Tire Repairs

Repair
Of A
Radial Truck
Sidewall
Using a
Centech*
Centering
Radial
Repair Unit
CENTECH®
Radial Repairs
CENTECH is the most advanced radial tire repair system ever developed.

Crown, shoulder or sidewall injuries in passenger, truck, agricultural and earthmover tires can now be repaired with Centech center over injury radial repairs. A special compounding and design allow the repair unit to flex and resist heat, assuring a permanent repair.

CENTECH repair units last the life of the tire, saving thousands of dollars per year in new tire purchases.

TRUCK

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
<th>Size (inch.)</th>
<th>Dimensions (inches)</th>
<th>Dimensions (mm)</th>
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<td>176</td>
<td>CT-00</td>
<td>10</td>
<td>5 x 5</td>
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<td>172</td>
<td>CT-02</td>
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<td>3 x 10</td>
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<td>3 x 10</td>
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<td>CT-44</td>
<td>10</td>
<td>5 x 15</td>
<td>125 x 325</td>
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1. Inspect the tire inside and outside to determine the repairability of the casing.
   The tire should not be repaired if any of the following conditions or injuries are present:
   - Tire shows signs of run flat or under-inflation
   - Casing separations
   - Bead wires visible, deformed or broken
   - Sidewall or tread cracking to the cord
   - Weather checking which exposes the cord
   - Severe sidewall scuffing exposing the cord
   The inspection area should have good lighting inside and outside of the tire.

CENTECH REPAIR
OF A RADIAL TRUCK
SIDEWALL

The following is a single cable damage sidewall section repair in a steel belted radial truck tire. This curing procedure is what is recommended if the curing system being used is a spotter. With this type of curing system the repair is applied chemically after the skive fill has been cured.

CENTECH low temperature centering radial repair units can be used chemically or in a heat cure system such as a section mold or retread process.
2. Locate and mark all injuries on the inside and the outside of the tire. If present, remove any injuring objects.

3. To determine the extent of damage and check for possible ply separation, probe the injury using a blunt point awl.

4. Measure the distance between the toe of the bead and the end of the injury closest to the bead. The injury must not extend into the A-B non-repairable area of the tire.

5. Refer to the CENTECH Limitations Chart to determine the non-repairable area of the tire you are repairing.

6. Measure the injury's length and width, then refer to the CENTECH Limitations Chart to determine if the injury is repairable. For a one or two cable injury, the number of cables removed is the width of the injury.

7. When determined repairable, pre-clean the innerliner by applying Tech Rub-O-Matic Aerosol (#704-A) to the repair area.
Using a Tech Skiving Knife (#940 or #941), separate the damaged cable or cables, culling as close to the damaged cable as possible.

Clean any contaminating substances from the outside of the tire.

With a Tech low r.p.m. buffer (max. 5,000 r.p.m.) such as the Tech #S-1032 or #S-1036 air buffer, and using a #S-2045 or #S-2046 rotary gouge, remove the outer rubber around the perimeter of the injury. *

Notice that fret wire damage in the injury is clearly visible. If there is any damage to the cable or if the fret wire has been damaged, then that cable must be removed. If the cable is rusted or not encased in solid rubber, then the cable should also be removed.

*Another method of quickly removing surface rubber is to use a RUBBERHOG coarse grit rasp (#390 SSG) on a low r.p.m. air buffer.

Using a Tech Skiving Knife (#940 or #941), separate the damaged cable or cables, cutting as close to the damaged cable as possible.
Using the same rasp on the low r.p.m. air buffer, buff a perimeter approximately 1” to 1 1/2” (25mm to 40mm) around the exterior of the skive on the outside of the tire.

With a low r.p.m. air buffer (#5-1032 or 18-1036) and a texture brush, lightly texturize the edges of the injury by pressing on each side of the injury from the outside of the tire while running the brush along the cut edges from the inside of the tire.

Using a low r.p.m. air buffer and a RUBBERHOG rasp (#230 SSG), lightly buff a 45 degree angle to the exterior of the skive achieving an R.M.A. #2 or #3 texture. **Do not let the buffing wheel come in contact with the steel body cables.**

With a high r.p.m. (min. 20,000 r.p.m.) air tool such as the Tech #S-1034 or #S-1039, and the Tech Mini Carbide Burr (#280), precisely cut off each end of the cable or cables to be removed back to good solid rubber at a 90 degree angle. *

With a high r.p.m. (min. 20,000 r.p.m.) air tool such as the Tech #S-1034 or #S-1039, and the Tech Mini Carbide Burr (#280), precisely cut off each end of the cable or cables to be removed back to good solid rubber at a 90 degree angle.

**Mechanically buff the innerliner 1 1/2” to 2” (40mm to 50mm) around the injury using a RUBBERHOG innerliner wheel (#RH-106) on a Tech low r.p.m. air buffer to receive a platform of filler rubber.**

**Determine the correct CENTECH Repair required for the injury by measuring the length and width of the injury. The width for this injury is one cable.**

*For multiple cable removal, use the Tech Mini Carbide Router (#283) and Aluminum Oxide Rollers (#5-072) to remove the steel cables.*
When using a spotter or section mold, you will need to know the thickness of the rubber to be cured. Measure the section depth at the thickest part of the skive. Write the measurement on the outside of the tire for future reference.

