Technical Bulletin

TOYO TIRES

TSD-02-001 April 29, 2002

Customer Complaints for Vibration
-Tire/Rim Slip-

Toyo recently completed a test of four tire brands, including Toyo, revealing that tire slip on wheels is a major cause of vibration leading to customer complaints after mounting new tires and wheels.

The main cause of tire/wheel slip is excessive use of tire lubricant (shown on the right) on the tire beads and rim. Excessive lubricant reduces friction between the tire bead and the wheel, allowing the tire to slip within hours of mounting.

Test Method:

New tires were installed on OE steel and aftermarket chrome wheels using typical lubrication practices. A common paste lubricant was applied to the tire beads and the bead seating area of the wheel. The valve stem was indexed to the tire. The assembly was then balanced using a Hunter GSP9700.

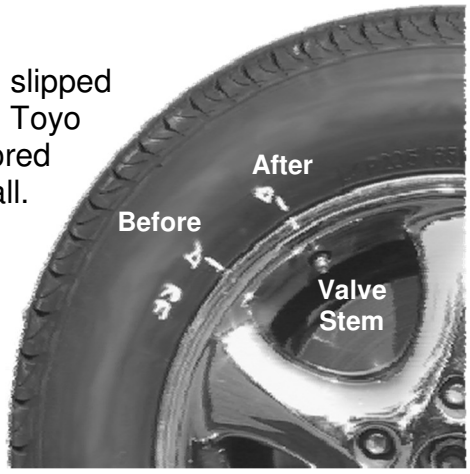
Within one hour of mounting, three driving modes were evaluated:

a) Mild, slow speed braking and acceleration
b) Aggressive Acceleration
c) Aggressive Braking

Conclusion:

All of the test tires, regardless of brand or driving mode, slipped on the rim causing the assemblies to go out-of-balance. Toyo confirmed the results with several tire shops that monitored tire/rim slip by indexing the valve stem to the tire sidewall. One shop reported 3 inches of slip 12 hours after mounting and balancing resulting in a ride complaint.

Toyo believes that tire/rim slip from over-lubrication and its affect on balance is one of the major causes of customer complaints for ride vibration on new tire and wheel assemblies.



3” slip after mild driving

(over)

Recommendations:

The recommendations expressed here apply to Toyo brand tires, and may not be endorsed by other tire manufacturers.

1. **For new tire and wheel assemblies, clean the tire beads of any manufacturing related lubricants with an approved rubber cleaner fluid commonly used in the tire repair process.**

2. **Clean the wheel bead seating area.**

3. **Use a sponge and a paste-type lubricant to lubricate the tire bead sole according to the photo shown to the left.**

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

4. **If more than 40 psi is required to seat the beads, dismount the tire, re-lubricate and repeat the process. Always follow the advice of the tire and wheel manufacturer regarding maximum pressure.**

5. **Index the wheel valve stem to some location on the tire sidewall so that slippage can be confirmed in the event of a customer return for vibration.**

6. **In the event of a customer complaint where tire/wheel slip has occurred, remove the old weights and re-balance the assembly. Do not dismount the tire unless there is a requirement to match-mount the assembly.**

Summary:

Toyo testing revealed an unexpected amount of tire/rim slip within hours of mounting. The lubrication advice presented here will considerably reduce the likelihood of customer vibration complaints due to tire/rim slip.

Please do not hesitate to contact Toyo Technical Service with any questions.

1-877-682-8696

AVOID CUSTOMER RETURNS FOR VIBRATION!

Over-lubrication Will Cause Tire/Rim Slip

Incorrect

Correct

Index the Valve to the Tire

By Using the Yellow Dot

Warning!

1. Never attempt to mount a 16" tire on a 16.5" wheel. Always check the wheel diameter before mounting 16" tires!
2. Do not apply more than 40 psi to seat the beads! If the beads do not seat at 40 psi, dismount and re-lubricate the tire.

Please do not hesitate to contact Toyo Technical Service with any questions.

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