, stretching like rubber band and seating on opposite side.

**!** Never use petroleum-based lubricant; use vegetable based lubricant only.

**!** Keep fingers clear of pinch points.

## Safety Information

# Mounting Tires on Titan Assemblies

## 5-Piece Rim Assemblies

**⚠** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process STOP! Seek assistance from a qualified person.



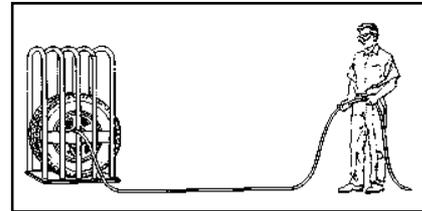
7. Start the lock ring in the lock ring groove and push or walk it into place.

**⚠** Keep fingers clear of pinch points.



8. Insert drive key as required in pockets. See page S:24.

**⚠** Never exceed the manufacturer's recommended inflation pressure.



9. Place rim and tire in a safety cage during tire inflation. Stand to the side of the tire during inflation as illustrated. Inflate to approximately 3 psi and again check for proper engagement of all components. If assembly is correct, continue to inflate to recommended pressure.

**⚠** Stand clear of potential trajectory danger zone (see diagram page S:5 & S:17).

NOTE: It is advisable to use a clip-on chuck with an in-line pressure gauge and enough air line hose to permit the person inflating the tire to stand clear of the potential trajectory danger zone.

**⚠** If assembly is incorrect, STOP-DEFLATE-CORRECT THE ASSEMBLY-AND REPEAT PROCEDURE.

**⚠** Never attempt to seat rings or other components or correct components alignment by hammering, welding, heating or brazing while tire is inflated, partially inflated or deflated.

## On-Vehicle Demounting of Tires from Titan 5-Piece Rim Assemblies

**⚠** Due to the variety of vehicle/equipment configurations and the range of conditions and situations under which on-vehicle demounting (wheel/tire assembly still attached to vehicle or equipment) can occur, proper procedures for blocking, jacking, cribbing of the vehicle/equipment must be done in accordance with the manufacturer's operator's manual, maintenance manual or the information as provided by the vehicle/equipment manufacturer.

Tools required: Hydraulic Demounting Tool; Hooked Tire Iron; Pry Bar; lifting device or boom truck; and valve core removal tool; jack, cribbing, blocking or other items as needed to jack and block the vehicle/equipment per the manufacturer's instructions.

**⚠** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting or inflating process STOP! Seek assistance from a qualified person.

1. Jack, crib and block the vehicle/equipment per the manufacturer's instructions.

**⚠** Jacking, cribbing and blocking a vehicle/equipment can be hazardous. You must refer to the manufacturer's operator's or maintenance manual for proper procedures.

**⚠** Always completely deflate tire (both tires of a dual assembly) by removing valve core(s) from valve(s) before attempting any demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

Remove driving key if present.



2. Place the hook of the hydraulic demounting tool into one of the pry bar pockets. A continuous lip is provided on some bases. Adjust the ram adjusting screw to enable the tool to be perpendicular to the wheel when under pressure.

**⚠** Always stand to one side of the tool and hold it with one hand. This allows control should the tool not seat properly and fly off.

3. Apply pressure and depress the flange about 3/4." If necessary release the pressure to readjust the tool. Place the end of a hooked tire iron between the flange and the lip of the bead seat band and release the pressure. Now place the hook of the hydraulic demounting tool under the lip of the bead seat band and continue the procedure around the rim; then slowly apply pressure until the tire bead is COMPLETELY unseated.

4. Remove driving key if present. See page S:24.



5. Remove the lock ring with a pry bar, starting near the split and working around the ring.

**⚠** Never release grip on pry bars or tire irons when working on wheel-tire assemblies, as they may spring back.

**⚠** Keep fingers clear of pinch points.

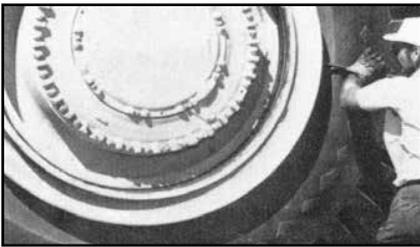


6. Insert the tip of a hooked tire iron under the "O" ring and pull it from the groove. It is good practice to destroy the old "O" ring to insure that a new "O" ring will be used.

