



Mounting/Demounting Instructions

UHP* and Runflat-Tyres**

* Aspect ratio ≤ 45 % and speed symbol $\geq V$

** Pay attention to manufacturer's marks

Introduction

Due to recent trends towards low profile tyres with wider and lower aspect ratio as well as runflat tyres, mounting and demounting have become more and more complex.

The major requirements for a trouble-free use and true running of the tyre are based on proper and professional mounting of the tyre and its correct seat on the rim.

To ensure this, a general mounting and demounting guideline is indispensable in addition to suitable machines and equipment and the professional competence of the staff.

Introduction

The wdk guideline for mounting and demounting tyres describes each work step and gives additional hints as to special items which have to be considered.

For the wdk mounting/demounting guideline tyre and car manufacturers, the German Association of Tyre Trade, manufacturers of tyre changers, testing institutes, and service providers co-operated to concentrate their knowledge and experience on this subject and make it available to users.

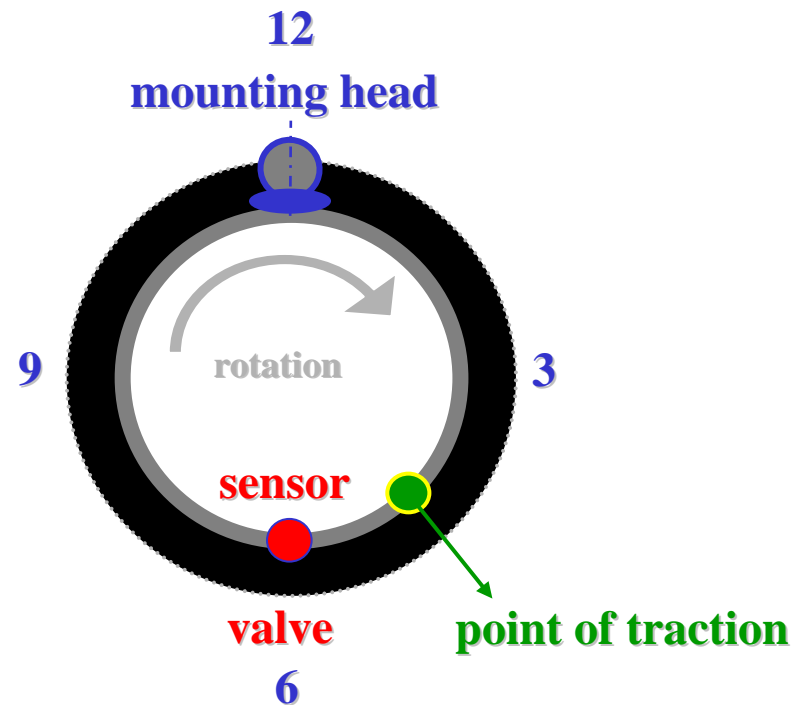
The wdk mounting/demounting guideline is to be considered the basis for future apprenticeship in the automotive industry and for the design of tyre changers.

