

**CONTISEAL
REPARATUR ANLEITUNG**

**CONTISEAL REPAIR
INSTRUCTIONS**

**MODE OPÉRATOIRE POUR
LA RÉPARATION CONTISEAL**

**INSTRUCCIONES DE LA
REPARACIÓN DE CONTISEAL**

Conti  Seal



1. Introduction / general information

Always check in a professional way according to appropriate criteria, such as the general state of the tyre, national repair limits etc. whether the tyre can be repaired. Check the whole tyre for further hidden damage.

For tyre repairs, we recommend using TIP TOP materials and buffing tools. All the information given in these working instructions refers only to the use of original TIP TOP products.

A proper repair requires not only the use of high quality repair materials and tools but also an appropriate working environment for example:

- good illumination of the working place
- periodical cleaning of the working place and the tools (maintenance)
- protection of the repair area against draught and direct sunlight during the repair process
- storage of all products according to the specifications on the packs
- well serviced, technically correct machines and tools
- well trained staff

We reserve the right to change our products and processes in order to carry out technical improvements.

Always observe the valid TIP TOP repair charts etc., when selecting the appropriate repair materials.

2. Terms regarding tyre repair

Hot/warm vulcanization

Method of vulcanizing rubber fillings and repair patches on repair areas by means of heat and pressure.

Self vulcanization

Method of vulcanizing repair patches on injuries at room temperature (= at least + 18 OC)

Puncture channel

Hole made by a foreign body penetrating into the tyre casing/belt

Combi repair unit (e.g. MINICOMBI)

One-piece repair unit which at the same time serves as a repair patch and fills the puncture channel. It can be used only for punctures to the tread.

Repair patch

Flat repair unit whose size and strength are adapted to the individual tyre and injury sizes.

General safety instructions

Carefully read the operating and application instructions enclosed with the corresponding products/machines. Always observe the safety instructions.

When working with rotary tools, always take the necessary precautions (e.g. use safety goggles; observe maximum R.P.M. etc.).

When using solutions, observe the safety instructions and symbols on the containers.

Always keep dangerous tools, solutions etc. out of the reach of children and unauthorized persons!

Observe general safety instructions and the specific regulations for prevention of accidents from the employer's liability insurance association.

The reference numbers of the vulcanizing solutions and cements mentioned in these instructions designate only the CFC- and aromatic-free versions.

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Reinforcement

Textile or fabric cord which forms the casing plies of a tyre and is also used in repair patches from a specific size on.

Drying time/Test with the back of the finger

The minimum drying time and the maximum permissible drying time have to be observed during the application of vulcanizing solutions and cements. The right moment for the application of a repair patch has come, when the coat feels a little sticky when touched with the back of the finger but does not adhere to the finger or leave a wet residue on the finger; the coat should be dry, but still have tack. This „test with the back of the finger“ is always carried out on the edge of the coated surface area.

3. General rules for tyre inspection and repair

3.1 Before starting any repair, check whether it is technically safe and economically viable to repair the tyre. Also check the whole tyre for very small injuries and further hidden damage. Always examine the tyre taking into account also its general state outside the repair area.

3.2 If a small injury is difficult to locate, slowly inflate the tyre step by step to the operating pressure, permanently checking the whole tyre for any noticeable defects.

3.3 Always demount the tyre from the rim in order to check whether repairing it is technically safe and economically

viable and to carry out the repair. After preparing the injury, select the appropriate repair materials depending on the size and position of the injury as well as the speed rating.

3.4 The injury area has to be prepared correctly by means of the appropriate tools. Further damage arising from the injury, which may be found during this operation, also has to be included in the evaluation of the reparability of the tyre.

3.5 Observe the relevant regulations regarding tyre repair (e.g. in GB BS AU 159 f / DK DS 2044)

4. Repairs to tread-area punctures in ContiSeal tyres with the use of TIP TOP Minicombi

Always observe the current application instructions enclosed in every TIP TOP Minicombi pack.

Empfehlung: Max. Reparaturen mit Combi-Reparaturkörpern pro Reifen. → Bereits vorhandene Reparaturen stets auf Mängelfreiheit prüfen.
 Axialer Abstand der Reparaturen mindestens 15 cm/6".
 Advice: Maximum number of repairs carried out with Combi repair plugs in one tyre. → Always check whether repairs already carried out in the tyre are defective.
 Axial distance between repairs: minimum 15 cm/6".
 Conseil: Nombre maximum de réparations par pneu effectuées avec des pièces champignon. → Toujours vérifier si les réparations déjà effectuées sur le pneu ne présentent pas de défauts. Distance axiale entre les réparations: minimum 15 cm/6".