## Safety Information

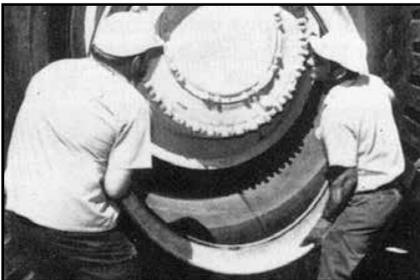
# On-Vehicle Demounting of Tires from Titan 5-Piece Rim Assemblies

**⚠** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process **STOP!** Seek assistance from a qualified person.



7. Use a hooked tire iron under the flange to pry the bead seat band loose, with assistance of lifting device, carefully lower the bead seat band to the ground and roll it out of the way.

**⚠** Use mechanical lifting device to avoid injury.



8. With assistance or a lifting device, remove the outer flange, then carefully lower it to the ground and roll it out of the way.

**⚠** Use mechanical lifting device to avoid injury.



9. To unseat the inner tire bead, use either the hydraulic demounting tool as used on the outer bead or a shorty ram between the frame of the vehicle and the back flange, as shown.



10. Remove the tire using a boom truck and sling or a tire handler. Remove the inner flange to complete the disassembly.

**⚠** When using a sling, stand clear.

## On-Vehicle Mounting of Tires on Titan 5-Piece Rim Assemblies

**!** Due to the variety of vehicle/equipment configurations and the range of conditions and situations under which on-vehicle demounting (wheel/tire assembly still attached to vehicle or equipment) can occur, proper procedures for blocking, jacking, cribbing of the vehicle/equipment must be done in accordance with the manufacturer's operator's manual, maintenance manual or the information as provided by the vehicle/equipment manufacturer.

**Tools Required:** Lifting device or boom truck; jack, cribbing, blocking or other items as needed to jack and block the vehicle/equipment per the manufacturer's instructions.

**!** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process **STOP!** Seek assistance from a qualified person.

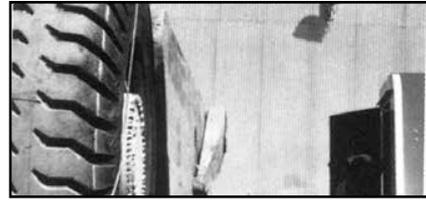
1. Before mounting, always clean all rim components, removing rust and dirt, especially from the lock ring groove and "O" ring groove to insure proper seating and seal. Inspect parts for damage. Replace all cracked, badly worn, damaged and severely rusted components; paint or coat all parts with a rust inhibitor. Double check to be sure correct parts are being assembled. Also inspect the tire for foreign matter.

**!** Follow procedures and safety precautions of the paint manufacturer.

**!** Tires with excessive or uneven wear, cracks, tears, punctures, blisters or other damage may explode during inflation or service. If tire failure potential is suspected, discard the tire and replace with good tire of correct size, type and manufacture for assembly, machine and application.

**!** Parts that are cracked, worn, pitted with corrosion, or damaged must be discarded and replaced with good parts.

**!** Do not attempt to rework, weld, heat or braze any rim base or wheel components.



2. Place the inner flange on the rim base, lubricate the tire beads with a vegetable-based lubricant, and position the tire on the rim base using a boom truck or handler.

**!** Never use petroleum-based lubricant; use vegetable-based lubricant only.

**!** Stand clear of lifting device.



3. Position the outer flange on the rim base with the help of the boom.

**!** Stand clear of lifting device.

**!** Keep fingers clear of pinch points.

4. Place the bead seat band on the rim base with the help of the boom. Be sure driver pocket on bead seat band lines up with pocket on rim base.



**!** Stand clear of lifting device.

**!** Keep fingers clear of pinch points.



5. Using the boom to hold the rim components back out of the way, insert a new, lubricated "O" ring into the "O" ring groove area with an approved vegetable-based lubricant. Snap "O" ring into place by placing in groove on one side stretching like a rubber band and seating on opposite side.

## Safety Information

# On-Vehicle Mounting of Tires on Titan 5-Piece Rim Assemblies

**!** The task of servicing tires and wheels can be extremely dangerous and should be performed by trained personnel only, using the correct tools and following specific procedures. If you have any doubt about the correct, safe method of performing any step in the demounting, mounting, or inflating process STOP! Seek assistance from a qualified person.



6. Work the lock ring into the lock ring groove.

**!** Keep fingers clear of pinch points.

7. Check components (lock rings, bead seat and flanges) to make sure that parts are correctly assembled. (NOTE: lock rings should be fully seated in gutter around the circumference. See page S:22.) Insert driver key as required, see page S:23.

Use a clip-on chuck with an in-line pressure gauge and enough air line hose to permit the person inflating the tire to stand clear of the potential trajectory danger zone. (See p. S:5 & S:17) Stand to the side of the tire during inflation. Inflate to approximately 3 psi and again check for proper engagement of all components. If assembly is correct, continue to inflate to recommended pressure.

