

SERVICE BULLETIN

Number 106

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

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 tire service professional that a higher, and therefore unsafe, bead seating pressure is needed (see Warnings below).

WARNING

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

WARNING

NEVER INFLATE BEYOND 40 POUNDS 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 tire is mounted on a machine that does not have a positive lock-down 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 pressure reaches 40 psi, completely deflate the assembly, reposition the tire and/or tube on the rim, relubricate, and reinflate. Inflating beyond 40 psi inflation pressure when trying 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 pressure molded on the tire sidewall.

Three main factors contribute to the possibility of damaging a bead during mounting or having difficulty in achieving proper bead seat. One factor is improperly installing the tire over the rim flanges. 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.

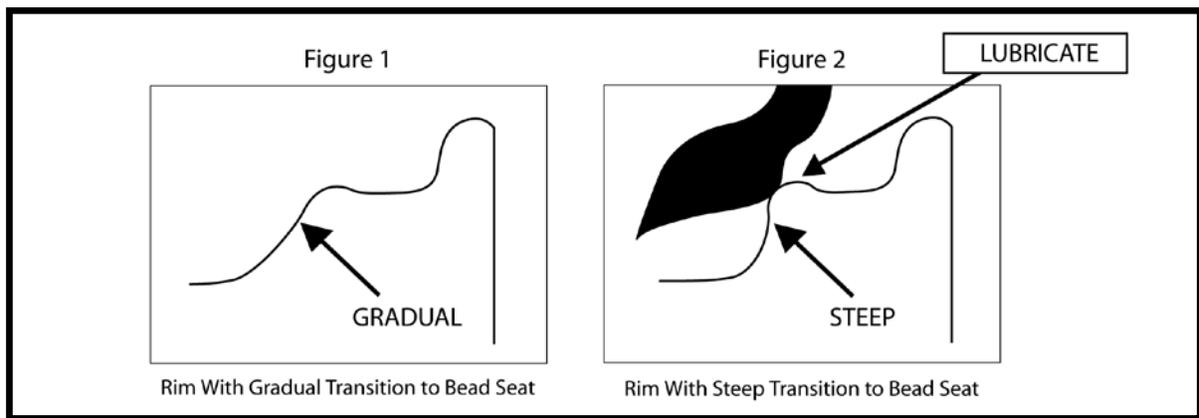
During the mounting process, never assume the bead is seated when it appears to have moved against the rim flange. Make sure that your service personnel are completely aware of the proper techniques for correctly seating a bead in the mounting process. Train your service personnel to strictly follow the RMA Demounting And Mounting Procedures For Passenger And Light Truck (LT) Tires wall chart.

IMPORTANT

ALWAYS check the vehicle manufacturer's recommendations for the OE tire size, load range, load capacity, inflation pressure, and speed rating information before replacing a tire with a different size and construction. **NEVER** choose a smaller size, with less load carrying capacity than the specified size on the vehicle tire placard.

The following factors can make tire mounting more difficult:

- Rim wells with steep transitions. See the comparison between Figs. 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)



For complete tire demounting/mounting procedures, please see the RMA wall chart *Demounting and Mounting Procedures for Passenger and Light Truck Tires*. 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. Aluminum rims should be checked for corrosion and thoroughly cleaned to ensure proper inflation retention. This includes inspection and cleaning of the valve stem seating area (stem hole). **Failure to do so may result in rapid loss of inflation and possible tire failure.**

- **ALWAYS** remove and replace used snap-in valve stems. **NEVER REUSE SNAP-IN VALVE STEMS.** Only valve stems that are compatible with the rim being serviced should be used.
- **IMPORTANT:** 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.
- **Use the proper non-petroleum lubricant (paste or liquid).** Follow the lubricant manufacturer's 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 variations and ride disturbances.
- **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. Rim lubrication must include the safety humps (1), the bead seating surfaces (2), and the top flange area (3) 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 rim drop well, rim flat area, and the tire rim aligning ring to the bead toe.
- Roll tire beads into the rim's "drop well" during the mounting process.
- After mounting but 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.
- **NEVER** inflate beyond 40 psi to seat beads (see WARNING).



WARNING

NEVER INFLATE BEYOND 40 POUNDS 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 tire is mounted on a machine that does not have a positive lock-down 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 pressure reaches 40 psi, completely deflate the assembly, reposition the tire and/or tube on the rim, relubricate, and reinflate. Inflating beyond 40 psi inflation pressure when trying 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 pressure molded on the tire sidewall.

All of these steps may prevent the bottom bead from getting “hung up” on a steep rim taper (see figure 2).

ALWAYS check that the distance between the rim flange and the aligning ring (which is the rim protector on many low-aspect ratio tires) is uniform around the entire circumference on both sides of the tire. If so, the tire is properly seated. If not, completely deflate the tire/rim assembly, reposition, and repeat the procedure.

After both beads are properly seated, adjust inflation pressure to the vehicle manufacturer recommended inflation pressure as shown on the vehicle tire placard (or owner’s manual). In some cases, the vehicle placard inflation pressure may be different than the tire’s maximum inflation pressure as shown on the tire’s sidewall.

 **WARNING**

TIRE CHANGING CAN BE DANGEROUS AND SHOULD BE DONE BY TRAINED PERSONNEL USING PROPER TOOLS AND PROCEDURES. ALWAYS READ AND UNDERSTAND ANY MANUFACTURER’S WARNING CONTAINED IN THEIR CUSTOMERS’ LITERATURE OR MOLDED INTO THE TIRE SIDEWALL.

Failure to comply with these procedures may result in faulty positioning of the tire and/or rim parts and cause the assembly to burst with explosive force, sufficient to cause serious physical injury or death. Never mount or use damaged tires or rims.

If you sell radial passenger or light truck tires to other dealers (sub-dealers) or fleet accounts, it is your responsibility to supply this Service Bulletin and related safety information. Each **MUST** receive a copy of this Service Bulletin. Please advise Cooper or your supplier of the number of Service Bulletins that are needed for your sub-dealers and we will provide them to you at no charge. You may order this Service Bulletin through the Consumer Relations Department, Cooper Tire & Rubber Company, Findlay, Ohio 45840. To order copies of RMA’s DEMOUNTING AND MOUNTING PROCEDURES FOR PASSENGER AND LIGHT TRUCK (LT) TIRES, contact RMA at the following address:

PUBLICATIONS DEPARTMENT, RUBBER MANUFACTURERS ASSOCIATION
1400 K STREET, N.W.
WASHINGTON, D.C. 20005
PHONE 800-325-5095