Mounting

Mounting

Lower bead

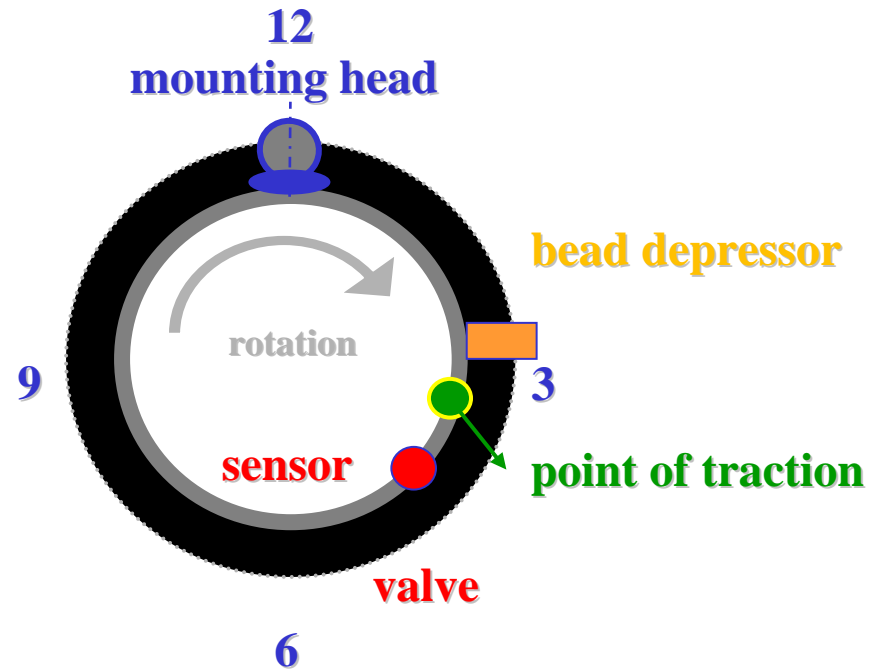
1. Apply sufficient lubricant to both bead areas!
2. Position the sensor to the mounting head as shown
3. Move rim slowly in direction of rotation
4. Make sure that the distance between sensor and point of traction be not less than 15 cm



Mounting

Upper bead

1. Position the sensor to the mounting head as shown
2. Use bead depressors to push the bead below the rim flange
3. Move rim slowly in direction of rotation
4. Use bead depressors to keep the bead in the drop centre of the rim
5. The last part of the bead should slip over the rim flange near the sensor



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Work Step	Description
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2. Mounting of lower bead	b. Important points to be observed
3. Mounting of upper bead	c. Special points when handling runflat tyres
4. Setting of tyre inflation pressure	d. Additional recommendations
	e. Checks
	f. Comments / Pictures

1 - Preparations (1)

Procedure / Single activities ⁸⁸⁸⁸	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
Observe health and safety at work regulations	e.g. protective gloves, ear protections, safety shoes	Mounting kits for SST tyres imperatively required			
Basic cleaning of wheel	Tyre/wheel assembly at least + 15 ° C		Tyre wash machine Tyre/wheel assembly		See Annex 1
1 - Check part identification (tyres/rims)		EH2/EH2+ rims		Check rim for burrs, wear or other damage (observe manufacturer's specs); replace, if necessary	Picture 1
2 - Clamp wheel	Clamp wheel in centred and level position; when rims are centred/ clamped by their inner side use special safety means Short bead seat in top position		Use clamping jaw protection (for alloy wheels) Wheel must be securely seated	Check clamping means: they must be clean and not worn	Picture 2

Check tyre / rim ID



Clamp wheel



Use safety device



Use clamping jaw protection

1 - Preparations (2)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
3 – Valve / seal	Replace rubber valve		Use suitable tool	Clean sealing surfaces	Valve stemming tool and lubrication Picture 3
	Visual inspection: a) Check metal valve; replace, if necessary b) Check TPMS in line with manufacturer's specs		Use suitable tool	Check for correct position and tight fitting	Use torque wrench
	Make sure to observe tightening torques (metal valve, TPMS) as specified by manufacturer				
	Check TPMS for mechanical damage (if TPMS is sprinkled with tyre seal, do not wipe off, but replace TPMS)				

