

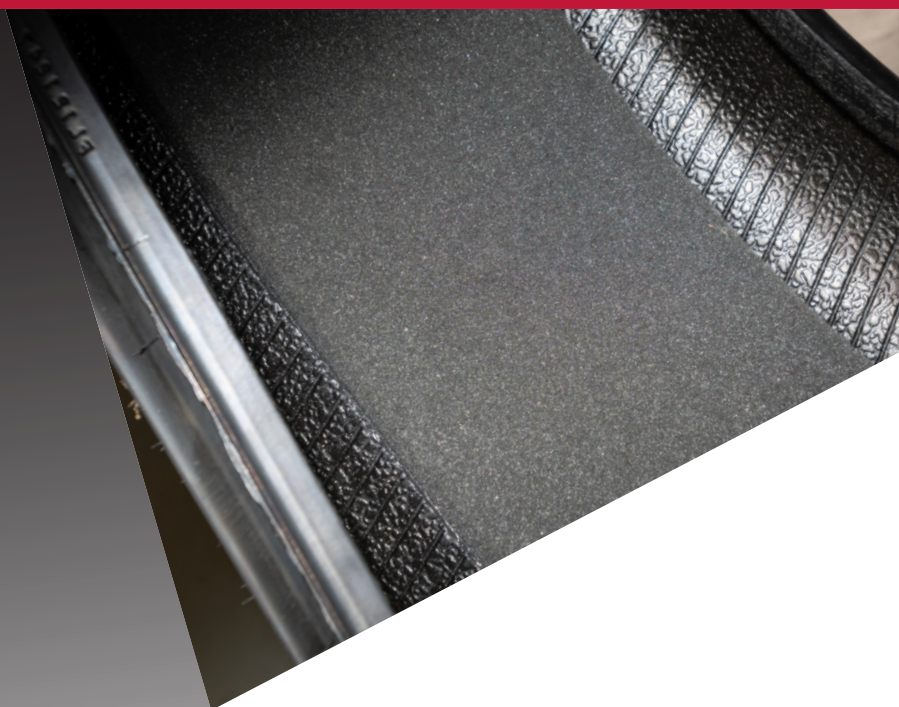
TECHNICALLY SPEAKING

Issue 41



Proper Repair of Noise Reduction Tires

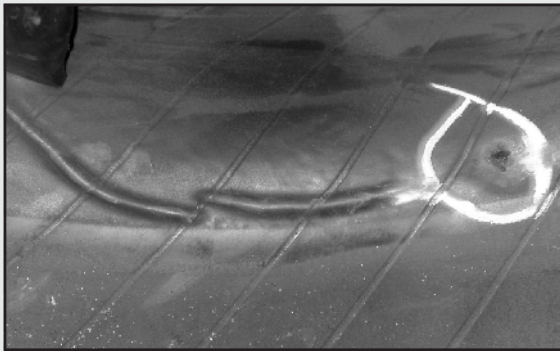
With the increased presence of Electric Vehicles on the road, Noise Reduction tires are becoming more common. Noise Reduction tires are manufactured with a foam insert on the inside of the tire to help reduce vibration and road noise. Like any other tire, these tires can become damaged and require a repair. These tires are repairable, and the following is a guide for proper repair of Noise Reduction tires.



Typical Run-flat Damage

Both are Non-Repairable Conditions

Photo #1



Inner liner Separation

Photo #2



Inner Liner Cracking

Tire Inspection

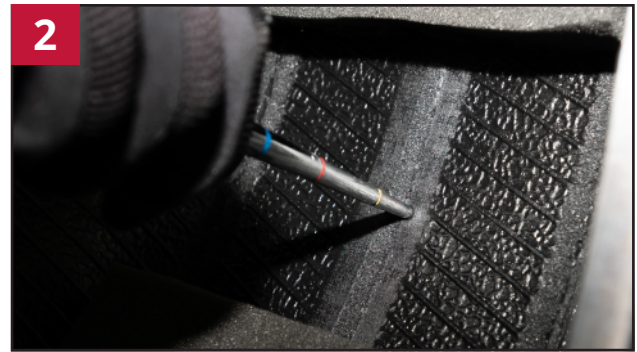
1. Remove the tire from the wheel for inspection and repair.
2. Thoroughly inspect the tire for damage and defects. **DO NOT** repair the tire if your inspection reveals any of the following signs of damage:
 - Damage due to being run flat or being run under inflated (See Photos 1 and 2)
 - Casing damage
 - Separation
 - Visible, bent or broken bead wires
 - Sidewall or tread cracking deeper than 2mm
 - Weather checking or cracking deeper than 2mm
 - Sidewall scuffing that exposes cord body.
3. If the tread depth is less than 2/32", 1.6mm, the tire **MUST NOT BE REPAIRED**.

