



# Technical Bulletin

## REMA TIP TOP UNIVERSAL REPAIR UNITS

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**What is a Universal Repair?** The first thing that needs to be understood is that these units are made to work in both Bias and Radial tires. In other words, these units are not tied to any directional discipline with regard to the construction design of the tire, meaning bias construction or radial construction. They work in both types of tires.

**Why are some Universal Repairs round and others square?** Both designs are made for customer preference. Certain customers want this series of repairs to be of one design or the other to avoid confusion at the shop level as to what they are used for. One example would be that a square universal would indicate it should be used in the tire for a penetration repair, where the tube repairs in the same facility, might be round, indicating that the round unit should only be used on tube repairs.

**How can these be used on both tire constructions?** Universal repairs typically only cover small penetrations of 3/8" and below, are in the crown of the tire and can be supported with a stem insert at the injury channel. There are two primary designs for this type of repair from REMA TIP TOP....

1. **Rubber Reinforced – (UP-3, UP-45, UP-6, UP-8, UP-10)** This type of repair has an elastic pliable base layer of rubber compound to absorb the 'shear' forces of the tire as it footprints through the contact with the road. On top of that layer there is a layer of rubber that has very limited stretch elongation and acts as the reinforcement to the material body. The top layer is another soft layer of butyl rubber to inhibit air permeation through the patch body.
2. **Fabric Reinforced – (FRU-1, FRU-2)** These units are comprised of the same base layer to absorb shear forces. A small interwoven fabric is installed in the center of the body. The top layer is again a butyl compound to prevent air loss. The fabric layer is a square woven fabric that allows it to give in any direction. That is how this fabric can be used in either tire construction design.

**Why have two types?** This again goes back to customer preference. Even though extensive test wheel results are utilized to determine the optimum repair versus injury size, many customers prefer fabric reinforcement in their repair material. Other users prefer the simplicity of the rubber reinforced offering and stay true to that type. There is no right or wrong with either type if the charts are observed and appropriate fill material is used in the injury channel. Ultimately, we strive to have the smallest and lightest weight materials used so that the influence to imbalance or rotation harmonics remains minimal in today's lighter or ultra-high performance tires.

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REMA TIP TOP / North America, Inc.  
Automotive Division

119 Rockland Avenue • Northvale, NJ 07647  
Phone 800.225.REMA (7362) • Fax 800.338.REMA (7362)

[www.rematiptop.com](http://www.rematiptop.com)