MODEL ALL

Flat spot (flat spot/bald spot)

Because of the fact that time and again wheel assemblies (wheel and tire), when in a new condition, have to have unnecessary work performed on them due to "flat spots", we would like to offer our support here in the form of corresponding references with regard to subjective assessment.

How does one assess a flat spot?:

A flat spot is understood to be a local flattening on the tire in the center of tire contact, which is generally removed again after a few miles driving on the freeway.

Depending on the shape of the flat spot, this can take - in the most unfavorable case - a driving distance of up to 15 km.

Paintwork

During forced paint drying in the drying booth and from an object temperature of > 40 °C flat spots can be created on tires due to weight, temperature and drying period.

This refers here to a permanent, irreparable deformation in the area of the tire sidewall and the bead reinforcement. This permanent distortion leads to wheel load variations and vibrations which cannot be rectified either by balancing or by rematching the wheels.

In order to prevent flat spots, both conventional and special protection vehicles must have "dummy wheels" for painting mounted when brought into the painting/drying facility.

While inflating the standard tires to 4 bar does not provide adequate protection on standard tires, it is not necessary when "dummy wheels" are mounted. Covering the original tires with protective foils and protective plates is likewise inadequate.

How are flat spots caused?:

If tires heat up during a journey (e.g. high-speed runt) and/or are heated by external temperature influences, the tire contact patch will suffer plastic deformation during the subsequent cooling-down phase (standstill).

This deformation can lead to more or less powerful vibrations during the first few kilometers of a journey.

In principle, the size of a flat spot is dependent upon the vehicle weight, temperature and idle time. The tire make plays only a subordinate role among modern OE (Original Equipment) tires.

A permanent (irreversible) flat spot may be created through the influence of heating chambers (e.g. painting booth) or during long-term parking under extreme climatic conditions.

These types of deformation are only diminished to a certain degree.

Flat spots cannot be rectified by balancing the wheels, as this refers basically to increased radial-force variations and only to a small extent to any actual imbalance!

Idle time

Flat spots which occur due to long idle times >1 month, can be reformed again under certain conditions.

To avoid flat spots during extended idle times, the vehicle should be moved at least once a month by 0.5 to 1 m (120° wheel rotation).

Increasing the air pressure during the idle time worsens the shape restoration capability of the flat spots.