Replace rubber valve



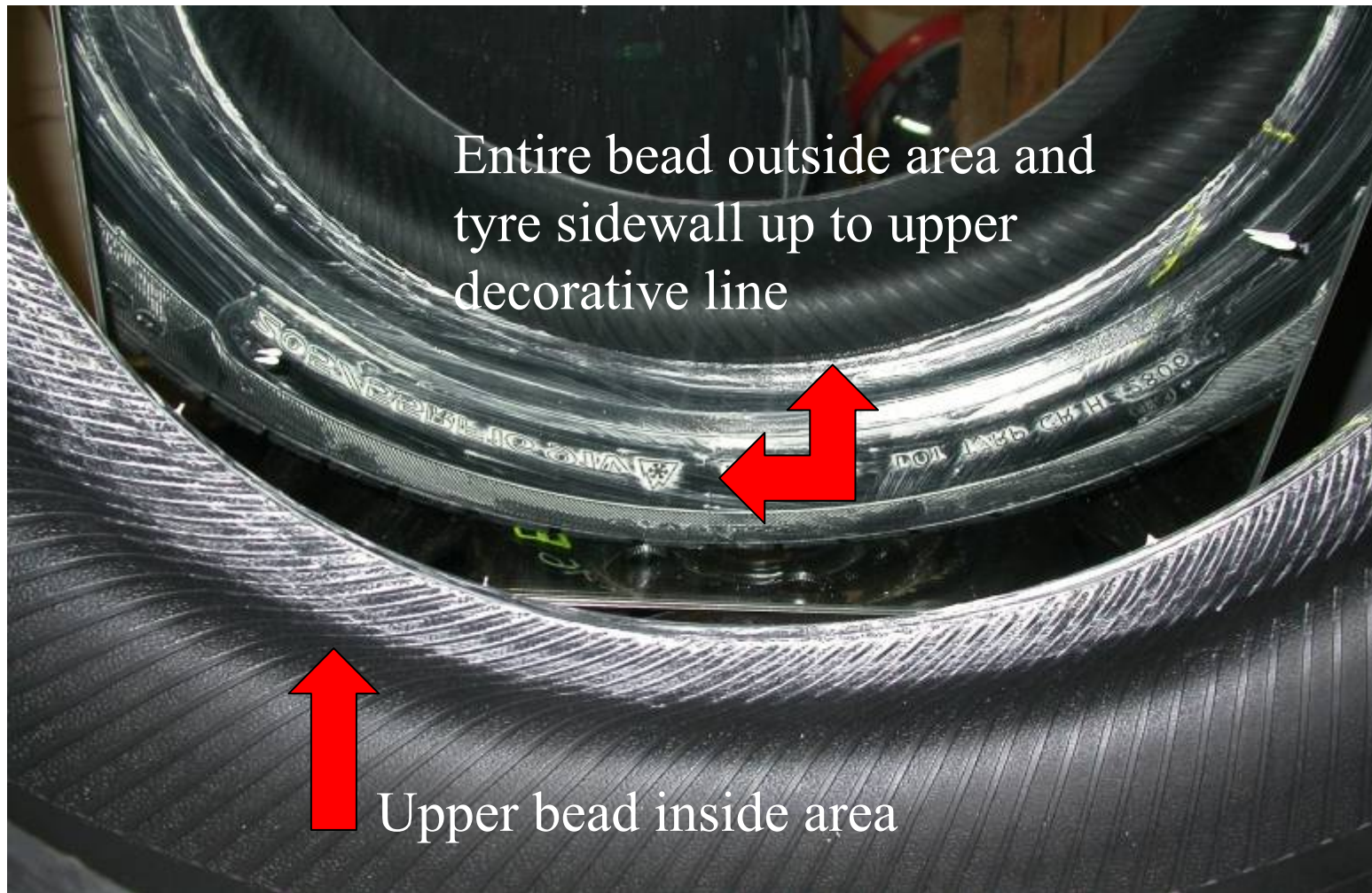
1 - Preparations (3)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
4 - Lubricate rim	No lubricant on TPMS Make sure not to spill lubricant	Lubricate complete rim base; make sure to use suitable lubricant only!			Picture 4
5 - Lubricate tyre	Entire bead outside area and tyre sidewall up to upper decorative line Approx. 30 mm in upper bead inside area Make sure not to spill lubricant		Apply uniformly	Visual inspection	Picture 5

