

Have questions about your tires? Learn more about the tire damage and tire safety. **ESSENTIAL FACTORS OF TIRE CARES**

REMEMBER TIRE MISUSES Irregular Wear Wear-limit Inflation Pressure Rest (every 2hr) **One Side Wear** 1 3 2 Misalignment(Toe) Worn king pins Insufficient tire rotation Rotation (every 10,000km) Overloading **Driving habits** 4 5 6 Rapid Wear 0 0 0 Misalignment(Toe) Insufficient tire rotation Improper tire application **RIDE COMFORT** If you get the vibration through steering wheel or car seat, Sidewall Lateral Crack you must check these factors! **Different Model** Bent Rim Irregular Wear Loose Screw Tires on the Axle Underintlation / Overloadin (esp. UHP tire) High torque Start from small cut 0 Shock & Bursting Wheel Tire & Rim Tire & Rim Wheel Unbalance Fitment Alignment Matching 12 - I Overload/Overinflation 廯 00 CASTER Excessive shock during drive TOE OUT TOEIN



Both Sides Wear

- Underinflation - Improper tire and rim fitment - Insufficient tire rotation

Heel & Toe Wear



Underinflation Cords damaged by cut / shock With excessive high speed driving



Leaking valve core or rubber valve component



Vibration Causes Depending on Speed



This explains the major factor of ride disturbance issues **based on driving speed and parts of vehicle.**

Speed	Speed								
	1 Idle	2 Start	3 Low Speed (10~30km/h)	4 Acceleration (30~100km/h)	(100~130km/h)	6 Braking			
		Faulty disk, clutch cover	Wheel(run-out or Under-inflation)	Power train equipment (synchronized joint, propeller shaft)	Faulty tire, wheel, etc unbalance	Braking equipment (faulty disk, drum, pad or hub)	ne		
Speed Vehicle part	1 Idle	2 Start	B Low Speed	Acceleration	5 High Speed	6 Braking			
Vehicle	Engine	Clutch O	Wheel Alignment	Power Train part	Wheel Alignment	Disk			
	Trans- mission	Clutch O	Steering column	Engine Mount	Steering olumn	Drum O 🛞			
	Clutch Clutch		Suspension	-	Suspension	Brake pad			
Tire	-	•	Irregular Wear	-	Irregular Wear	-			
	-	-	Out of Round(Balance)	-	Out of Round(Balance)	-			
	-		Flat Spot	-	Flat Spot	-			
Wheel	-	-	Rim Run-out Wheel Unbalance	-	Rim Run-out Wheel Unbalance	-			
	-	-	Rim Damage	-	Rim Damage	-			
	-	-	Hub Transfor- mation	-	Hub Transfor- mation	-			
	-	-	Rim Centering for Hub	-	Rim Centering for Hub	-			
Tire & Rim	-		Rim/Tire Matching	-	Rim/Tire Matching	-			
	-		Loose Lugnut	-	Loose Lugnut	-			
	-	-	Fitment	-	Fitment	-			

Sidewall Cord Impact Break (Bubble)

What is Cord Impact Break?

The carcass contains textile cord topping layers between steel belt and inner liner. If the textile cords of carcass are damaged due to sudden impact with a road hazard or a pothole, the sidewall of tire may arise like bump. This is why the internal air pressure pushes the surface through the gap in the cord. This is called Cord Impact Break(Bubble).



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Cause



Internal air pressure pushes out sidewall rubber

Result



Localized protrusion in the sidewall

How to prevent

Impact damage such as curb / pothole

Avoid tread surface cuts and pothole impact if possible.

Drive on harsh bumpy road at low speed.

Maintain proper tire inflation pressure.



Check the tire for damage frequently.

Avoid contact with curbs.



Low profile tires may be more susceptible to this condition.

ible

riangle It is very dangerous to drive in the condition of cord impact break.





Why is there a bubble on my tire?

What is a sidewall bubble?

A sidewall bubble is a bulge protruding from the sidewall of the tire. It is caused by air leaking from the inside of the tire into the carcass or body of the tire.

What causes a sidewall bubble?

The vast majority of bubbles are caused by impact damage. When a tire hits a sharp object in the road the force from the weight and speed of the vehicle is focused in the small area of contact. This compresses the tire enough that the inside of the sidewall is pinched and damaged causing a small hole in the inside tire liner layer. The impact can also damage the sidewall cords and significantly weaken the tire. The impact may not have been noticed by the driver.

