GLOSSARY OF TERMS

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Air Migration

The characteristic of pressurized air within a tyre to seek (migrate) a path through minute imperfections contained within the rubber and component layers to an area of lower pressure (outside). This tendency is amplified by heat generated from weight and rolling resistance and often results in tyre de-lamination, premature aging and shortened tyre life.

Alignment of Vehicle

A wheel alignment adjustment may be necessary if the vehicle pulls to the right or the left when the steering wheel is in straight ahead position. This is another indicator of the need for an alignment check is if tyres are wearing unevenly.

Anti-oxidant

Specialized chemicals designed to retard oxidation commonly associated with rusting or corrosion of metals exposed to air.

Anti-ozidant

Specialised chemicals designed to retard ozone contamination of rubber preventing premature aging, brittleness and retention of suppleness and pliability.

Balancing

At high speeds, tyres generate enormous centrifugal forces. Even tiny irregularities in the tyre of only a few grams are multiplied by many orders of size. Imbalance stresses tyres and suspension. Every time a tyre is fitted to a wheel, it should be balanced.

Bead

The portion of a tyre that seats against the rim flange. Encompassing high tensile steel wires wrapped and reinforced by plies.

Bead Leaks

Air leakage from inside a tyre that escapes between the tyre bead and the rim.

Bleeding

Slow emission of air and/or Punctureseal from a wound.

Belts

An assembly of plies extending from shoulder-to-shoulder of a tyre and providing a reinforcing foundation for the tread. In radial-ply tyres, the belts are typically reinforced with fine steel wire having high tensile strength.

Carcass or Casing

The main body of a tyre, includes the sidewall, belts (steel, if applicable) and surface beneath the tread that bears the load when the tyre is inflated.

Checking

Minute cracking in the rubber caused by aging and oxidation. (See "Weather Checking").

Cling

Describes the unique ability of Punctureseal to stay coated throughout the inner surface of the tyre and wheel.

Clot

When Punctureseal is forced into a wound, the fibers entwine and prevent air from escaping as the rubber recovers from the removal of a puncturing object.

Coat

When the proper amount of Punctureseal is installed into a tyre, there will be a sufficient amount of product to cover the inner surface of the tyre and wheel.

Cords
The strands forming the tyre plies.

Cost Per Mile
Total cost, including any repairs and recaps, divided by total mileage. In some cases, downtime may also be taken into consideration.

Crown
The tread region between the shoulders of a tyre.

Curing Process
Punctureseal's unique ability to set up and form (when exposed to ambient air) a positive and secure clot in a wound.

Date of Manufacture
The date of manufacture of a tyre is indicated on the tyre's sidewall at the end of the DOT serial number. Tyre manufacturers have adopted a standard identification system: four numbers, which indicate the week and the year of manufacture. For example, the figures 0201 indicate that the tyre was made in the second week of the year 2001. See chart in Knowledgebase > Tyre Technical for additional information regarding specific tyre markings and label.

Dry Rot
As a tyre ages, the tyre's composition is attacked by road contaminants, oxidation and ozone which reduce the flexibility and rubber recovery of all tyres. This aging process is inevitable, but with the addition of anti-oxidants and anti-ozidants by tyre manufacturers and Punctureseal, the tyre and casing are able to last much longer.

Dynamic Balance (aka Spin Balance)
A method of balancing a wheel and tyre assembly while it is spinning (usually above 300 rpm) to determine placement of corrective weights to insure smooth, balanced operation.

Flexing

The distortion and twisting of a tyre as it rolls along the road with the vehicle's weight and the uneven surface of the pavement. Turning also causes flexing. Flexing may be induced by hitting a tyre with a mallet or by bouncing the tyre.

Grooves

Circumferential channels between tread ribs.

High-performance Tyre

A passenger tyre designed for the highest speed and handling, generally having the speed symbol W, Y, or Z in the United States molded on the tyre sidewall and inflated to higher pressures than are normal passenger tyres.

Inner Air Cavity

The total area of the inside of the tyre and wheel forming an air chamber.

