

THE SAFETY CHAIN

Exploring the weakest link before it affects you

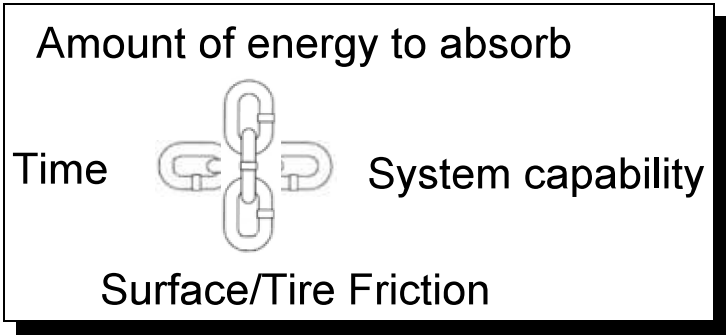
Driving in Slick Conditions

The effects of various braking systems, by Larry Pierson, Swannanoa Fire Department, December 2003

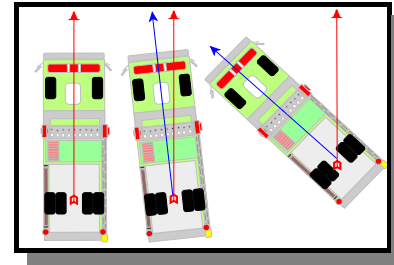
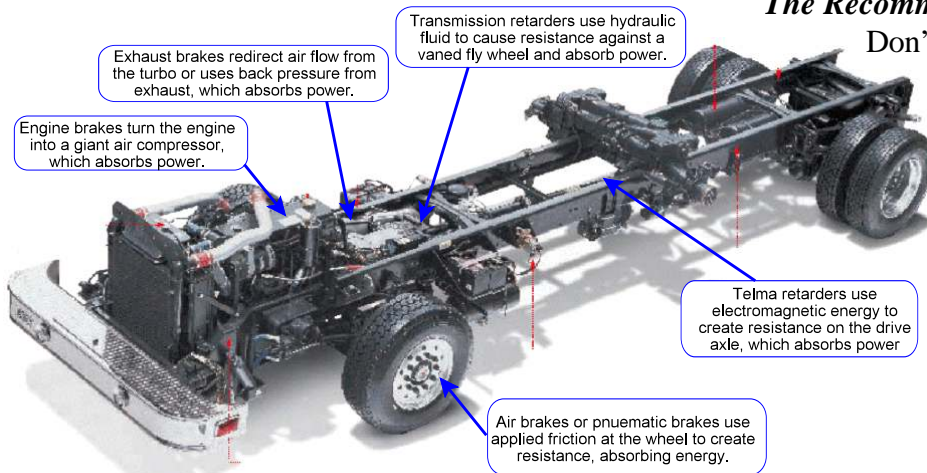
The problem

The problem seems obvious when considering the extreme side of things. Most people could realize that stopping a 30,000lb vehicle takes some work and that snow, ice and other slick conditions compounds it. But where is the breaking point for braking systems? What we will refer to as the breaking point is the issue of in control or out of control.

What assists in maintaining control is basic set of four factors. The amount of energy that would need absorbed (and it's direction), the weight of the vehicle and it's speed combined. The time in which the amount of energy needs to be absorbed. The capability of the system, either by literal capability by design or by maintenance issues. The combination of friction potential of the road surface and the tire's surface.



We have all been taught that rapid brake applications on snow or ice will cause loss of control, essentially because of the four factors listed above, but why are there special concerns when using auxiliary



braking systems? It's really the braking system as much as it is how the driver/operator is typically using those systems.

Auxiliary brakes are not supposed to be used as the primary braking device. Too often, drivers will approach intersections, stopped vehicles and in general drive faster because of their confidence in the capabilities of the system beyond the normal abilities of air brakes. So, in reality, we are off on a bad start. The amount of energy to absorb and the time factor are increased by normal, but not good, driving habits.

But what negative affect can the Auxiliary brake systems cause during slick conditions? It may be more about the predictability of when and how much the system responds. The sudden deceleration caused by simply letting your foot off the pedal may cause the factors to increase beyond the control limit even though you "didn't mean to", similar to a rapid braking scenario. Even in High & Lo settings on different systems, a particular amount of deceleration is applied suddenly. What is missing is the driver's ability to apply a variety of pressures from the main braking system, without forgetting that improper air brake application can cause the same thing.

The Recommendations

Don't simply disregard the auxiliary braking system during slick conditions, it still may be used at very slow speeds downhill as part of "hold-back", but not by decreasing speed. Manufacturers usually recommend turning the brake system off during such conditions. My recommendations..... **go slow in the beginning so you don't have slow down at the end.... that is the weak link.**