Some common types of impact are:

- potholes
- railroad crossings
- speed bumps
- curbs
- heavily damaged roads
- road construction areas
- debris in the road

Occasionally a defect in the tire can cause the bubble. Determining the cause is fairly simple. Inspect the outside of the tire for obvious cuts or bruises.

When the tire is removed for replacement:

- Mark the area where the bubble is (it will deflate when the tire is deflated.)
- Inspect the bead area for cuts or abrasions
- Inspect the inner liner for cuts or bruises. The technician will need to press inwards on the area of the bubble to find any breaks in the inner liner.

If no damage is found, a claim will need to be submitted by an authorized dealer to the tire manufacturer. The tire manufacturer may need to inspect the tire as well to make a warranty determination. Each tire manufacturer's procedures differ slightly.

Can they be repaired?

No, unfortunately sidewall bubbles cannot be repaired. Because the area flexes while driving a patch will not stay in place. The bubble also indicates there is structural damage to the tire that cannot be repaired. A tire in this condition could fail without warning and should not be driven on. We recommend the spare tire be used until a replacement can be found. The tire must be replaced.



One Point Lesson for Tire Maintenance

Replacing Tires of P-metric or metric tire on Light Trucks

When P-metric or metric tire are installed on light trucks (SUV, pickup or minivan), the load rating/capacity of the tire is reduced by a factor of 1.10 as prescribed by the Federal Motor Vehicle Safety Standards (FMVSS). This load reduction is mandated by Federal motor Vehicle Safety Standards (571.120). This is based on the expectation that passenger type tires (P-metric) tires which are designed mainly for passenger cars may experience more severe use and overloading when used on light trucks.

Example	Size	Air Pressure (PSI) / Load (LBS) recommended by vehicle manufacturer (Vehicle : 2004 Dodge Ram 2500 SLT 4x4 Reg. Cab)			
		Front	Rear		
Original Tire equipped by vehicle manufacturer	LT265/70 R17 E (E means 10 ply)	50 PSI / 2,470 lbs.	70 PSI / 3,005 lbs.		
Nexen Tire mounted	RO-HT SUV P 265/70 R17 113 S	Max 44 PSI / 2,535 lbs. is derated to 2,305 lbs. on the light truck. Results: Based on the OE LT tire the P-metric tire <u>CANNOT</u> withstan the vehicle load. Severe overloading of the tire may occur.			

The Nexen P-metric tires have been derated by the vehicle manufacturer by a factor of 1.10 to account for its installation on a light truck. (DETAILED CALCULATION: 2,535 lbs. divided by 1.10 = 2,305 lbs. at max air pressure 44 PSI) Nexen RO-HT SUV P265/70R17 load capacity on a light truck max: 44 PSI, Load: 2,305 lbs. (NOT 2,535 lbs.)

If a light truck is fitted with P-metric tires, the load at any pressure is reduced by the 1.10 factor. Using the above example, a light truck fitted with Nexen RO-HT SUV P265/70 R17 113S inflated at the maximum 44 PSI is actually only accommodating a load of 2,305 lbs, not the max load for this size of 2,535 lbs; this load capacity with Nexen P-metric tires cannot reach the original load capacity recommended by the vehicle manufacturer.

Safety Concerns:

Severe bending or flexing of the sidewalls of the tires due to under inflation or over loading can cause heat buildup on the sidewall. This movement is due to overloading from incorrect vehicle application and results in stress and heat buildup that can lead to sidewall discoloration as well as separation of the inner layers of the tire. Eventually, it can possibly lead to catastrophic tire failure including tire separation and/or tire blow out.

Misapplication is not a warrantable condition as stated in the Nexen Tire Replacement Limited Warranty. It is the vehicle owner's responsibility to check with the vehicle manufacturer or tire installer to ensure that the proper application tires are being mounted and/or replaced on the vehicle.

Nexen cannot recommend this type of application to the vehicle due to shortened tire life and for safety reasons. If usage of misapplication tire continues it can lead to more severe issues such as serious injury and/or death.

RECAP Replacing Original Equipment LT-metric Tires:

When replacing O.E. LT-metric with another LT-metric size, they must be able to carry equivalent loads. All tires should be properly inflated to the pressure stated on the vehicle's tire information placard located on the driver's side door or in the vehicles owners' manual. If you choose to replace an O.E. LT-metric tire with P-metric tire, check the load requirements carefully. Many times, the P-metric tire cannot provide adequate load capacity. Also remember that you must reduce the P-metric loads by a factor of 1.10 when replacing O.E. LT tires.



NTA - ONE POINT LESSON FOR TIRE MAINTENANCE - REPLACING LT TIRES ON LIGHT TRUCKS 2/25/2013