Inner Liner

Layers of low permeability rubber that are laminated to the inside of a tubeless tyre to ensure the air retention quality of the tyre body.

Life of the Tyre

Refers to tread depth. The actual amount of tread remaining on a tyre before it is required by the Federal law to be removed from service, typically 2/32î. A tyre worn beyond this measurement is past its legal life.

Light Truck Tyre (LT)

A tyre used on light-duty trucks. These tyres contain the prefix “LT” before the metric size designation. LT tyres are not regulated as passenger tyres.

Mask

To cover or hide significant damage to a tyre.

Memory

When a tyre is stretched or deformed, it will recover to its molded shaped. When a tyre sustains a puncture, the puncturing object punches a small hole and stretches the rubber in order to cause penetration. When the puncturing object is removed, the rubber returns to its original state. (See Rubber Recovery).

Mixing Tyres

It is recommended that all four tyres on a passenger vehicle be of the same size, construction and speed rating.

OEM (Original Equipment Manufacturer)

A manufacturer of original equipment on motor vehicles.

OE Passenger Tyre (Original Equipment Passenger Tyre)

A tyre that is provided as original equipment on new passenger vehicles. Such tyres are often designed for particular vehicles to the specifications of the automobile manufacturer.

Passenger Tyre

A tyre constructed and approved for use on passenger vehicles and that usually contains the prefix "P" before the metric size designation on the tyre sidewall. Federal Motor Vehicle Safety Standards and Uniform Tyre Quality Grading standards are established specifically for passenger tyres.

Performance Tyre

A passenger tyre intended to provide superior handling and higher speed capabilities and generally having a speed symbol of "H" or "V" in the United States.

Ply

Layers of fabric that make up the cord body of a tyre. A sheet of rubber-coated parallel tyre cords.

Ply Separation

A breakdown of the bonding compounds resulting in the plies detaching from each other. Usually as a result of excessive heat.

Pneumatic Tyre

An air-filled tube or tubeless tyre.

Porosity

Rubber is not solid. It contains many pores. These pores are known to link together to create a passageway (porosity) for air to escape from within the tyre.

Porosity Leaks

Refers to the air that is slowly escaping from a tyre. (See Porosity).

Positive and Secure Repair

An Punctureseal-formed repair that is airtight and will not dislodge or dissolve from exposure to water, external contaminants and tyre flexing.

Premature Tyre Failure

Any tyre that does not achieve the maximum mileage as rated by the tyre manufacturer.

Radial Ply

Tyre casing plies that cross the crown at a 90º angle where two or more plies of reinforced belts encircle the tyre under the tread.

Radial-ply Construction

A pneumatic tyre construction under which the ply cords that extend to the beads are laid at approximately 90º to the centerline of the tread. Two or more plies of reinforced belts are applied, encircling the tyre under the tread. Radial-ply tyres were introduced in Europe during the 1950s and came into common use in the United States during the 1970s.

Reserve

A tyre requires a specific amount of Punctureseal depending on its size. The required amount has been carefully calculated to provide the proper coating, plus an additional amount to provide for future punctures and a margin of safety.

Retread Tyre

A used casing that has a new tread rubber applied to it.

Return Spout

A special collar attached to the Punctureseal pail or drum designed to hold the installation pump in place. It contains a valve resembling a tyre valve referred to as the "return spout". It provides a location to secure the hose and vent back-pressure built up from the sealant installation process. Additionally, it blocks air from entering the Punctureseal container, hose or accessories between installations. (See Shut-Off Valve).

Rim Diameter

The diameter of a wheel measured at the intersection of the bead seat and the flange. The rim diameter is listed in the size designation on the passenger tyre sidewall. Common rim diameters for passenger tyres range from 13 to 20 inches.

Rolling Resistance

Rolling resistance is caused by the deformation of a rubber tyre at the point where it meets the surface on which it travels. Tyres are not rigid, but flexible. During driving the tyres compress, and

flex. This flexing absorbs energy, converting it into heat. The lower the air pressure and/or the higher the force exerted on the tyre, the larger the coefficient (resistance).