Lubricate rim



Lubricate tyre



2 - Mounting of lower bead

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
6 - Put tyre in place	Set mounting head in line with manufacturer's specs				
Position mounting head	Position bead relative to mounting head in line with manufacturer's specs		Slightly lubricate mounting head	Check mounting head for wear	
Start mounting procedure	Position TPMS and valve (approx 10-15 cm) before point of traction TPMS must not be under load		Avoid excessive tension of bead		Risk of damaging TPMS! Picture 6
Press bead over rim flange	Check that tyre is correctly positioned relative to mounting head	Run turntable at slow speed, rim must not slip; otherwise repeat procedure	Guide tyre in direction of rotation and press downwards		Picture 7

Start mounting procedure



Press bead over rim flange



3 - Mounting of upper bead (1)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
7 - Position upper bead	Position bead relative to mounting head in line with manufacturer's specs		Slightly lubricate mounting head		Picture 8
Insert rim clamp	Position TPMS and valve (approx 10-15 cm) before point of traction TPMS must not be under load	Use clamps which are safely held in place			Picture 9
Lubricate bead depressor and insert	Use rim protections for steel rims to avoid damage to bead and for alloy rims to avoid damage to both bead and rim				Picture 10

Position upper bead



Insert rim clamp



Apply bead depressor



Use rim protections for steel rims

3 - Mounting of upper bead (2)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
Mount bead over rim flange	Mount step by step, making short stops, relieve tension	Use additional bead depressors	Avoid excessive deformation at point of traction		Never use tyre lever as bead depressor! Picture 11
If necessary, guide tyre by hand	Pay attention to tension and make sure bead is correctly seated in drop centre of rim		During mounting operation listen for crackling noise	Bead base must contact drop centre of rim	Avoid additional noise to make sure you hear crackling noise Picture 12
	Do not compress belt edge or sidewalls with the bead depressor		If possible, unclamp/remove bead clamp / bead depressor		Picture 13
Remove mounting tools			If necessary, use bead breaker rolls		
In case of outer clamping, unclamp wheel and remove from tyre changer prior to inflation	Make sure clamping jaws are not caught in between tyre sidewall and rim	Wheel might be difficult to remove			

Mount step by step



Relieve tension



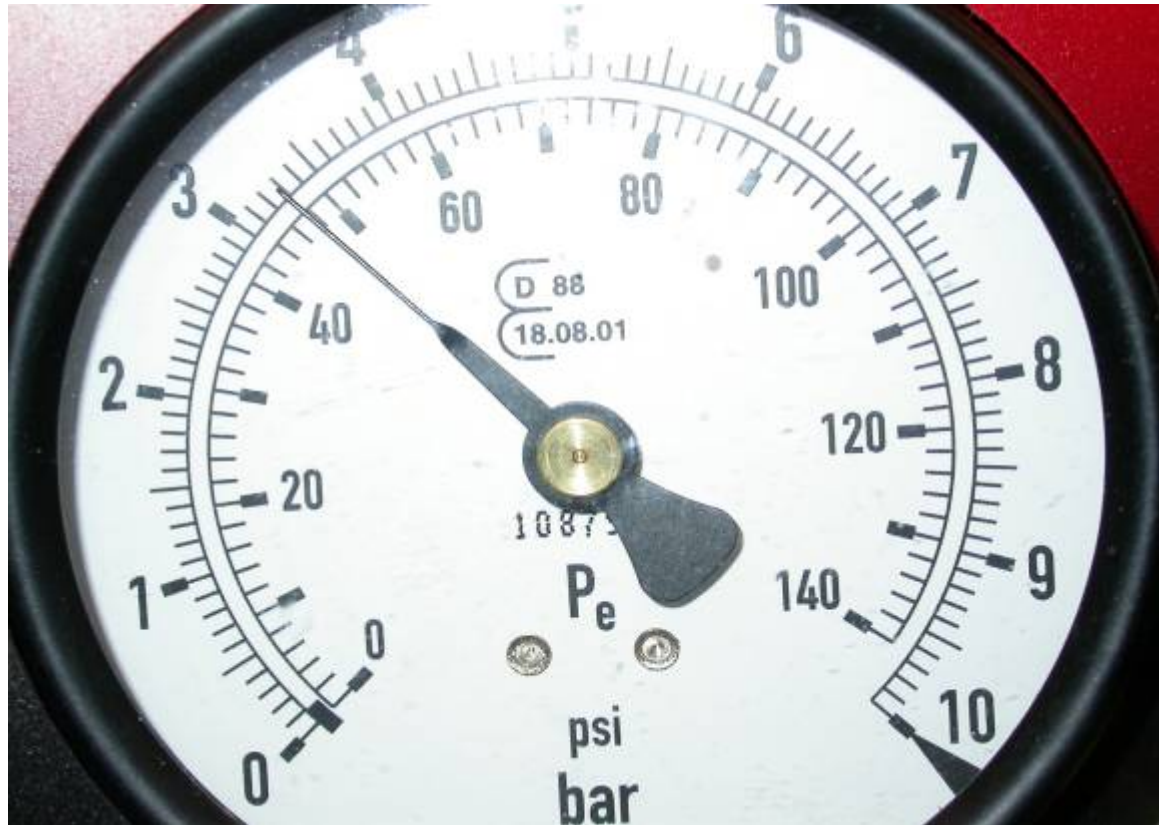
Do not compress belt edge with bead depressor



