TIRE INFORMATION SERVICE BULLETIN

PROPER MOUNTING OF SELF-SUPPORTING TIRES, RUNFLAT AND EXTENDED MOBILITY TYPE TIRES

REFER TO TISB 46 FOR PROPER MOUNTING OF OTHER LOW ASPECT RATIO, HIGH PERFORMANCE PASSENGER AND LIGHT TRUCK TIRES

Introduction

Self-supporting tires, runflat and extended mobility type tires are designed to allow the vehicle to continue to be temporarily driven for a limited distance at a reduced speed after a puncture or other event has resulted in either a drop in tire inflation pressure (low-inflation) or a complete loss of inflation pressure (zero-inflation). This special design typically utilizes very stiff sidewalls when compared to same size tires with standard design. 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).

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 a proper bead seat. This bulletin will focus on the second and third factors below:

- improperly installing the tire over the rim flanges[1]
- the tire and rim are not properly lubricated
- the tire beads are not centered on the rim

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 USTMA 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 places extreme stresses on the tire beads that are forced onto the rim flange in a distorted manner. Such stresses may break a tire bead (or even the rim) with explosive force, possibly resulting in serious injury or death.

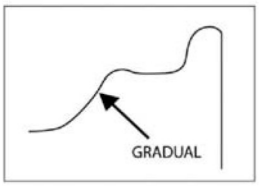
Always consult the tire manufacturer's specific guidelines and procedures for self-supporting tires, runflat and extended mobility type tires prior to inflating above 40 psi.

NEVER INFLATE ABOVE 40 PSI TO SEAT THE BEADS OF SELF-SUPPORTING TIRES, RUNFLAT AND EXTENDED MOBILITY TYPE TIRES UNLESS THE TIRE IS IN A SAFETY CAGE OR OTHER RESTRAINING DEVICE AND IS INFLATED WITH AN EXTENSION HOSE THAT HAS A CLIP-ON CHUCK. NEVER STAND, LEAN OR REACH OVER THE ASSEMBLY DURING INFLATION.

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

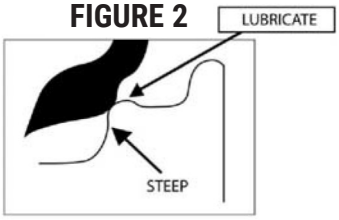
- Rim wells with steep transitions. See the comparison between Figures 1 and 2
- Variations in rim bead seat diameters
- Lack of lubricant or improper use of lubricant
- Stiffness of tire sidewall
- Short tire sidewall height or low aspect ratio

FIGURE 1



Rim with Gradual Transition to Bead Seat

FIGURE 2



Rim with Steep Transition to Bead Seat

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 tire with less load carrying capacity than the specified size on the vehicle tire placard.[2]

For complete tire demounting/mounting procedures, see the USTMA 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 self-supporting tires, runflat and extended mobility type 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 USTMA's Tire Information Service Bulletin, Volume 40, Tubeless Type Valves for Passenger and Light Truck Tires Including Tubeless Snap-In Tire Valve Installation Procedure and the vehicle manufacturer's TPMS service requirements.
- 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 and uniformity problems.

NOTE

For fully automated industrial mounting and inflation equipment, contact the tire manufacturer for authorized bead seat pressure.

- 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 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.
- For bead seating pressure see the following Warning and Note.
- Inspect both sides of the tire to be sure that the beads are evenly seated. 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 bead seating attempts at 40 psi are unsuccessful, refer to the wheel and tire manufacturer's guidelines or contact the wheel and the tire manufacturers prior to using bead seating pressures above 40 psi. When reinflating to over 40 psi and up to the manufacturer's allowable pressure, always place the assembly in a safety cage or other restraining device and use an extension hose that has a clip-on chuck for inflation.
- After the beads are fully seated, pressure must be adjusted to operating pressures, not to exceed the maximum molded on the tire sidewall.

FIGURE 3

WARNING

Excessive bead seating pressure places extreme stresses on the tire beads that are forced onto the rim flange in a distorted manner. Such stresses may break a tire bead (or even the rim) with explosive force, possibly resulting in serious injury or death.

Always consult the tire manufacturer's specific guidelines and procedures for self-supporting tires, runflat and extended mobility type tires, extended mobility prior to inflating above 40 psi.

NEVER SEAT THE BEADS OF SELF-SUPPORTING TIRES, RUNFLAT AND EXTENDED MOBILITY TYPE TIRES UNLESS THE TIRE IS IN A SAFETY CAGE OR OTHER RESTRAINING DEVICE AND IS INFLATED WITH AN EXTENSION HOSE THAT HAS A CLIP-ON CHUCK. NEVER STAND, LEAN OR REACH OVER THE ASSEMBLY DURING INFLATION.

[1] For more information, see USTMA's Tire Information Service Bulletin, Vol. 43, "Avoid Tire Bead Damage On Tire Mounting Machines That Secure The Rim From Underneath.

[2] For more information, see USTMA's Care and Service for Passenger and Light Truck Tires manual.

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