



PUNCTURE REPAIR PROCEDURES FOR TRUCK/BUS TIRES LOAD RANGE F AND HIGHER

XtraSeal®

Only a trained tire technician should remove a tire from the wheel when it has been damaged or is losing air pressure. A thorough inspection can then be performed. This information covers puncture repair procedures for truck and bus tires in the tread area only.

PUNCTURE INJURY LIMIT 3/8 inch (10mm)

Truck / Bus Tires
Load Range F and Higher

PUNCTURE INJURY LIMIT
3/8 inch (10mm)

This image is to show
that puncture repairs are
limited to the tread area.



WARNING!

DO NOT MIX PRODUCTS FROM DIFFERENT REPAIR MATERIAL MANUFACTURERS.
Follow all instructions. Refer to the information on the product, or SDS,
and follow the guidelines for handling and disposal.

NEVER substitute an inner tube for any repair.

NEVER invert radial tires (Inverting can cause separation or damage to steel).

NEVER perform a tire repair without first removing the tire from the rim/wheel assembly for an internal inspection (Do not perform outside in plug repair while still mounted to the wheel. **SEE WARNING**

NEVER install a repair unit only to the inner liner without also filling the injury channel with a suitable vulcanizing material or rubber stem, therefore filling the injury and keeping moisture out. A completed repair must have the repair unit sealing the liner as well as filling the injury.

WARNING!

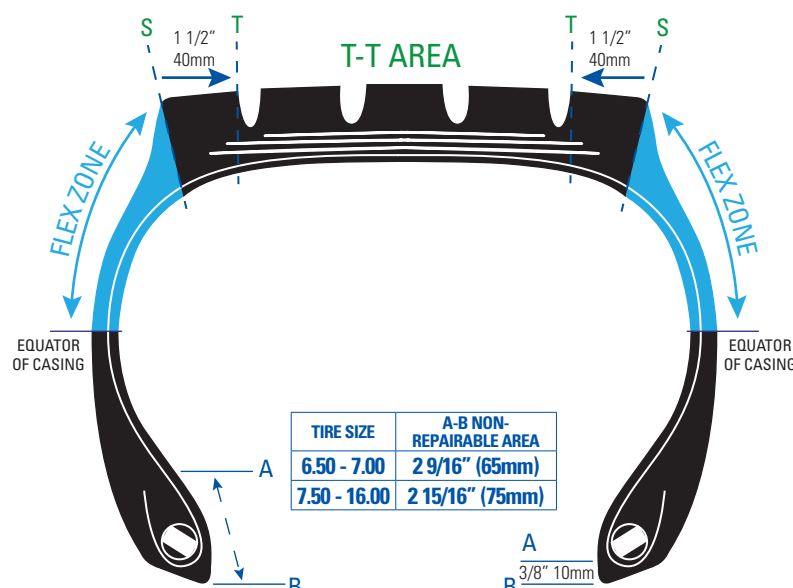
DO NOT perform an outside-in or ON-THE-WHEEL TIRE REPAIR .

WARNING!

Permanent tire damage due to underinflation and/or overloading cannot always be detected. Any tire known to, or suspected to have run at 80 % or less normal operating pressure, could have permanent structural damage (steel cord or Nylon fatigue) Ply cords can weaken by underinflation or overloading causing them to break one after another, until a rupture , known as a Zipper occurs in the sidewall. This causes sudden air loss with explosive force, and can cause injury or death.

NEW TO THE INDUSTRY REINFORCED SHOULDER REPAIR (RSR)

RSR INJURY LIMITS



Repair Unit Placement

DO NOT end in the FLEX ZONE

DO NOT end in B-C area

S-T: Shoulder area 1 1/2" (40mm)

T-T: Crown Area

A-S: Sidewall Area

Repair Unit Selection for RSR Puncture Repairs

AREA	INJURY SIZE	REPAIR UNIT
T-T: CROWN	3/8" (10mm)	20
S-T: SHOULDER	5/16" (8mm)	22
S-T: SHOULDER	5/16" (8mm)	24

All injuries larger than those defined above or outside the specified S-S area must be treated as section repairs.