**!** Stand clear of potential trajectory danger zone (see p. S:5 & S:17 illustration).

**!** If assembly is incorrect, STOP-DEFLATE-CORRECT THE ASSEMBLY-AND REPEAT PROCEDURE.

**!** Never attempt to inflate an assembly if components are not properly aligned. Never attempt to seat rings or other components or correct components alignment by hammering, welding, heating or brazing while tire is inflated, partially inflated or deflated.

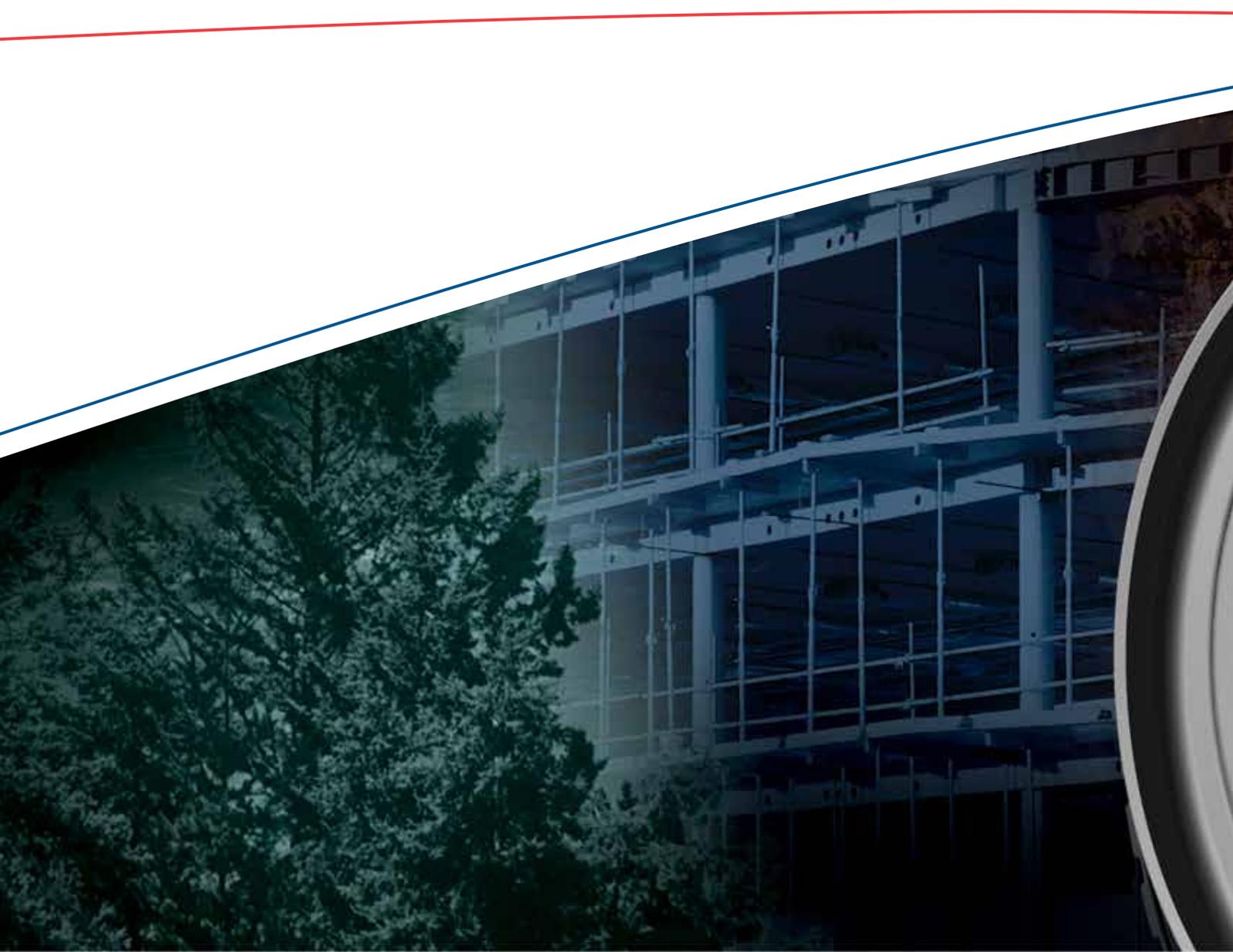
NOTE: A filter on the air inflation equipment to remove moisture from the air line prevents a lot of corrosion. Check the filter periodically to be sure it's functioning properly.

**!** Never inflate beyond manufacturer's recommended tire pressure.



**NO TIRE WORKS WITHOUT THE WHEEL  
— THEY ARE A TOTAL SYSTEM**

Titan is the only company with the ability to design, test and produce both wheels and tires for mining, agriculture, construction and forestry markets.



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