Reparaturzone in ←-%→ Laufflächenbreite Repairable area in ←-%→ of the tread width Zone réparable en ←-%→ de la largeur de la bande de roulement	Speed Index	Minicombi					
		3	4,5	6	8	10	
-J		●	●	●			2
K-T		●	●				1
H-ZR		●					
-V		●					3
-V		●	●	●			
ZR-W		●					
max. LI = 177							3
		●	●	●	●		
		●	●	●	●	●	
-75%		●	●	●	●	●	

• Hartmetall-Rotierfräser passend für: / Carbide mill cutter suitable for: / Fraise carbure convenant pour:
 Minicombi A3, Ø 3 mm: Cod./No.Art./Art.Nr. 595 4900
 Minicombi A4,5 Ø 4,5 mm: Cod./No.Art./Art.Nr. 595 5019
 Minicombi A6 Ø 6 mm: Cod./No.Art./Art.Nr. 511 1884
 Minicombi B8 Ø 8 mm: Cod./No.Art./Art.Nr. 511 1891
 Minicombi B10, Ø 10 mm: Cod./No.Art./Art.Nr. 511 1619

Fig. A03

4.1. Tyre preparation

Required tools

- Probe; ref.no. 570 9280
- Chalk; ref.no. 595 8401
- Pincers with lever; ref.no. 594 0580
- Thickness gauge; ref.no. 595 8535

Procedure:

- Locate and mark the injury (fig. A01)
- Demount the tyre.
- Remove the foreign body which has caused the injury, and determine the direction of the puncture channel using an awl or the probe (fig. A02).
- Minicombi repairs may be carried out only in the tread area (fig.A03).
- Use Minicombi repair units only if the angle of the puncture channel is $90^\circ (\pm 15^\circ)$ (fig. A04)
- Determine the size of the injury by measuring the previously removed foreign body, then select the appropriate Mini-combi repair unit. (fig.A05)
- Check the adhesiveness of the Sealant.

If the Sealant is clean in the Minicombi placement area, and has strong tack, then the repair can be carried out on the Sealant. See section 4.2. Otherwise, the Sealant has to be removed in the repair area. See section 4.3.

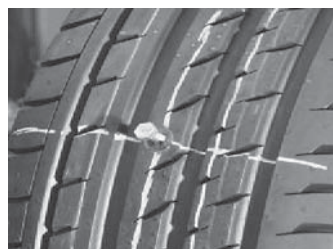


Fig. A01



Fig. A02

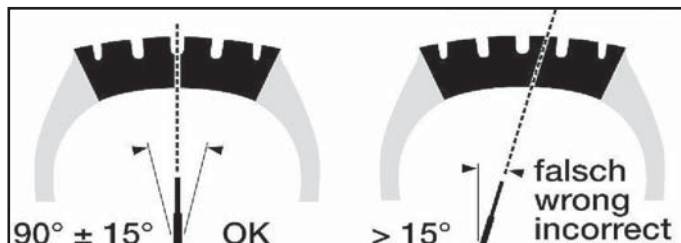


Fig. A04

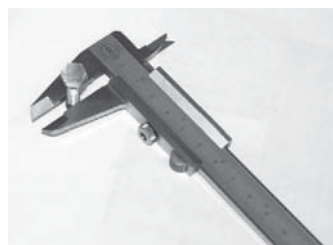


Fig. A05

4.2. Repair preparation

If Sealant has strong tack.

Required tools

- Rotary mill cutters;
- Working gloves; ref.no.. 594 0020
- Brush or brush with screw top ref.no. 595 8353
- Drill ref.no. 594 0590
- Tyre spreader; ref.no. 517 0777

Required materials

- Special Cement BL

Procedure

- Spread the tyre with the tyre spreader.
- Use working gloves.
- Prepare the puncture channel (fig. A06)

Use the appropriate rotary mill cutter to carefully ream the puncture channel observing its direction, first from the tyre inside outwards, then from the outside inwards. Repeat this operation once or twice. Recommended speed of the mill cutter 2500 RPM.

During this operation, remove any further damage to the casing (rust etc.). If necessary, repeat the operation with the use of the next largest mill cutter, observing the maximum repairable injury size.



Fig. A06

Notes

The HSS mill cutters enclosed in the Minicombi workshop kits have to be replaced after approx.25 repairs, because of wear. Professional tyre repairers use TIP TOP HM mill cutters whose lifetime is up to ten times longer than that of HSS rotary mill cutters. To continue, refer to chapter 4.4. Repair.