Rolling resistance is also the function of the type of rubber used. In order to reduce rolling resistance, manufacturers use special rubber compounds. Also, tyres are not made entyrely of rubber, but contain structures that make them more robust, i.e. bias-play tyres vs. steel-belted radials.

Any reduction in the rolling resistance of the tyre helps reduce fuel consumption. To reduce rolling resistance, it is recommended to check tyres' air pressure regularly.

Run-flat Tyre

A type of pneumatic tyre constructed of special materials, supports, and configurations that allow it to travel for a limited distance and speed after experiencing a loss of most or all inflation pressure. While these tyres usually have greater weight and resultant rolling resistance, they permit the elimination of storage space and weight associated with a spare tyre and jack.

Rubber Recovery

When a tyre is stretched or deformed, it will recover to its molded shaped. When a tyre sustains a puncture, the puncturing object punches a small hole and stretches the rubber in order to cause penetration. When the puncturing object is removed, the rubber returns to its original state. (See Memory).

Sealed Air Chamber

A tyre and wheel assembly that has been treated with Punctureseal creating an airtight chamber capable of retaining air pressure indefinitely.

Section Height

The linear distance between an inflated, unloaded tyre's overall (outside) tread diameter and the intersection of the bead seat and flange.

Section Width

The linear distance between the outside sidewalls of an inflated, unloaded tyre (not including decorations such as lettering) when mounted on the measuring rim. Treads are always narrower than the section width.

Self-Sealing Tyre

Any pneumatic tyre treated with Punctureseal becomes a self-sealing tyre capable of maintaining proper air pressure and sealing punctures as they occur.

Shoulder

Outer edges of the tread area connecting the sidewalls.

Shut-Off Valve

A component of the tools needed to install Punctureseal. This unit is connected to the outer end of the pump hose between the hose end and the Quick Disconnect. Its sole purpose is to trap the pressure that is accumulated in the hose and the pump after servicing a tyre filled with air. By trapping the pressure, the Shut-Off Valve will prevent Punctureseal from squirting onto the tyre and wheel when the VCR is removed from the valve stem and placed on the Return Spout. (See Return Spout).

Sidewall

The portion of the tyre between the tread shoulder and bead.

Speed Rating

A letter assigned to a tyre denoting the maximum speed for which the use of the tyre is rated (e.g., S=112 mph, H=130 mph). The speed rating is contained in the tyre size designation molded on the sidewall.

Temporary Spare Tyres

Temporary spares are designed to carry the same load as the standard size tyre on your vehicle and can be applied to any position. Maintain the proper inflation pressure as shown on the sidewall of the tyre, it requires a higher inflation pressure than a standard size tyre. Refer to the information on the sidewall of the tyre for proper usage & speed restrictions. With such a tyre, a vehicle may be operated until it is convenient to repair or replace the disabled tyre. Have your standard tyre repaired or replaced as soon as possible, then return the temporary spare to the trunk to conserve its useable tread life. The temporary tyre can be worn down to the tread wear indicators, same as your standard tyre. At such time the tyre must be replaced.

Thixogel™

Thixogel™ is a proprietary combination of environmentally friendly chemical components that form the foundation of the liquid fiber matrix that together with over 25 chemical and fiber ingredients is Punctureseal. Thixogel™ creates a bond that holds the liquid and fiber ingredients in suspension remaining consistent even when subjected to heat, sheer and centrifugal force. This allows the proper balance of liquid and fiber to be present should a puncture occur.

Thixotropic

The visco-elastic property of Punctureseal's proprietary formula that provides a uniform and even coating that remains consistent when subjected to sheer and heat created within a rotating wheel and tyre.

Punctureseal

Punctureseal is a tyre sealant and tyre life extender. The defining difference between Punctureseal and all competitors' products is that the competitor product are primarily limited to puncture sealing. Punctureseal has the unique ability to evenly coat a tyre's interior with a chemically consistent liquid fiber matrix that effectively forms an airtight chamber that greatly improves air pressure retention.

