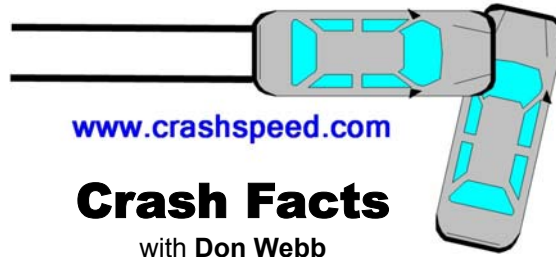


ACCIDENT ANALYSIS SERVICE



Crash Facts Scenario 3

Weight v. Speed Solution - July 2006

Solution

The facts of Scenario 3 were:

At 50 mph, which vehicle will skid further with all tires skidding, one that weighs 5000-pounds or one that weighs 1500-pounds?

To solve this problem, one can go back to high school physics. Remember the experiment when you dropped a lead ball and a marble from the same height to see which one hit the ground first? You were probably surprised when they both hit the ground at the same time and realized that weight does not matter.

The same principle applies in this case. At 50 mph, the 5000-pound vehicle and the 1500-pound vehicle will skid the same distance. Of course, it has to be along the same surface and the brakes must lock-up at 50-mph. Weight does not matter.

Where weight matters is the amount of energy that is dissipated during the skid (or when the lead ball

hit the ground). At 50 mph, the 5000-pound has 3.3 times the kinetic energy than the smaller vehicle, thus the larger vehicle has the potential to do more damage.

Crash Facts Scenario 4

Treaded Tires v. Slick Tires

Did you know that a vehicle with worn tires and no tread will skid to a stop in a shorter distance, at a given speed on dry pavement, than new *stickier tires*? This seems counter intuitive, but it is true. The reason for this phenomenon is there is more *contact area* between the tire and road surface than with treaded tires. However, add water to the road surface and the skidding distance increased dramatically compared to the treaded tire. The treaded tire is a design compromise between providing optimum handling-braking on wet and dry surfaces.

There is a format change to *Accident Facts*. I will respond to your questions regarding accident investigation or present facts that may interest you like the tire issue above. Email your questions or comments to: donwebb@crashspeed.com. ❖