WARNING

Failure to properly repair a tire could cause a **SUDDEN TIRE FAILURE, RESULTING IN SERIOUS INJURY OR DEATH.** Carefully read and follow these instructions.



Locate the injury on the outside of the tire. Insert a probe into the injury from the outside of the tire to determine the location of the injury on the inside of the tire. With a sharp knife, cut and remove a 3" to 4" (75mm – 100mm) wide section of the foam material. Be careful not to damage the inner liner.



Determine the size and angle of the injury using the TRT105 injury measuring tool. If the angle exceeds 35°, **DO NOT** repair the tire.

- a. **Green band** = 1/8" (3mm) injury – Use a 249W Uni-Seal Ultra repair
- b. **Yellow band** = 1/4" (6mm) injury – Use a 250UL Uni-Seal Ultra repair
- c. **IF THE TOOL MOVES INTO THE INJURY BEYOND THE YELLOW BAND OF THE TECH TRT105, THE TIRE MUST NOT BE REPAIRED.**

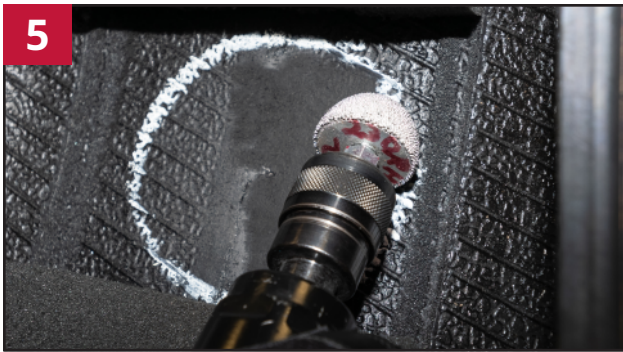
Note: There are brands of Noise Reduction tires that have an adhesive layer under the entire surface of the foam material. If this is the case, do not mechanically buff the inner liner. The repair unit will be applied to the adhesive layer. Move to step #17.



Pre-clean the repair area with TECH Rub-O-Matic #704 and a scraper 2 to 3 times to remove contaminants.



If the foam is only attached along the sides, draw a perimeter approximately 1/2" (13mm) around the repair unit or use a #111TM Template. The outlined area will act as a guide when mechanically buffing.



Using a low speed buffer (maximum 5,000 rpm) and an appropriate inner liner buffing wheel, buff the entire outlined area to a #1 or #2 buffed texture.



Damaged rubber and steel should be removed from the injury using a carbide cutter on a low speed air/electric drill, maximum 1,200 rpm. Drill the injury from the inside of the tire 3 to 5 times, followed by 3 to 5 times from the outside.



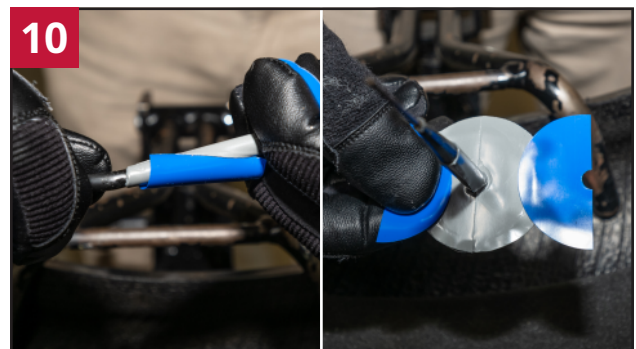
Remove all buffing dust with a wire brush and a vacuum. **IMPORTANT NOTE: DO NOT TOUCH THE BUFFED SURFACE WITH THE VACUUM.**



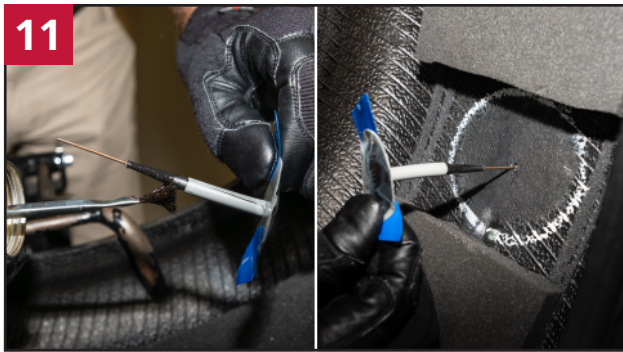
Apply TECH Chemical Vulcanizing Fluid #760 into the injury 3-5 times using a Tech #910 or #915 Cement Tool.