Contact 31 Inc. at 31inc.com for more information on
Reinforced Shoulder Repairs (RSR)

TWO INDUSTRY RECOMMENDED REPAIR METHODS INCLUDE

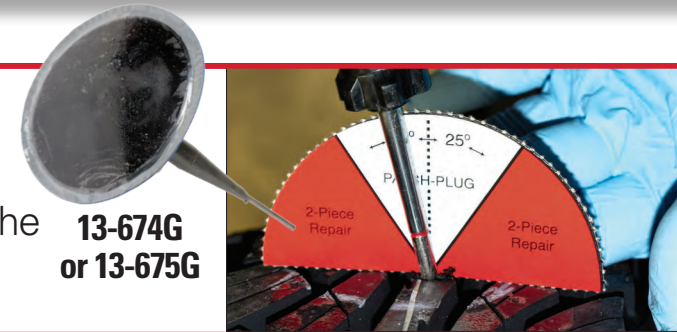
1 A TWO-PIECE STEM AND REPAIR UNIT, AND THEN BONDED TOGETHER DURING THE REPAIR PROCESS.

This works well with any angle of the injury
3/8" (10mm) or less.



2 A ONE-PIECE PATCH AND PLUG STEM COMBINATION UNIT.

This works well when the angle of the
injury does not exceed 25 degrees.



WARNING!

**PATCH ONLY or PLUG ONLY repairs,
are IMPROPER REPAIRS.**

**Improper repairs can fail in service
which could result in accidents causing
serious personal injury or even death.**

1 EXTERNAL AND INTERNAL INSPECTION

Inspect the tire on a spreader. Do not invert radial tires. Avoid excess spreading of the beads. Mark the injury with a Tire crayon. Remove the puncturing object and take note of the angle of the penetration. Use a probe in the injury to help determine the extent and angle of the injury as well as remove any foreign material. — If the angle of the injury is greater than 25 degrees, use a two piece repair system. Do NOT Overlap repair units. Do not repair injuries over the maximum of 3/8 inch (10mm). Injuries over 3/8 inch should be taken to a full service facility to be considered for a section repair.

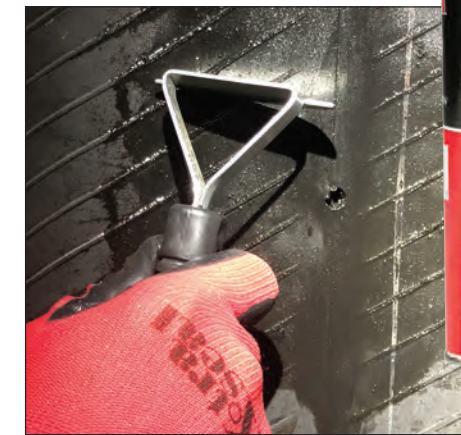


**NOTE: Always inspect tires with
appropriate lighting. A hand held light
can assist with inspection and to reveal
bulldges or potential zipper damage.
Contact 31 for proper lighting.**

2 PRE-CLEANING INNER LINER SURFACE

Clean the area around the puncture with XtraSeal Rubber Prep Pre-Buff Cleaner and a scraper. This step is critical in removing dirt and mold lubricants that will reduce adhesions and contaminate buffing rasps.

Repeat this process where needed.



3 PREPARE THE INJURY CHANNEL

When possible, drill the injury from the inside a minimum of three times with the appropriate carbide cutter on a low speed (1200 rpm max.) drill, or other suitable tool, to ensure complete removal of the damage, being careful not to elongate the hole. Repeat this process a minimum of three times from the outside of the tire to ensure complete damage removal. Use a probe to check for any splits in the plies surrounding the injury. Remove any additional damage found.



Be sure the injury
remains 3/8 inch
(10mm) or less.