4 - Setting of inflation pressure

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
8 - Inflate without valve stem	Inflate intermittently				
	Observe safety instructions. Initial pressure not to exceed 3.3 bar!		If tyre does not respond at 3.3 bars, deflate again, lubricate and inflate again.		Picture 14
	Inflate to a bead seating pressure of 4 bar maximum			Check bead seat (centring line in parallel to rim flange)	Picture 15
Screw in valve stem	Use valve stem in line with TPMS manufacturer's instructions		Use valve stemming tool with torque limiter		
	Set service pressure, screw on valve cap, wipe off excessive lubricant				

3.3 bar initial pressure



4 bar seating pressure

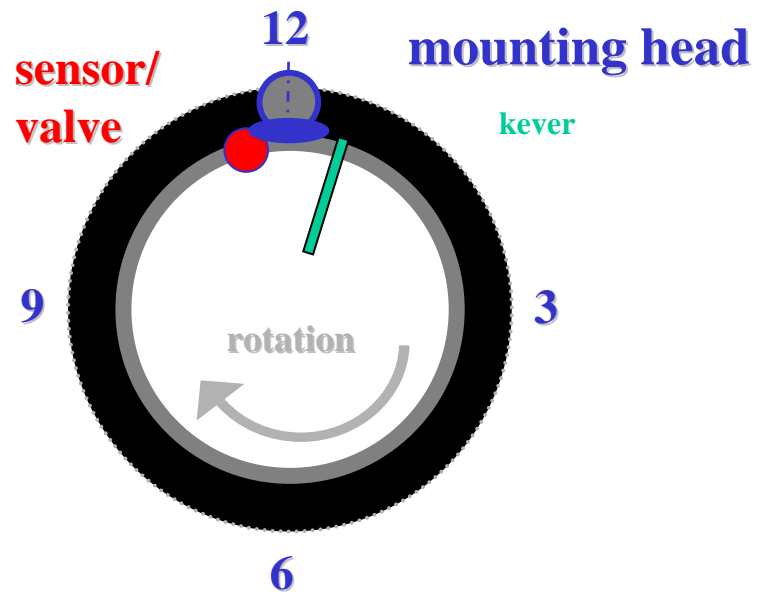


Demounting

Demounting

Upper bead

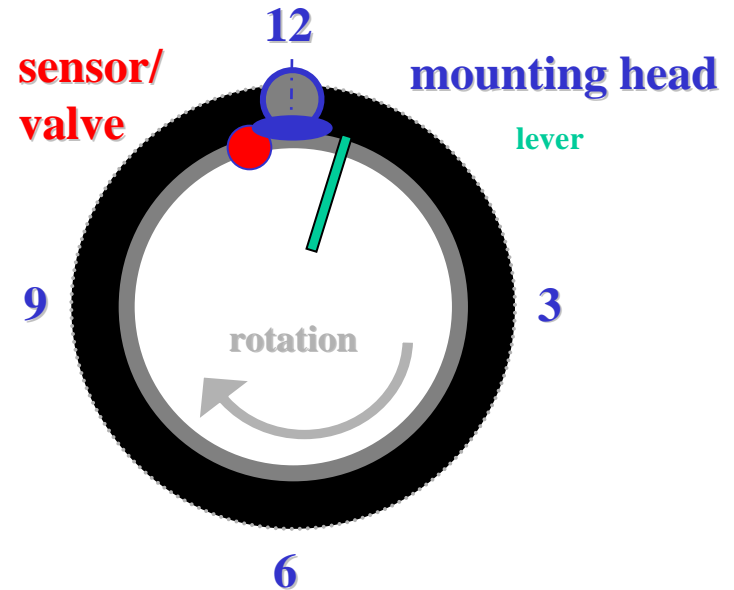
1. Deflate tyre, remove valve stem
2. Break bead preferably using the bead breaker roll – if using a bead breaker blade insert it 3 to 4 times at a distance of 1 cm from the rim flange
 - start at 90° or 270°
 - not at 0° or 180°!
3. Position mounting head as shown before the valve in direction of rotation
4. Position bead depressor at 0° to keep the tyre in the drop centre of the rim
5. Lift bead over the rim flange using a coated tyre lever to prevent damage by the lever
6. Move rim slowly in direction of rotation



Demounting

Lower bead

1. Position mounting head as shown before the sensor in direction of rotation
2. Lift bead over the rim flange using the tyre lever
3. Move rim slowly in direction of rotation



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• Break bead	f. Comments / Pictures
• Clamp wheel	
4. Position wheel	
5. Lift upper bead over rim flange	
6. Demount upper bead	
7. Lift lower bead over rim flange	

1 - Preparations

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
Observe Health and Safety at Work Regulations	e.g. protective gloves, ear protections, safety shoes				
Basic cleaning of wheel			Wheel wash installation		
