

Ralph's Accident Reconstruction Newsletter

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passenger vehicles and light trucks, the “good” tires should always be on the REAR axle, not the front, because of the understeer inherent in those vehicles. Cars and light trucks are designed, at the handling limit, to steer less than the steering angle; in effect, the steering axle scrubs forward. If the rear tires track outside the front tires in a turn, you are usually in big trouble!

Tires should always be replaced in pairs on a given axle. Both tires on an axle should be identical in manufacturer, brand, size, type, load and speed ratings, tread depth, etc. If you have a flat, you can drive, at reduced speeds and with extra caution, on a space-saver spare tire or full-size tire of the same size but otherwise dissimilar until you can get the flat repaired. If the flat cannot be repaired, prudence indicates that you should buy a new tire; you might need to buy two new tires if the tire that didn't fail has significant tread wear. There are some vehicles which have different sizes and/or widths of tires front-to-rear, but, for most vehicles, all four tires should be the same size, type, and load and speed rating.

Overinflation causes excessive wear on the center section of the tread. Underinflation causes excessive wear on the edges of the tread. An additional hazard associated with prolonged operation in an underinflated condition is that the tire flexes excessively in service, which is likely to cause tire failure due to ply and/or tread separation. The excessive flexing causes internal (ply) overheating, which is the nemesis of a pneumatic tire. Operation in an underinflated condition is more properly called overdeflection, because the tire experiences more flexing from that deflection than it was designed to withstand. Proper inflation will give the best tread life and traction; underinflation risks overdeflection damage, while overinflation generally increases the susceptibility of a tire to impact-induced sudden failure. When in doubt, consult your tire retailer—it's his job to sell you tires which will safely provide the level of performance you need or want, and he will have tables which list the proper inflation pressures for all common tire sizes as a function of the weight being carried by the tire. Once you have determined, by whatever means work for you, what the proper inflation pressures are for your tires on your vehicle, inflation pressure and tread wear should be checked with some regularity. Most vehicle operators should rotate their tires, usually at 6000-mile intervals.

Many people are accustomed to operating their vehicles with very little load: one or two people and/or little or no cargo. If you plan a long trip with the whole family or need to haul a full load a significant distance, you should increase the inflation pressures in your tires to compensate for the added weight. Remember to deflate them slightly when you return the vehicle to normal service. Tire pressures are for “cold” tires, which means, before you drive somewhere in the morning. Tire pressure gauges are generally accurate and very inexpensive—buy one if necessary to enable you check your inflation pressures when your tires are cold. The “hot” tire pressures will be 2, 3, 4, and possibly even more psi higher than the cold tire inflation pressures.

If you see a person with an unsafe tire condition, please warn him—that warning could save his life! And please take proper care of the tires on your vehicles.

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