

**Tyre Technical Advisory Committee**

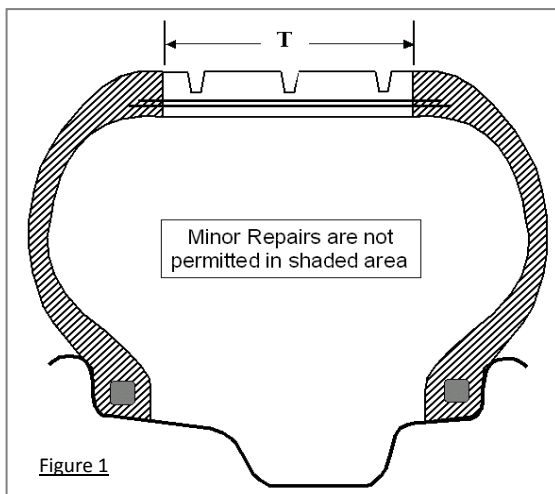
Issued: 09/06/2010 Reviewed: 10/03/2015

**Minor repairs to car and light van tyres**

Some minor damage to car or light van tyres can be safely repaired; principally punctures to the central area of the tread that are less than 6mm in diameter. Repairs to the sidewalls, other than for cosmetic damage, may not assure the structural integrity of the tyre and are not approved. In all cases tyre repairs should be carried out by a trained and competent operator.

BTMA only condones tyre repairs which are carried out in accordance with the recommendations in the prevailing issue of British Standard BS AU 159. Before commencement, consumers are advised to confirm with the Repairer that all repair work will be carried out in accordance with the British Standard.

A summary of the main points contained within BS AU 159 is shown below.



**Repair in area 'T' only, requiring one of the following:**

- a) Rubber only combination plug patch.
- b) Rubber only patch and penetration filling material.

**Note:** Insertion of a tube in a tubeless tyre is not considered a suitable alternative to a permanent repair

**Note:** Minor surface rubber repairs (i.e. no penetration or ply damage) using penetration filling material only, are permitted anywhere on the exterior of the tyre without limits.

Repairable area 'T' defined as percentage of nominal section width of tyre		Maximum diameter of penetration damage at base of injury in area 'T' mm (after preparation)
Nominal Section Width mm	%	
Up to and including 155	60	6
Over 155 and up to 200	65	6
Over 200	70	6

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**Calculated width values for area 'T'**

Nominal tyre section width	'T' Value mm
125	75
135	81
145	87
155	93
165	107
175	114
185	120
195	127

Nominal tyre section width	'T' Value mm
205	144
215	151
225	158
235	165
245	172
255	179
265	186
275	193

Nominal tyre section width	'T' Value mm
285	200
295	207
305	214
315	221
325	228
335	235
345	242

**Procedure**

**1. INITIAL INSPECTION**

- a) **In the interests of safety**, if it is necessary to partially inflate the tyre to locate the injury/penetration, proceed with caution in 5 psi increments and do not exceed 15 psi.
- b) Remove the tyre from the wheel and thoroughly inspect, both internally and externally.
- c) Do not undertake repair if the tyre exhibits any of the following:-
  - Inadequate tread depth (legal minimum 1.6mm).
  - Splits, cuts, rubber crazing/cracking reaching the casing.
  - Casing break-up.
  - Previous repairs outside the scope of BS AU 159 unless they are specialist repairs carried out by the original tyre manufacturer.<sup>1</sup>
  - Significant contamination by solvents etc.
  - Bead damage, including broken bead core.
  - Liner deterioration.
  - Secondary effects, e.g. under-inflation/deflation damage or savaging by the point of a penetrating object.
  - Exposed cords due to tread wear or sidewall scuffing.
  - Tread or sidewall rubber separation.
  - Belt separation (radial ply tyres).

<sup>1</sup> Tyres with major repairs conforming to the British Standard should be marked internally **BS AU 159** adjacent to the repair together with the repairer's name and identification mark.

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### 2. PREPARATION AND REPAIR

- a) Ensure that the tyre is clean and dry.
- b) Determine the angle of penetration.<sup>2</sup>
- c) Prepare the penetration channel with minimal use of a rotary mill cutter or similar.
- d) Remove all loose and visibly oxidised material, buffing the rubber in the cavity and surrounding area to a suede finish.
- e) Clean an area significantly larger than the patch with solvent, removing all contaminants, e.g. mould releasing agents.<sup>3</sup>
- f) Hold the patch in position and mark its outline on the inner liner.
- g) Mechanically buff the inner liner to approximately 5mm beyond the marked area, removing any raised ribs and producing a flat, suede finish
- h) Remove dust and extraneous material, e.g. wire particles and fluffed cords.<sup>4</sup>
- i) Apply suitable repair material in accordance with manufacturer's instructions.

<sup>2</sup> If the angle exceeds 25°, a two piece repair system or rubber only patch with penetration filling material may need to be used (refer to manufacturer's instructions).

<sup>3</sup> If buffer liquids (solvents) are used, the area should **not** be considered buffed.

<sup>4</sup> A vacuum cleaner is recommended. Fibrous cloths and compressed air should **not** be used.

### 3. GENERAL NOTES

- a) Injuries in excess of those shown in the above tables and not having the non-repairable conditions listed in section 1c) should be submitted to an approved major repairer.
- b) There is no limit to the number of minor repairs in area 'T' provided that repair patches do not overlap.
- c) Tyres repaired to BS AU 159 are able to operate at their original speed and load capabilities.
- d) The following 'repair' methods are not recognised as acceptable:-
  - \* Liquid sealants.
  - \* Plugs applied externally to fitted tyres.
  - \* Inner tubes fitted to tubeless tyres.
  - \* Inner tubes fitted to 'tube type' tyres which have sustained penetrations and which have not been repaired in accordance with BS AU 159.
  - \* Temporary repairs.
- e) The British Standard does not apply to T-type temporary use spare tyres.<sup>5</sup>

<sup>5</sup> Temporary spare tyre designed for use at higher inflation pressures than for standard or reinforced (extra load) tyres.

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