1 - Determine wheel / tyre identification	Standard or run-flat tyres Tyre temperature at least + 15 ° C (see Annex 1)	Rim type (EH2 EH2+), tyre manufacturer's code, e.g. RF or snail	TPMS type (directly measuring sensor / no sensor)		Damaged tyres must not be used again (see Annex 2)
2 - Unscrew valve stem, deflate	Use suitable tool to unscrew valve stem		Do not continue before tyre is completely deflated		
3 - Remove old balance weights	Use suitable tool		Avoid damage to rim		

2 - Roller TC (1)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
4 - Clamp wheel	Clamp wheel in centred and level position When rims are clamped by their inner side use special safety means Short bead seat in top position		Use clamping jaw protection (for alloy wheels)	Check clamping means: they must be clean and not worn Wheel must be securely seated	Picture 16
5.1 - Break upper bead using bead breaker roll	Pay attention to position of TPMS, do not apply bead breaker in this area	Only until bead slips over hump	Maintain safe distance to TPMS	Check whether tyre was pressed over hump over its complete circumference	Picture 17
	Apply liberal amount of suitable lubricant as deeply as possible between rim and tyre, apply roll directly above rim flange	Apply bead breaker roll on bead only, never on tyre sidewall		After bead breaking procedure check correct clamping position	Picture 18

Clamp wheel



Break upper bead using bead breaker roll



Use sufficient lubricant



2 - Roller TC (2)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
5.2 - Break lower bead using bead breaker roll	Pay attention to position of TPMS Make sure to use travel limiter of bead breaker blade	Only until bead slips over hump	Maintain safe distance to TPMS	Check whether tyre was pressed over hump over its complete circumference	
	Apply liberal amount of suitable lubricant as deeply as possible between rim and tyre, apply roll directly above rim flange	Apply bead breaker roll on bead only, never on tyre sidewall		After bead breaking procedure check correct clamping position	