Clean the buffed area on the inside and outside of the tire using Tech Rub-O-Matic (#704) and a clean, lint-free cloth and allow to completely dry, normally 3 to 5 minutes. Another cleaning method is to use a soft wire brush on a low r.p.m. buffer and then vacuum.

This illustration shows how to correctly measure the length and width of a sidewall injury in a radial tire.
26 Draw crayon index lines at right angles from the skive on the inside of the tire to aid in centering the spotter and repair unit.

27 Apply an even coat of cement to the entire skive area, inside and out with either Tech Temvulc (#1082) or Tech Chemical Vulcanizing Fluid (#760) and allow to dry thoroughly.*

28 Using Tech Vul-Gum, cut enough strips to fill the skive and preheat to approximately 120° to 130° F (49° to 55° C).

29 Using Tech Vul-Gum 1/8” (3mm) thickness, cut a platform of Vul-Gum 1” (25mm) larger than the skive opening for the innerliner of the tire.

30 Center the platform over the skive opening and press the platform into place.

31 Stitch the platform into place.

* A. Tech Temvulc (#1082) — When applying Tech Temvulc black retread cement, allow approximately 15 to 20 minutes drying time (longer in humid climates). Double the drying time if the vulcanizing fluid is being applied to exposed cord body. Allow additional drying time in humid climates.

* B. Tech Chemical Vulcanizing Fluid (#760) — Allow Tech Chemical Vulcanizing Fluid to dry approximately 3 to 6 minutes (longer for humid climates). Apply two coats and double the drying time when used in tube type tires. Allow additional drying time in humid climates.
Place the spotter on the tire, making sure the heat elements are directly over the center of the skive.

Note: Never vent a radial tire as it can allow moisture into the casing that will rust steel cables.

The skive should be filled to a height that is 1/8" to 1/4" (3mm to 6mm) above the tire's surface. The highest point should be in the middle of the skive fill and tapered to the tire.

Remove the white polyethylene protective covering.

**EXAMPLE**

<table>
<thead>
<tr>
<th>Platform</th>
<th>1/8&quot; or 3mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>1/2&quot; or 13mm</td>
</tr>
<tr>
<td>Overbuild</td>
<td>1/4&quot; or 6mm</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>7/8&quot; or 22mm</td>
</tr>
</tbody>
</table>

7 x 10 = 70 minutes

Vul-Gum Cure Rate

Every 1/8" (3mm) = 10 minutes at 300° F (149° C)

When using a spotter, it will be necessary to calculate a cure time so as not to under cure or over cure the rubber. When using Tech Vul-Gum the cure rate is 10 minutes for every 1/8" or 3mm at 300° F (149° C). To calculate the cure time you need to add the total thickness of the platform, the section depth and the over build as we did in the example shown here.

Place the spotter on the tire, making sure the heat elements are directly over the center of the skive. Use the previously placed index lines to aid in centering the spotter.

Note: If using a manual type spotter, it will be necessary to retighten the spotter after 5 to 10 minutes.

Note: Follow the spotter manufacturer's recommendations for spotter warm-up times.

Once filled to a point that a stitcher can be used, finish filling the skive using a Tech stitcher.
Connect the air line. The pressure should be no higher than 35 p.s.i. Set the timer for the allotted cure time.

After the allotted cure time, remove the spotter and allow the tire to cool down. Then cut away any excess flash from the interior and exterior of the tire using a Tech Flex Knife (#942).

Center the predetermined CENTECH repair over the skive and mark a perimeter approximately 1" (25mm) from the edge of the repair completely around the repair unit. This serves as a guide for mechanical buffing.

Pre-clean within the marked area by applying Tech Rub-O-Matic Aerosol (#704-A).

While the area is still moist, remove contaminating substances using a Tech Scraper (#933).
Buff within the marked area with a Tech low r.p.m. air buffer and an innerliner buffing wheel (#RH-106) to achieve an even velvet texture. Remove any vent ribs and/or embossed surfaces for proper adhesion.

ALWAYS WEAR EYE PROTECTION WHEN BUFFING

Vacuum the complete buffed area to remove all buffing debris from the tire.

Break the perforation of the blue backing and peel half way back. Caution: Avoid touching the gray cushion of the repair as this could lead to contamination of the repair.

Center the repair over the injury, making sure the be arrow is aligned with one bead of the tire. Press do the center of the repair.

Note: Make sure that the beads of the tire are in relaxed position before applying the repair.
Stitch the repair unit into place from the center outward. Exert firm pressure on the stitcher during this process to promote increased adhesion.

Remove the blue poly backing and finish stitching into place.

Remove the clear poly protective cover.

If a tire is of tubeless construction, apply Tech Security Coat (#738) to the outer edge of the repair and over-buffed area for good air retention. Security Coat dries to a black color. (If the tire is tube type, apply Tech Tire Talc (#706) to the gray cushion gum.)

Dress the skive back to the original contour of the tire using a low r.p.m. Tech Air Buffer and a fine gritted buffing wheel for cosmetic appearance. For best results, be sure that the buffing wheel is turning out away from the center of the skive.

The tire is now ready to be returned to service. If all of the repair procedures have been followed properly, the repair will last the lifetime of the tire, even if the tire receives several retreads.
If you have any questions regarding this repair process, call Tech's repair hotline 1-800-433-TECH or 1-800-336-TECH.