Punctureseal's proprietary Thixogel™ resists the effect of centrifugal force that typically pulls liquid coatings away, preventing uniform and consistent coating. In addition, Thixogel™ forms a chemical bond that is unbroken by heat and sheer preventing Punctureseal from degrading or separating. All of these factors contribute to cooler running tyres, enhanced tread and casing life, reduced ply separation, and the ability to seal punctures up to ¼" (½" for XHD formula) in the tread area as they occur. Test data and field reports confirm that Punctureseal-treated tyres last up to 25% longer.

Tyre-Related Downtime

Vehicle operating time loss due to tyre-related failure.

Tyre Valve

The valve, fitted in the wheel, ensures that the tyre can be filled with air. The correct valve is required for the correct wheel/tyre assembly, this is the job of the tyre dealer. The cause of a slow loss of air pressure can be a defective valve. The valve cap should always be fitted to the valve in order to protect the valve core from dirt and moisture.

Tyre Valve Cap

The valve cap, although small, has a very important job: it protects the sensitive valve internals from dust, dirt and humidity. If valve caps are lost they should be replaced immediately in order to avoid expensive damage later.

TPMS (Tyre Pressure Monitoring System)

A warning system in motor vehicles that indicates to the operator when a tyre is significantly under-inflated. Some systems use sensors in the tyre to transmit pressure information to a receiver. Some do not have pressure sensors, but rely on wheel speed sensors to detect and compare differences in wheel rotational speeds, which can be correlated to differences in tyre pressure.

Tread

The peripheral portion of the tyre designed to contact the road surface. The tread band consists of a pattern of protruding ribs and grooved channels on top of a base. Tread depth is measured on the basis of groove depth. Traction is provided by the tread.

Tread Area

The surface of a tyre that is in contact with the road. (See Crown and Tread).

Tread Compound

The general term that refers to the chemical formula of the tread material. The compound consists of polymers, reinforcing fillers, and other additives that aid in processing and slow degradations from heat, oxygen, moisture, and ozone.

Tread Depth

The distance from the top of the tread to the base (depth) of the tread grooves, measured in 32nds of an inch from the centre line of the tread.

Tread Design

The pattern of the tread.

Tread Separation

Pulling away of the tread from the tyre casing, normally caused by heat as a result of porosity (air migration).

Tread Wear

The tread wear grade is a comparative rating based on the wear rate of the tyre when tested under controlled conditions on a specified government test track. A tyre graded 200 would wear twice as long on the government test course under specified test conditions as one graded 100. It is wrong to link tread wear grades with your projected tyre mileage. The relative performance of tyres depends upon the actual conditions of their use and may vary due to driving habits, service practices, differences in road characteristics and climate.

Tread Wear Life

Total miles travelled by a tyre until its tread wears out, which is usually defined as a remaining groove depth of 2/32 inch for a passenger car tyre that exhibits even wear.

TWI (tread wear indicator)

Tread wear indicators ("wear bars") are located at the base of the main grooves and are equally spaced around the tyre. Always remove tyres from service when they reach a remaining tread depth

of two thirty-seconds of an inch (2/32"). If not corrected, wet weather accidents are more likely to happen due to skidding on bald or nearly bald tyres. Also, excessively worn tyres are more susceptible to damage from road hazards. Built-in tread wear indicators, or "wear bars," which look like narrow strips of smooth rubber across the tread, will appear on the tyre when that point of wear is reached. When you see these wear bars, the tyre is worn out and it's time to replace the tyre.

Viscoelastic

A viscoelastic material is characterized by possessing both viscous and elastic behaviour. A purely elastic material is one in which all energy stored in the material during loading is returned when the load is removed. In contrast, a purely viscous material stores no strain energy, and all of the energy required to deform the material is simultaneously converted into heat. Some of the energy stored in a viscoelastic system is recovered on removal of the load, and the remainder is dissipated as heat. Rubber is a viscoelastic material.

Weather Checking

A condition that appears as cracks in the sidewall typically caused by UV exposure and environmental contaminants.