3 - Turntable TC (1)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
4.1 - Break bead on side of short bead seat	<p>Pay attention to position of TPMS</p> <p>Make sure to use travel limiter of bead breaker blade</p>	Apply bead breaker blade on bead only, never on tyre sidewall	Maintain safe distance to TPMS	Check whether tyre was pressed over hump over its complete circumference	Picture 19
	Apply bead breaker blade as closely as possible to rim flange without damaging the rim (use plastic protection)	Avoid damage by bead breaker blade to hump of EH2/EH2+ rims (use plastic protection)			

Break bead



Bead breaker blade with travel limiter

3 - Turntable TC (2)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
4.2 - Break bead on side of long bead seat	<p>Pay attention to position of TPMS</p> <p>Make sure to use travel limiter of bead breaker blade</p>	Apply bead breaker blade on bead only, never on tyre sidewall	Maintain safe distance to TPMS	Check whether tyre was pressed over hump over its complete circumference	
	Apply bead breaker blade as closely as possible to rim flange without damaging the rim (use plastic protection)	Avoid damage by bead breaker blade to hump of EH2/EH2+ rims (use plastic protection)			
5 - Place wheel on tyre changer and secure	<p>Use clamping means</p> <p>Use auxiliary means so as not to catch the tyre during the clamping operation</p>	Use clamping aid	Use clamping jaw protection		Picture 20

Place wheel on tyre changer



4 – For all tyre changers (1)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
6 - Rotate wheel into demounting position	TPMS/valve must be positioned below mounting head near tyre lever mounting nose; avoid compression of belt edge	Use suitable lever for runflat tyres (with plastic protection)	Use suitable bead depressors – opposite to the mounting head - to retain the tyre in the drop-centre of the rim		Picture 21
	Use rim protection for steel wheels to avoid bead damage		Apply lubricant on both sides of the demounting tool		
Position mounting head	When levering the bead over the rim flange make sure that the demounting tool does not collide with TPMS and the inner liner is not damaged		Apply utmost care when using tyre lever without stop (do not insert too deeply)	Position of TPMS - position of rim protection	Picture 22

Wheel in demounting position



Position mounting head



4 – For all tyre changers (2)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
7 - Lift upper tyre bead over rim flange	Work slowly; do not overstretch tyre bead, use auxiliary means to relieve tension from upper bead		When using tyre lever without plastic protection, remove at this moment		Picture 23
8 - Demount upper tyre bead	Run TC at slow speed and relieve tension from roller and bead clamp		Ensure sufficient lubrication between bead and rim flange		Picture 24
	Avoid relative movement between tyre and rim, guide the tyre				

Lift upper tyre bead over rim flange



Demount upper tyre bead



4 – For all tyre changers (3)

Procedure/Single Activities	Important Points To Be Observed	Special Points When Handling Run-Flat Tires	Additional Recommendations	Checks	Comments/pictures
9 - After demounting the upper bead, remove lever	Do not damage rim and TPMS				
10 - Rotate wheel into position for demounting	TPMS/valve must be positioned below the mounting head near tyre lever / mounting nose		Ensure sufficient lubrication between bead base and rim Flange If necessary, re-apply lubricant		Picture 25
	Insert lever		Use additional means		
11 - Lift lower tyre bead over rim flange	Work slowly and carefully	Tyre bead must be fully retained in the drop centre of the rim opposite to the mounting head		Position TPMS	Picture 26

Wheel in demounting position



Lift lower tyre bead over rim flange



4 – For all tyre changers (4)

Procedure / Single activities	Important points to be observed	Special points when handling run flat tyres	Additional recommendations	Checks	Comments / Pictures
12 - Lift tyre from rim	Do not damage rim		Remove additional means		
13 - Check TPMS for damage, replace if necessary					
14 - Clean tyre beads and check for any damage	Check bead inner and outer sides				
15 - Check rim for burrs, wear or other damage (observe manufacturer's specs); replace if necessary					