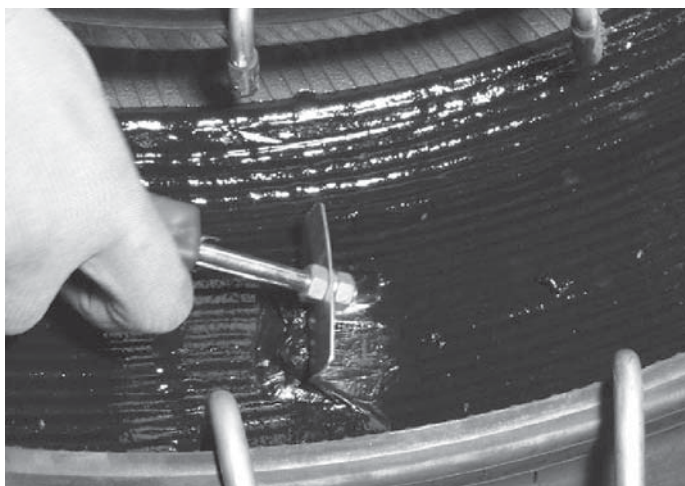


Fig. A07



Fig. A08

4.3. Repair preparation

If Sealant has no tack.

Required tools

- Scraper; ref.no.595 4515
- Rotary mill cutter
- Working gloves. ref.no. 594 0020
- Brush or brush with screw top ref.no. 595 8353
- Drill ref.no. 594 0590
- Tyre spreader; ref.no. 517 0777

Required materials

- Special Cement BL

Procedure

- Spread the tyre with the tyre spreader.
- Use working gloves.
- Completely scrape the Sealant aside on the inner liner, in an area as large as the Minicombi base. (fig. A07)
Pull the Sealant aside from the injury, shaping the scraped material into a raised edge around the Minicombi placement area
- Prepare the puncture channel (fig. A08)
Use the appropriate rotary mill cutter to carefully ream the puncture channel observing its direction, first from the tyre inside outwards, then from the outside inwards. Repeat this operation once or twice. Recommended speed of the mill cutter 2500 RPM. During this operation, remove any further damage to the casing (rust etc.). If necessary, repeat the operation with the use of the next largest mill cutter, observing the maximum repairable injury size.

Notes

The HSS mill cutters enclosed in the Minicombi workshop kits have to be replaced after approx.25 repairs, because of wear. Professional tyre repairers use TIP TOP HM mill cutters whose lifetime is up to ten times longer than that of HSS rotary mill cutters.

4.4. Repair

Required tools

- Cut-pliers; ref.no. 571 9100
- Stitcher; ref.no. 595 1044
- Inserting tool; ref.no. 511 1808

Required materials

- Minicombi repair units
- Special Cement BL
- Innerliner Sealer, 515 9004

Procedure

- Coat the exposed repair area with Special Cement BL (fig. A09), applying an even and thick coat of cement. Turn the repair area into the 3 or 9 o'clock position. Let the coat dry for 10-45 minutes. [test with the back of your finger]

Notes

Do not accelerate the drying process by artificial means. Shorter drying times can be reached using Fast Dry Cement BL (drying time 5-15 minutes).

Safety instruction

When using solutions, observe safety instructions and symbols on the containers or packings!

- Squeeze Special Cement BL into the puncture channel so as to fill it completely. (fig. A10):
Position a tube of Special Cement BL close to the puncture channel inside the tyre, and squeeze the cement into it.

Notes

Do not re-cement the already prepared and cemented area in the tyre or the Minicombi shaft.

- Insert the Minicombi repair plug immediately (fig. A11).
In order to insert the Minicombi, push the inserting tool through the puncture channel from the tyre inside outwards, seize it with the cut-pliers, and pull the repair unit outwards as far as possible. Take hold of the Minicombi stem and pull it until the Minicombi base is flush with the tyre inside. Take care to pull the unit straight in the direction of the puncture channel and not at an angle.
- Stitching the Minicombi base. (fig. A12)
Vigorously stitch on the Minicombi base over its whole surface with the thin stitcher working from the centre outwards.



Fig. A09



Fig. A10



Fig. A11



Fig. A12



Fig. A13



Fig. A14



Fig. A15

4.5. Finishing the repair

Required tools

- Offset knife; ref.no. 595 2139

Required materials

- Innerliner Sealer; 515 9004

Procedure

- Seal the edge of the Minicombi base with TIP TOP Innerliner Sealer (fig. A13), or push the Sealant back over the repair area (fig. A14)
- Then check whether the repair has been carried out correctly.
Fit the tyre on the rim, and inflate it to its operating pressure.
- Then cut the protruding stem (fig. A15), without stretching it.
- Check the tyre for air tightness.
- Balance Tyre.
- Fit the wheel on the vehicle.
- Once repaired, the tyre can immediately be put back into operation.

The vulcanization between the Minicombi repair unit and the tyre is automatically completed under normal running conditions.

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