4 REPAIR UNIT SELECTION

Choose the correct repair unit following XtraSeal recommendations. Center the unit over the injury and outline a border 1/2 inch 13mm larger than the repair unit, so the buffing will not remove crayon line.

13-674G or 13675G
Lead-Wire
Combination Unit



Xtra-Seal Radial 20 Repair Unit



5 FILL THE INJURY CHANNEL

Follow this when using a **TWO-PIECE** repair system.

For a **ONE-PIECE** combination unit, please skip this step.

Apply XtraSeal cement to the puncture channel and fill the injury from the inside out, with a suitable vulcanizing rubber stem. Then cut the stem 2/32 above the liner surface. The stem will then vulcanize to the injury channel and the repair unit, to prevent moisture and prevent rusting or deterioration.

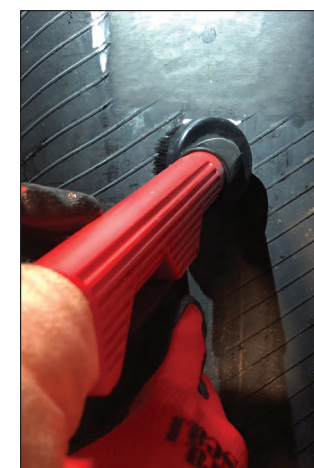


6 BUFFING

Using a low speed buffer (5,000 rpm max) and a gritted rasp, buff the inner liner to a TRMG BT1 / velvet looking surface. Be careful not to buff too deep and expose the steel or fabric body cords.

Remove all rubber dust from the area using a fine wire brush and a vacuum.

Note: Do not use compressed air to clean the buffed area.



7 CEMENTING

Apply a thin coat of XtraSeal chemical vulcanizing cement to the entire buffed area. Allow the cement to dry completely. Stippling the cement into the inner liner can reduce dry time.

Do not use forced air or an outside heat source to accelerate the dry time due to possible contamination. Adjustment of dry time will be needed according to temperature and humidity. While drying, rotate the injury to the 12 o'clock position to prevent possible contamination.



WARNING!
Do not use flammable
cement near fire, flame,
or any other source of
ignition. Explosive force
and/or fire from ignition
of cement could cause
serious injury or death.

8 APPLYING THE REPAIR UNIT

The tire beads should be in a relaxed position, not stretched out on the spreader.

Align the bead arrows of the repair unit where applicable. Use the poly backing to prevent touching the bonding gum during installation as shown.

Note: Remove poly backing prior to installation and it can be used to prevent your fingers from contaminating the gum surface.



9 STITCHING

For all methods, stitch the entire repair unit with a serrated stitcher vigorously working from the center outwards. This can remove any trapped air and assist in the Vulcanization between the cement and the back of the patch. Cut the stem portion flush with the tread area, making sure not to stretch or pull the stem while cutting.



10 INNER LINER SEALER & FINAL INSPECTION

Apply a coat of XtraSeal Inner Liner Sealer to the repair area, making sure to cover all exposed buffed surface, and over the edges of the patch. This helps to maintain the Integrity of the liner, for the life of the tire.

After mounting and inflating the tire, be sure to conduct a final inspection. Using a leak detector, or dunk tank, be sure that the injury channel, valve stem, or beads no longer have any leaks. Return to service when completed.



WARNING!

Serious bodily injury may result from not wearing adequate personal protective equipment (PPE), including eye protection (i.e., goggles or face shields), ear protection, respiratory protection, and gloves, while buffing tires. Always wear appropriate PPE for your safety.

WARNING!

Tire changing can be dangerous. Properly trained personnel with the correct tools and procedures should be the only employees allowed to change tires. Always read and understand the manufacturer's warnings, contained in their manuals and on tire sidewalls.

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For all tires, REPAIR UNITS CAN NOT OVERLAP. The number of repairs varies by manufacturer,
so follow the Manufacturers specific repair policy regarding number of repairs allowed.