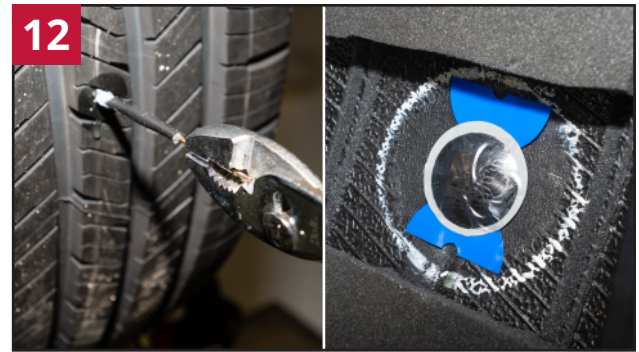
Apply a thin, even coat of TECH Chemical Vulcanizing Fluid to the buffed surface or adhesive layer and allow to dry for 3-5 minutes. Allow additional drying time in cold and/or humid weather conditions.



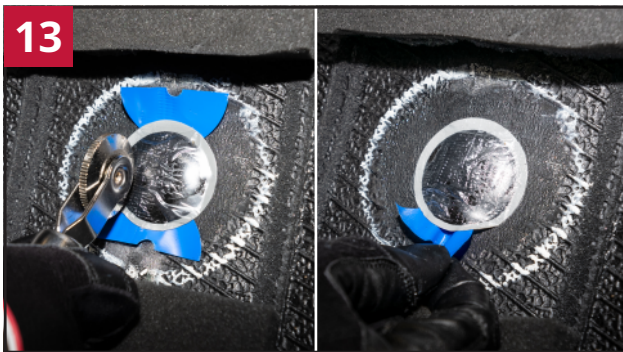
Remove the blue poly from the stem and the cap of the Uni-Seal without touching the gray cushion gum. Reposition the poly onto the cap to prevent contamination of the gray gum.



Apply a small amount of vulcanizing fluid to the black tapered portion of the repair. Push the lead wire through the prepared hole in the tire.



Grasp the lead wire on the outside of the tire and pull the repair with even pressure through the tire until the cap forms a slight indentation. Do not over pull.



Stitch the repair from the center out. Remove the blue poly and stitch in the opposite direction.



Remove the clear poly from the cap. Apply Security Coat #738 or Butyl Liner Repair Sealer #739 to the edge of the repair and the over buffed area.



Cut the stem off on the outside of the tire approximately 1/8" (3mm) above the tread surface. If the injury is in the tread groove, the stem can be cut off flush to the tread surface. The tire is now ready to return to service.



If desired, the foam can be reinstalled. To reinstall the foam, apply a layer of Security Coat #738 or Butyl Liner Repair Sealer #739 to the entire area the foam was removed from. While the material is still wet, press the foam in place and hold for 30 seconds to ensure the foam achieves proper adhesion to the tire.

For tires containing a highly tacky adhesive that covers the entire tread, use the following procedure:



Once the foam is removed, use a #933 Rubber Scraper to move the adhesive away from the injury. This will prevent the adhesive from sticking to the carbide cutter.



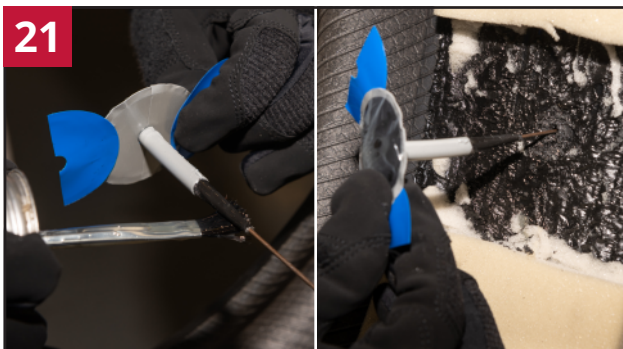
Damaged rubber and steel should be removed from the injury using a carbide cutter on a low speed air/electric drill, maximum 1,200 rpm. Drill the injury from the inside of the tire 3 to 5 times, followed by 3 to 5 times from the outside.



Apply TECH Chemical Vulcanizing Fluid #760 into the injury 3-5 times from the outside of the tire using a Tech #910 or #915 Cement Tool.



Remove the blue poly from the stem and the cap of the Uni-Seal without touching the gray cushion gum. Reposition the poly onto the cap to prevent contamination of the gray gum.



Apply a small amount of vulcanizing fluid to the black tapered portion of the repair. Push the lead wire through the prepared hole in the tire.



Grasp the lead wire on the outside of the tire and pull the repair with even pressure through the tire until the cap forms a slight indentation. Do not over pull.



Remove the blue poly backing from under the repair unit and stitch the repair from the center out using firm pressure.



Remove the clear poly from the top of the repair unit.



With the stem relaxed, cut off the excess 1/8" (3mm) above the tread surface.



If desired, the foam can be reinstalled. If the adhesive remains tacky, simply press the removed foam back into place. If the adhesive has lost its tack, apply a layer of Security Coat #738 or Butyl Liner Repair Sealer #739 to the entire area the foam was removed from. While the material is still wet, press the foam in place and hold for 30 seconds to ensure the foam achieves proper adhesion to the tire.



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