Speed Kills

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Ever wonder why the devastation in a high-speed accident is so great? After all, a 10mph collision is normally just a fender bender, but a 40mph collision practically destroys the vehicle. 4 times the speed, 4 times the damage, right?…**WRONG!** 4 times the speed, **16 times the damage**. Mother Nature has thrown us a curve ball here, in that kinetic energy (the energy contained in a moving object) is a function of the *square* of the velocity. Think about it…that cute little 2000 pound Honda Del Sol packs the same wallop at 80mph as that hulking 32,000 pound Mack Truck does at 20mph, even though the truck outweighs the little car by *16 times*.

OK, so twice the speed; 4 times the energy (or destructive potential), 3 times the speed; 9 times the energy, 4 times the speed; 16 times the energy, etc, etc…I'm sure you get the idea.

Now, lets throw that curve ball back at Mother Nature. Cut your speed in half and you've reduced that pesky potentially destructive energy level by…you guessed it…4 times.

Bottom line…a little more speed = a *lot* more potential for destruction

…a little ***less*** speed = a *lot* more safety…think about it.

Friction, Your Worst Enemy, or Your Best Friend?

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Last year, I attended the Area Dental Lab Workshop in Colorado Springs. While riding the shuttle van to our hotel, my partner in crime, Mr. Nick Maratos, and myself were nearly converted into two hapless, unwitting statistics; two needles in the haystack of traffic mishaps that so epitomize Colorado Springs. On that evening, however, friction was our best friend… There we were, vehicle #4 in a train of speeding, tailgating vehicles barreling down Hancock Avenue. For reasons known but to himself and the almighty, the dolt driving vehicle #1 slams on the binders. Vehicles #2 and #3, with brakes fully locked, slid into vehicle #1 with a couple of nice, resounding thuds. When I saw our driver stand on the brakes hard enough to tear his seat right out of the floor pan, every instinct I had told me that we, too, were going to slide right into the melee unfolding in front of us. But we didn't…we stopped in time. There was no skidding; no screaming tires… just a controlled, maximum performance stop. I'm here to tell you first hand anti-lock brakes really do work! They work because they take advantage of a property called coefficient of static friction. Let's digress briefly into this friction thing.

There is a law of physics that states that the coefficient of *static* friction (non-sliding) between two surfaces (your tires and the road, for instance), is greater than the coefficient of dynamic (sliding) friction. (There are exceptions to this law, but for this discussion they're non-applicable.) Simply stated, your tires can stop you faster if they're *not* sliding across the surface of the road. As an added bonus, Mother Nature has thrown in this little caveat as well; *don't skid, and aside from stopping faster, you'll also maintain directional control of your vehicle* (a two for one deal!). That's right, lock 'em up and your rig assumes all the dynamics of a hockey puck zipping across the ice. Porsche, Ferrari, BMW, doesn't matter…skid 'em and they're all hockey pucks. Granted, the anti-lock (ABS) brakes on modern cars make not skidding virtually a no-brainer, but not all cars are "modern" are they. If you're ever faced with a panic stop situation and you don't have ABS in your corner, you'll need to use a little finesse, and modulate braking pressure so your tires come just shy of breaking loose. Granted, this is difficult, and the back tires will probably break loose anyway (especially in an unladen pick-up), but the front tires do 90% of the stopping, concentrate on them.

So you see, despite what you read on that quart of motor oil, friction can indeed be your best friend…think about it.