



## INFORMATION SERVICE BULLETIN

Volume 46, Number 2

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### PROPER TIRE MOUNTING OF LOW ASPECT RATIO, HIGH PERFORMANCE PASSENGER AND LIGHT TRUCK TIRES

#### INTRODUCTION

High performance tires are designed with stiff sidewalls for responsive handling. Because of stiff sidewalls, it is important to be sure the top bead is in the rim well area during mounting. Failure to follow these recommendations may make it appear to the service personnel that a higher, and potentially unsafe, bead seating pressure is needed (see Warning).<sup>1</sup>

#### Contributing Factors for Difficult Bead Seating

Three main factors contribute to the possibility of damaging a bead during mounting or of having difficulty in achieving proper bead seat. One factor is improperly installing the tire over the rim flanges.<sup>2</sup> The second factor is that the tire and rim are not properly lubricated. The third factor is that the tire beads are not centered on the rim. This bulletin will focus on the second and third factors.

Do not assume beads are fully seated based on only a "popping" sound; inspect both sides of the tire to be sure. Service personnel should be trained to strictly follow the RMA "*Demounting and Mounting Procedures for Passenger and Light Truck Tires*" wall chart and should follow proper techniques for correctly seating a bead in the mounting process.

#### **WARNING**

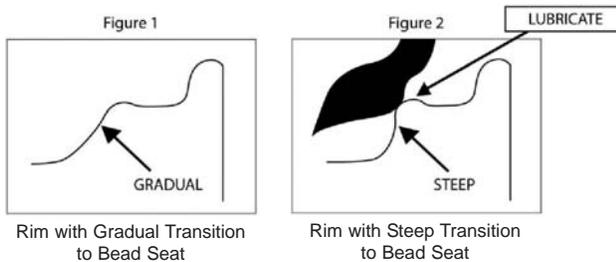
Excessive bead seating pressure (in excess of 40 psi) places extreme stresses on the tire beads that are forced onto the rim flange in a distorted manner. Such stresses may cause damage to the tire components and may result in tire failure.

**NEVER INFLATE BEYOND 40 PSI  
PRESSURE TO SEAT BEADS.  
NEVER STAND, LEAN, OR REACH OVER  
THE ASSEMBLY DURING INFLATION.**

Inspect both sides of the tire to be sure that the beads are evenly seated. If the tire is mounted on a machine that does not have a positive lockdown device to hold the wheel, inflation should be done in a safety cage or other restraining device. If both beads are not properly seated when the pressure reaches 40 psi, completely deflate the assembly, reposition the tire, relubricate, and reinflate. Inflating beyond 40 psi to seat the beads is a DANGEROUS PRACTICE that may break a tire bead (or even the rim) with explosive force, possibly resulting in serious injury or death. After the beads are fully seated, pressure may be increased above 40 psi to operating pressures, not to exceed the maximum molded on the tire sidewall.

The following are some of the factors that can make tire mounting more difficult:

- Rim wells with steep transitions. See the comparison between Figures 1 and 2 below.
- Variations in rim bead seat diameters.
- Lack of lubricant or improper use of lubricant.
- Stiffness of tire sidewall.
- Short tire sidewall height (low aspect ratio).



## NOTE

ALWAYS check the vehicle manufacturer's recommendations for the OE tire size, load capacity, inflation pressure, and speed rating information before replacing a tire with a different size and construction. It is not always possible to select the same tire size for a replacement tire. NEVER choose a smaller size, with less load carrying capacity than the specified size on the vehicle tire placard.<sup>3</sup>

For complete tire demounting/mounting procedures, see the RMA "Demounting and Mounting Procedures for Passenger and Light Truck Tires" wall chart. The information listed below addresses issues specific to mounting low aspect ratio tires and can be used in conjunction with the wall chart. Using the following steps and techniques will allow you to reduce the amount of time and effort required to achieve successful mounting of tires:

- Only use equipment that is designed to accommodate low aspect ratio, high performance tires and wheels to mount tires.
- Automatic machines equipped with composite rollers and demount/mount heads, pressing arms and/or fitting heads, should be used to avoid any damage to the rim and tire bead. Plastic coated tire levers with rounded ends are strongly recommended.
- ALWAYS check the rim for potential problems. Corroded or dirty rims should be cleaned thoroughly to ensure a clean bead seat area. Bent or cracked rims should be destroyed and replaced. Alloy rims should be checked for corrosion and thoroughly cleaned to ensure proper air retention. This includes inspection and cleaning of the valve stem seating area (stem hole). Failure to do so may result in rapid air loss and possible tire failure.
- ALWAYS remove and replace used snap-in valves when replacing tires. NOTE: In the case of tires/wheels equipped with Tire Pressure Monitoring System (TPMS) sensors, it is recommended to replace all components that are included in the TPMS valve replacement kit. For complete valve replacement recommendations, refer to RMA's Tire Information Safety Bulletin, Volume 40, "Tubeless Type Valves for Passenger and Light Truck Tires Including Tubeless Snap-In Tire Valve Installation Procedure" and the vehicle manufacturers TPMS service requirements.

- Use the proper non-petroleum lubricant (paste or liquid). Follow the lubricant manufacturers recommendations. Over-diluted mixtures will dry too fast, acting as if no lubricant was used. Under-diluted mixtures will not dry soon enough, which may permit rotation of the tire on the rim, thus contributing to balance and uniformity problems.
- Apply lubricant properly. Both tire beads and the rim must be lubricated. Bead lubrication of the tire must include application from each tire rim-aligning ring to the bead toe. Referring to Figure 3, rim lubrication must include: (1) the safety humps, (2) the bead seating surfaces, and (3) the top of the flange areas to allow for a smooth movement of the bead over the rim flange and complete seating of the bead against the rim flange. Lubricate the sides of the rim drop well, rim flat area, and the tire rim aligning ring to the bead toe.
- Make sure tire beads are completely in the drop well of the rim during the mounting process.
- Prior to inflation, rotate and center the tire on the rim.
- Match mount tire and rim; this may provide a more balanced assembly and reduce time required to reach the optimal balance.<sup>3</sup>
- NEVER inflate beyond 40 psi to seat beads (see Warning).
- If both beads are not properly seated when the pressure reaches 40 psi, completely deflate the assembly, reposition the tire, relubricate, and reinflate.
- If repeated seating attempts are unsuccessful, contact the wheel and/or tire manufacturer.

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Figure 3



## ENDNOTES

- <sup>1</sup> Certain runflat tires (and other specific tires as designated by a tire manufacturer) may require more than 40 psi to seat the beads. Always consult the tire manufacturer's specific guidelines and procedures prior to inflating above the 40 psi limit. In these exceptions, NEVER inflate above 40 psi to seat the beads unless the tire is in a safety cage (restraining device) and inflated with an extension hose that has a clip-on chuck.
- <sup>2</sup> For more information, see RMA's Tire Information Service Bulletin, Vol. 43, "*Avoid Tire Bead Damage On Tire Mounting Machines That Secure The Rim From Underneath.*"
- <sup>3</sup> For more information, see RMA's "*Care and Service for Passenger and Light Truck (LT) Tires Including Tire Replacement Guidelines and Recreational Vehicle Applications*" manual.

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