

TOYO TIRE TALK

No. 02-010 (TTT-131)

Technical Service Department Japan
 Technical tips and information that may
 allow you to better serve your customers.



We would appreciate your input, please contact us.
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Subject : Probable Cause for Vibration ... Tyre-Rim Slip

As we have mentioned from time to time in the past, vehicle vibration is one of largest problems in the tyre business. Previously tyre talks have had articles on how vibrations occur, resolution of vibrations, and how much tyres and other sources affect vibrations.

A factor that can lead to a vibration problem was revealed through testing by the Technical Service staff in U.S.A. and Canada. The following may be useful in minimising vibration complaints from tyre-rim slip.

In conclusion ...

Presently many tyre dealers are applying lubrication carelessly. Excessive lubrication can cause slip between the tyre and rim resulting in a vibration problem.

Example of Excessive Lubrication

INCORRECT APPLICATION
 OF LUBRICANT



Page 3 has information about the tyre/rim slip test.

Our Recommendation on Lubrication for Mounting

We strongly recommend the use of the following lubrication procedure.

1. For new tyre and wheel assemblies, clean any manufacturing related lubricants from the tyre beads with an approved rubber cleaning fluid commonly used in the tyre repair processing.
2. Clean the wheel bead seating area.
3. Using a sponge and paste type lubricant, lubricate the tyre bead sole as shown in the photograph below.
4. If more than 40 psi is required to seat the beads, dismount the tyre, relubricate the tyre, and repeat the process.
5. Index the wheel valve stem to some location on the tyre sidewall, so that in the event of a customer returning for a vibration complaint, tyre-rim slippage can be determined.
6. In the event of a customer complaint where tyre-wheel slip has occurred, remove the old weights and rebalance the assembly. Do not dismount the tyre unless there is a requirement to match-mount the assembly.

Warning!

High performance, low profile passenger tyres mounted on European made alloy wheels may require higher mounting pressures as bead seat tolerances may be tighter. Additional lubrication of the safety hump may be required to facilitate bead seating (see below).

CORRECT APPLICATION
OF LUBRICANT



Tyre-Rim Slip Test

1. Tyre-rim slip in mild driving conditions.

- Tyre Sizes and Brands : 3 different sizes and 3 different brands

205/65R15 Toyo, European Brand A, American Brand B
 P265/75R16 Toyo, European Brand A, American Brand B
 285/60R18 Toyo, European Brand C, Japanese Brand D

- Vehicles :

Toyota Camry 205/65R15
 Dodge Ram Sport 4x2 P265/75R16 & 285/60R18

- Wheel Type : Both Chrome and Steel
- Lubrication : Typical Tyre Dealer's Method
 (lubricate both tyre bead and rim bead seat)
- Running Condition :
 Time after mounting : approx. 30 to 60 minutes
 Mileage : approx. 1.6 miles (2.6 kms)

Test Results - Slippage in Inches (Front axle / Rear axle)

205/65R15

Brand	Chrome Wheel	Steel Wheel
Toyo	1.1 / 0.0	0.8 / 0.5
Eur. A	4.6 / 0.0	0.1 / 0.0
Ame. B	10.6 / 3.8	0.9 / 0.0

P265/75R16

Brand	Chrome Wheel	Steel Wheel
Toyo	0.4 / 4.6	3.4 / 2.0
Eur. A	2.1 / 0.0	0.0 / 1.4
Ame. B	1.4 / 5.4	4.0 / 16.4

285/60R18

Brand	Chrome Wheel
Toyo	14.5 / 43.2
Eur. C	27.1 / 8.1
Jpn. D	9.0 / 1.4

P265/75R16 : Less Lubrication - applied to Bead Sole Only

Brand	Chrome Wheel
Toyo	0.0 / 0.5

2. Tyre-Rim slip difference by lubrication method.

- Tyre Brands, Sizes and vehicles : 2 Sets

Set I : Toyo	225/75R15	Buick Roadmaster
Set II : American Brand E	205/65R15	Volvo V70 AWD

- Lubrication :

Right Side of each vehicle : Dealers Normal Lubrication
 Left Side of each vehicle : Less Lubrication
 (applied to bead sole only)

- Running Condition :

Normal driving in city area without excessive acceleration
 and braking
 Time after mounting : approx. 30 minutes

Test Results - Slippage in Degrees

Set	Right (Dealer's Method)		Left (Less Lubrication)	
	Front	Rear	Front	Rear
I	35 - 45	15	0	0
II	25 - 30	5	0	0

