

“KEEPING PACE” - #51

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TRUCK COEFFICIENT OF FRICTION:

In an accident situation, a large truck is doubly dangerous to an automobile because of its size and momentum. But it is also true that a large truck can travel twice as far during a panic stop as an automobile does. The average coefficient of friction for an automobile is 0.74, while the best a truck can do when all of its brakes are properly adjusted is 0.55. However, it is very difficult to keep the brakes on a truck perfectly adjusted, so the FMVSS standards allow the coefficient of friction for a truck during a panic stop to be as low as 0.35.

The stopping distance is inversely proportional to the coefficient of friction, so a truck can go $.74/.35 = 2.11$ times as far during a panic stop as an automobile. This computes to 288 feet vs. 136 feet at 55 mph.



The above concrete truck had no brakes on its front wheels, by design. During a skid test from 26 mph, the rear tires left 48 feet of skid marks, which corresponds to a coefficient of friction of 0.47. An accelerometer which I had inside the truck at the same time recorded 0.44. At 26 mph, the average car would come to a stop in 30 feet.

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G.M. RECALL:

A significant fire in this engine compartment had left the small burn pattern on the hood pointed out by the arrow. That seemed to indicate the area of fire origin, and it was directly above where the power steering hose had been located, close to the hot manifold. I suspected that the hose had come in contact with this manifold, so I looked at similar new vehicles at this car dealership in Batavia, Ohio. In about half of them, the rubber hose had been made too long during manufacture and it lay directly in contact with the manifold.

I showed this situation to the owner of the dealership and I illustrated it in my report. General Motors paid 100 percent to my client insurance company for this subject car, and also for another one subrogated by the same client. Three months later, G.M. issued Recall Number 86-C-10 for this problem.

Sincerely,

Frederick F. Franklin, P.E.
Forensic Engineer